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Dear Student,

As a James Madison University student, you have many opportunities to make choices that will affect your success at JMU and your future life. Some of them will be made in organizational or social settings outside the classroom. Many of these choices, however, are important ones concerning your academic preparation at JMU. This document, the James Madison University *2017-2018 Undergraduate Catalog*, is an important reference for you (whether you use the printed version or the online version). This catalog offers a comprehensive view of academic life at JMU and the thousands of different courses available to you as you craft your learning experiences.

Take care in choosing your classes. You need to carefully select the necessary courses to fulfill your particular degree requirements and also consider other educational experiences as well. Challenge yourself as you make your decisions. Explore the world of knowledge and opportunities here at JMU. Make use of the many resources available to support your success. Remember: your educational foundation at James Madison University will help prepare you for all of life's opportunities.

Your intellectual enrichment and your collegiate experience will foster personal growth and include life-forming decisions. Enjoy your college years. I extend my best wishes to you for a wonderful and rewarding year at JMU.

Sincerely,

A handwritten signature in cursive script that reads "Jonathan R. Alger".

Jonathan R. Alger  
President

MSC 7608  
91 Alumnae Dr.  
Harrisonburg, VA 22807  
Office of  
THE PRESIDENT 540.568.6868 Phone  
540.568.2338 Fax

# University Calendar

## Fall Semester

### Fall Semester 2017

#### August 22-23, Tuesday-Wednesday

Residence halls open for freshmen on assigned days.

Dining Services open on Tuesday, August 22nd and fall meal plans begin at 5 p.m. for freshmen.

#### August 25, Friday

Opening Faculty Meeting.

Freshman Assessment Day.

Residence halls open for transfer and international students.

#### August 26, Saturday

Residence halls open for returning students.

#### August 28, Monday

Classes meet as scheduled.

#### September 15, Friday

Last day to withdraw from the university with cancellation of tuition charges and refund.

#### September 22-24, Friday-Sunday

Family Weekend.

#### October 13, Friday

Last day to submit an application for a baccalaureate degree if graduation requirements are to be met in May or August 2018.

#### October 13, Friday

First Block courses end.

#### October 16, Monday

Second Block courses begin.

#### October 19, Thursday

Mid-semester grades due in the Office of the Registrar.

#### October 24, Tuesday

First Block course grades due in the Office of the Registrar.

#### October 27-29, Friday-Sunday

Homecoming.

#### November 6, Monday

Registration begins for 2018 spring semester.

#### November 17, Friday

Dining Services closes at 7:30 p.m.

#### November 18, Saturday

Thanksgiving holiday begins and residence halls close.

#### November 25, Saturday

Residence halls open. Dining Services open at 4:30 p.m.

#### November 27, Monday

Classes resume.

#### November 27, Monday

Last day for students to submit work to faculty for 2017 spring semester and 2017 summer session for removal of "incomplete" grades.

#### December 8, Friday

Last day of classes.

Last day for faculty to turn in removal of "incomplete" grades for 2017 spring semester and 2017 summer session to the Office of the Registrar.

#### December 9-15, Saturday-Friday

Final Examinations.

#### December 15, Friday

Residence halls close. Dining Services close and fall meal plans end at 2 p.m.

Deadline for completion of course work for December graduates.

#### December 16, Saturday

Commencement begins at 10 a.m. in the Convocation Center.

Residence halls close for graduating seniors.

#### December 18, Monday

Regular semester and Second Block course grades due in the Office of the Registrar by 3 p.m.

## Spring Semester

### Spring Semester 2018

#### January 7, Sunday

Residence halls open.

Spring meal plans begin and Dining Services open at 5 p.m.

#### January 8, Monday

Classes meet as scheduled.

#### January 15, Monday

Martin Luther King Jr. Holiday. Classes do not meet.

#### January 26, Friday

Last day to withdraw from the university with cancellation of tuition charges and refund.

#### February 6, Tuesday

Student Assessment/Faculty Assistance (No classes 8 a.m. - 4 p.m.)

Evening classes (those beginning 4 p.m. or later) meet as scheduled.

#### February 27, Tuesday

First Block courses end.

#### March 2, Friday

Mid-semester grades due in the Office of the Registrar.

Dining Services close at 2 p.m. Residence halls close.

#### March 5-9, Monday-Friday

Spring Break. Classes do not meet.

#### March 11, Sunday

Residence halls open. Dining Services open at 5 p.m.

#### March 12, Monday

Classes resume.

Second Block courses begin.

**March 13, Tuesday**

First Block course grades due in the Office of the Registrar.

**March 16, Friday**

James Madison Day.

**March 19, Monday**

Advance registration for 2018 summer session begins.

**April 2, Monday**

Registration begins for 2018 fall semester.

**April 12, Thursday**

Last day for students to submit work to faculty for 2017 fall semester for removal of "incomplete" grades.

**April 13, Friday**

Last day to submit a graduation application if graduation requirements are to be met in December 2018.

**April 26, Thursday**

Last day of classes.

Last day for faculty to turn in removal of "incomplete" grades for 2017 fall semester to the Office of the Registrar.

**April 27 - May 3, Friday-Thursday**

Final Examinations. University housing checkout process.

**May 3, Thursday**

Residence halls close for undergraduate students.

Spring meal plans end and Dining Services close at 7 p.m.

Deadline for completion of course work for May graduates.

**May 3-5 Thursday-Saturday**

Commencement Ceremonies.

**May 8, Tuesday**

Regular Semester and Second Block course grades due in the Office of the Registrar by 3 p.m.

## Summer Sessions

### Summer 2018 Sessions (Undergraduate)

#### Ten-Week Term

**May 7, Monday**

Registration and fee payment.

Classes meet as scheduled.

**May 28, Monday**

No classes. Holiday - Memorial Day.

**July 4, Wednesday**

No classes. Holiday - Fourth of July.

**July 13, Friday**

Final Examinations.

Deadline for completion of course work for summer graduates.

#### Eight-Week Term

**May 7, Monday**

Registration and fee payment.

Classes meet as scheduled.

**May 28, Monday**

No classes. Holiday - Memorial Day.

**June 29, Friday**

Final Examinations.

**July 4, Wednesday**

No classes. Holiday - Fourth of July.

**July 13, Friday**

Deadline for completion of course work for summer graduates.

#### Six-Week Term

**June 4, Monday**

Registration and fee payment.

Classes meet as scheduled.

**July 4, Wednesday**

No classes. Holiday - Fourth of July.

**July 13, Friday**

Final Examinations.

Deadline for completion of course work for summer graduates.

#### 1st Four-Week Term

**May 7, Monday**

Registration and fee payment.

Classes meet as scheduled.

**May 28, Monday**

No classes. Holiday - Memorial Day

**June 1, Friday**

Final Examinations.

**July 13, Friday**

Deadline for completion of course work for summer graduates.

#### 2nd Four-Week Term

**June 4, Monday**

Registration and fee payment.

Classes meet as scheduled.

**June 29, Friday**

Final Examinations.

**July 13, Friday**

Deadline for completion of course work for summer graduates.

#### One-Week Term

**May 7, Monday**

Registration and fee payment.

Classes meet as scheduled.

**May 11, Friday**

Final Examinations.

**July 13, Friday**

Deadline for completion of course work for summer graduates.

# About the University

James Madison University is a public, comprehensive university and is the only university in America named for James Madison. The university places great emphasis on the quality of the undergraduate student experience in its bachelor's level programs and offers a complementary array of distinguished master's, educational specialist and doctoral programs aimed at meeting specific state and national needs. JMU provides a total education to students – one that has a broad range of the liberal arts as its foundation and encompasses an extensive variety of professional and pre-professional programs, augmented by a multitude of student engagement experiences outside the classroom. The value and quality of the JMU experience has been recognized repeatedly in many national publications.

Enhancing quality in engaged learning is a priority for JMU. A national study found that 81 percent of employers want colleges to place more emphasis on "critical thinking and analytic reasoning" and 75 percent want more emphasis on "ethical decision making" (Raising the Bar: Employers' Views on College Learning in the Wake of the Economic Downturn, AAC&U and Hart Research Associates (2010)). In 2013, JMU launched a major university-wide effort called The Madison Collaborative: Ethical Reasoning in Action with the purpose of teaching ethical reasoning skills to every student at the university.

First year students are introduced to the Madison Collaborative during orientation, and exposure continues through campus programming, the General Education curriculum and courses in majors. It teaches students how to apply a set of reasoning skills to evaluate implications of different courses of action in their personal, professional and civic lives. The Madison Collaborative ties directly to the university's mission of "preparing educated and enlightened citizens."

## Mission Statement

We are a community committed to preparing students to be educated and enlightened citizens who lead productive and meaningful lives.

## History

Since its establishment in 1908, James Madison University has grown from a small state normal and industrial school for women to today's coeducational comprehensive university with a fall 2014 enrollment of 20,855 students.

The university was founded in 1908 as the State Normal and Industrial School for Women at Harrisonburg, with Julian Ashby Burruss as its first president. The school opened its doors to its first student body in 1909 with an enrollment of 209 students and a faculty of 15. Its first 20 graduates received diplomas in 1911. In 1914, the name of the school was changed to the State Normal School for Women at Harrisonburg. The school received authorization to award bachelor's degrees in 1916. During this initial period of development, Burruss' administration established the campus plan and constructed six buildings.

After Burruss resigned in 1919, Dr. Samuel Page Duke became the second president. Duke's administration erected nine major buildings.

In 1924, the university became the State Teachers College at Harrisonburg and continued under that name until 1938, when it was named Madison College in honor of James Madison, the fourth president of the United States. In 1946, the Duke administration admitted men as regular day students.

Following the retirement of Duke, Dr. G. Tyler Miller became the third president of the university in 1949 and remained until 1970. Miller's administration enlarged the campus by 240 acres and constructed 19 buildings. The administration also revamped the curriculum. In 1954, the expanding school received authority to grant master's degrees. The university became a coeducational institution in 1966. Dr. Ronald E. Carrier became JMU's fourth president in 1971. His administration changed Madison College into a university. In 1977, the university adopted its current name, James Madison University. The Carrier administration nearly tripled the number of students and university faculty members and constructed some 30 major campus buildings. Doctoral degrees were authorized in 1994.

Dr. Linwood H. Rose was named JMU's fifth president in September 1998. Under his leadership, JMU was continually recognized in national publications as one of the nation's finest institutions of its type. More than 20 new academic programs were implemented, 25 major buildings were constructed, a Phi Beta Kappa chapter was installed and the university successfully completed its first capital campaign. Before being named president, Rose had served as a member of the institution's administration for 23 years.

Mr. Jonathan R. Alger became JMU's sixth president in July 2012. Before coming to JMU, Mr. Alger served as the Senior Vice President and General Counsel at Rutgers University. In his first year in office, Mr. Alger embarked on an extensive listening tour with constituencies on and off campus to discuss the university's future as an institution fully engaged with ideas and the world. He also appointed the Madison Future Commission to help craft a comprehensive strategic plan for the next chapter of the university's history.

## Administration

The general responsibility for the administration of the university has been assigned to the president, who is appointed by the JMU Board of Visitors. When the board is in recess, its executive committee may exercise the power of the board.

Assisting the president in the administration of the university are the provost and senior vice president for academic affairs, the senior vice president for administration and finance, the senior vice president for student affairs and university planning, the vice president for access and enrollment management, the vice president for university advancement, the executive director for campus and community programs for access and inclusion, university counsel, and the executive assistant to the president.

Appointment to these positions and to the university's instructional and administrative faculty is made by the JMU Board of Visitors upon the recommendation of the president.

## James Madison University Administration

### Board of Visitors

Ms. Vanessa M. Evans-Grevious (Rector), Charlottesville, VA

Mr. Michael B. Battle, Clarksville, MD

The Honorable William T. Bolling, Mechanicsville, VA

Mr. Warren K. Coleman, (Vice Rector), Richmond, VA

Mr. Jeffrey E. Grass, Arlington, VA

Mr. Matthew A. Gray, Richmond, VA

Ms. Maribeth D. Herod, Herndon, VA

Ms. Lucy Hutchinson, New York, NY

Ms. Maria D. Jankowski, Richmond, VA

Ms. Deborah T. Johnson, Woodbridge, VA

Ms. Lara P. Major, Purcellville, VA

Mr. Edward Rice, Vienna, VA

Mr. John C. Rothenberger, Great Falls, VA

Mr. Michael M. Thomas, Reston, VA

Mr. Craig B. Welburn, Manassas, VA

Mr. Eric Kaufmann (student member), Laytonsville, MD

Ms. Donna L. Harper (Secretary), JMU/Harrisonburg, VA

### Chief Administrative Officers

#### President

Jonathan R. Alger, J.D.

#### Senior Leadership Team

Brian J. Charette, Ed.D.

*Special Assistant to the President for Strategic Planning and Engagement*

Heather J. Coltman, D.M.A.

*Provost and Senior Vice President for Academic Affairs*

Art T. Dean II, M.Ed.

*Executive Director for Campus and Community Programs for Access and Inclusion*

Maggie Burkhart Evans, M.A.

*Executive Assistant to the President*

Donna L. Harper, Ed.S.

*Vice President for Access and Enrollment Management*

Charles W. King Jr., M.A.

*Senior Vice President for Administration and Finance*

Nick L. Langridge, Ph.D.

*Vice President for University Advancement*

Mark J. Warner, Ed.D.

*Senior Vice President for Student Affairs*

Susan L. Wheeler, J.D.

*University Counsel/Assistant Attorney General and Special Counsel*

### Deans

Cynthia M. Bauerle, Ph.D.

*Dean, College of Science and Mathematics*

Jie Chen, Ph.D.

*Dean, The Graduate School*

Mary A. Gowan, Ph.D.

*Dean, College of Business*

J. Christopher Arndt, Ph.D.

*Interim Dean, College of Arts and Letters*

Robert A. Kolvoord, Ph.D.

*Dean, College of Integrated Science and Engineering*

Sharon E. Lovell, Ph.D.

*Dean, College of Health and Behavioral Studies*

Adam L. Murray, Ed.D.

*Dean, Libraries and Educational Technologies*

Bradley R. Newcomer, Ph.D.

*Dean, Honors College*

George E. Sparks, Ph.D.

*Dean, College of Visual and Performing Arts*

Phillip M. Wishon, Ph.D.

*Dean, College of Education*

## Degrees at James Madison University

### Undergraduate Degrees

Bachelor of Arts  
 Bachelor of Business Administration  
 Bachelor of Fine Arts  
 Bachelor of Individualized Studies  
 Bachelor of Music  
 Bachelor of Science  
 Bachelor of Science in Nursing  
 Bachelor of Social Work

### Graduate Degrees

Doctor of Audiology  
 Doctor of Musical Arts  
 Doctor of Nursing Practice  
 Doctor of Philosophy  
 Doctor of Psychology  
 Educational Specialist  
 Master of Arts  
 Master of Arts in Teaching  
 Master of Business Administration

Master of Education  
 Master of Fine Arts  
 Master of Music  
 Master of Occupational Therapy  
 Master of Public Administration  
 Master of Physician Assistant Studies  
 Master of Science  
 Master of Science in Education  
 Master of Science in Nursing

## Organization

JMU consists of the following colleges and academic administrative units:

- College of Arts and Letters
- College of Business
- College of Education
- College of Health and Behavioral Studies
- College of Integrated Science and Engineering
- College of Science and Mathematics
- College of Visual and Performing Arts
- Libraries and Educational Technologies
- Honors College
- The Graduate School

## JMU Alumni

Office of Alumni Relations  
 (540) 568-6234  
<http://alumni.jmu.edu/>

JMU benefits from an active, enthusiastic and supportive alumni association. With more than 130,000 graduates, the JMU Alumni Association strives to develop a continuing interest in the university by providing opportunities for service, fellowship, networking and loyalty for JMU alumni. The association provides scholarship opportunities for incoming JMU freshmen as well as currently enrolled students. Alumni chapters across the country sponsor socials, programs, community service and various events to engage alumni in their area. The alumni association also hosts annual programming on campus, including homecoming, reunions and an annual alumni volunteer conference.

The JMU Alumni Association is directed by a board of directors who represent the interests of all graduates by reviewing and setting the strategy for the association. JMU's magazine, *Madison*, provides information about the university to all alumni, parents of currently enrolled students, friends and businesses, corporations, and foundations associated with JMU. The e-newsletter, *Madison Update*, is a popular way for alumni to stay informed about alumni and campus activities.

The student branch of the association, the Student Alumni Association (SAA), is an active group that creates opportunities for students to interact with alumni to form meaningful, lasting relationships long after graduation. This organization also encourages and promotes a philanthropic spirit on campus that helps to advance the mission and development of JMU. The SAA offers a wide variety of events such as networking dinners, career development, events during Homecoming and other events throughout the year. Find out more at [alumni.jmu.edu/saa](http://alumni.jmu.edu/saa).

## JMU Foundation

<http://www.jmu.edu/foundation/>

The James Madison University Foundation, Inc. a 501(c)(3) organization, was formed in 1969 to support the university — its students, faculty, staff, programs and facilities. The foundation receives, manages and stewards all charitable contributions for JMU. The foundation accepts gifts of cash, securities, real estate, personal property and more. The foundation's mission is to support and serve the James Madison University community. Its vision is to provide an ever-growing and sustainable source of private support for the university community by promoting a culture of philanthropy, prudent investment, stewardship and excellence. The foundation is guided by an abiding commitment to the university, valuing generosity and fiscal responsibility.

## Accreditation

James Madison University is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award baccalaureate, masters and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call (404) 679-4500 for questions about the accreditation of James Madison University.

The Commission should only be contacted concerning an institution's significant non-compliance with a requirement or standard. Normal inquiries about James Madison University (such as admission requirements, financial aid, education programs, etc.) should be directed to JMU, not the Commission's office.

## Additional Accreditation

ABET, Incorporated  
 AACSB International – The Association to Advance Collegiate Schools of Business  
 American Chemical Society  
 Accreditation Council for Occupational Therapy Education  
 American Psychological Association  
 Association for Advancement of Health Education  
 Association for Information Technology Professionals  
 Association of University Health Programs in Health Administration  
 Accreditation Review Commission on Education for Physician Assistants, Inc.  
 Commission for Collegiate Nursing Education  
 Commission on Accreditation for Dietetics Education, the accrediting agency for The American Dietetic Association  
 Commission on Accreditation of Athletic Training Education  
 Council for Interior Design Accreditation  
 Council on Academic Accreditation in Audiology and Speech Language Pathology of the American Speech-Language and Hearing Association  
 Council for Accreditation of Counseling and Related Educational Programs  
 Council on Social Work Education (baccalaureate level)  
 Education Commission on Accreditation on Social Work  
 Educational Standards Board of the American Speech-Language-Hearing Association  
 International Association of Counseling Services  
 National Association of College and University Attorneys  
 National Association of School Psychologists  
 National Association of Schools of Art and Design  
 National Association of Schools of Dance  
 National Association of Schools of Music  
 National Association of Schools of Theatre  
 National Council for Accreditation of Teacher Education  
 Review Commission on Education for the Physician Assistant  
 Society for Public Health Education  
 Virginia Board of Nursing  
 Virginia State Board of Education

## Membership

American Association of Colleges for Teacher Education  
 American Association of State Colleges and Universities  
 American Council on Education  
 Association of American Colleges and Universities  
 Association of Virginia Colleges and Universities  
 College and University Personnel Association  
 Council of Graduate Schools in the United States  
 Council of Southern Graduate Schools  
 National Association of College and University Business Officers  
 National Association of Student Personnel Administrators  
 Southeastern Universities Research Association  
 Southern Regional Education Board Doctoral Scholars Program

## Institutional and Educational Membership

Association of Computing Machinery

## Corporate Membership

American Association of University Women

# Admissions

## *Office of Admissions*

Phone: (540) 568-5681

Email: [admissions@jmu.edu](mailto:admissions@jmu.edu)

The enrollment for the university is authorized by the State Council of Higher Education in Virginia. The number of students admitted each year is limited by the resources available to the university.

## Visiting the University

We encourage prospective students to attend a group information session and a walking tour of campus. To check our visitation schedule and make a reservation, visit our website.

## First Year Student Admission

JMU's admission process is competitive. We receive more qualified applications than we can accommodate. For the Fall 2017 admissions process, approximately 60 percent of applicants were admitted with 88 percent of the applicants being competitive. There is not a prescribed formula for gaining admission. The admissions committee works to select the strongest candidates from a high quality pool. We consider the following factors in evaluating applicants: program of study, academic achievement, standardized test scores, Secondary School Report Form and recommendation, extracurricular activities, and an optional personal statement. Each applicant is rated in the following four areas, listed in order of importance:

## Academic Program

Competitive applicants should minimally have the following:

- four years of math with at least one full year beyond algebra II (i.e. pre-calculus, trigonometry, discrete, statistics, analysis, etc.). Computer Science, computer and consumer math do not count and will not be evaluated as a full year beyond algebra II.
- three years of laboratory science (preferably biology, chemistry and physics or an AP, IB or DE science; general science or earth science does not count as a lab science);
- three to four years of the same foreign language or two years of two different foreign languages;
- four years of English; and
- four years of social studies.

Students who challenge themselves with the upper-level courses offered in their high school (i.e. Honors-level courses, Advanced Placement classes, International Baccalaureate, dual enrollment) increase their competitiveness. Although schools provide different opportunities, applicants should pursue the most demanding college preparatory programs available. Because strong students come from different types of schools, we evaluate applicants within the context of their high schools.

## Academic Achievement

To evaluate achievement in high school, we evaluate grades in the core subject areas: mathematics, English, foreign language, social studies and lab sciences. A competitive candidate is an "A/B" student in core courses. We look at performance throughout the entire high school career.

Website: <http://www.jmu.edu/admissions>

Fax: (540) 568-3332

Location: Madison Hall, MSC 0101

## Standardized Tests

The SAT I or ACT are an optional part of the application. SAT IIs are not required for or considered in the admissions process.

## Extracurricular Activities

We are looking for quality rather than quantity. For instance, we like to see what applicants have done in clubs, organizations and athletics beyond just being members. We also consider community service and part-time jobs. We look at the variety and depth of your involvement. Applicants must be academically competitive before extracurricular activities are reviewed.

## Application Deadlines

### Early Action Admission

Early Action is more competitive than the Regular Decision process. To be admitted through Early Action, a student needs to be superior in curriculum, grades, test scores and extracurricular activities.

The university will offer non-binding early notification admission to qualified first year student applicants. The deadline for early notification is November 1. Successful candidates will be notified in mid-January and must submit a tuition deposit by May 1 to enroll at the university. Most students who are not selected for early notification are considered under the university's regular admission process.

For the last two years, 45 to 50 percent of students deferred from Early Action to Regular Decision were eventually admitted. Students who apply Early Action do not have an advantage over students who apply Regular Decision.

### Regular Decision Admission

Because Early Action is more competitive than Regular Decision, students who apply through Regular Decision are not at a disadvantage. Applications must be submitted by January 15 to be considered for regular decision admission. All applicants will receive notification of their admission status the first week of April. Admitted students must submit a tuition deposit by May 1 to enroll at the university.

## Application Procedure for First Year Student Admission

To access the application, apply online by filling out the application and submitting it electronically with an electronic payment. Students applying to James Madison University must:

- Carefully complete and submit the application, along with the nonrefundable application fee.
- Request that a counselor send a copy of their transcript and a letter of recommendation to:

James Madison University Office of Admissions  
MSC 0101  
100 E. Grace Street  
Harrisonburg, VA 22807

- SAT or ACT scores are optional. Applicants should request SAT or ACT scores be forwarded to James Madison University directly from the College Board or American College Testing, respectively.

Information furnished on applications and all other university documents and records must be accurate and complete without evasion or misrepresentation. Submitting inaccurate or incomplete documents is cause for rejection or dismissal from the university.

## Transfer Student Admission

To transfer to JMU, a student must:

- Have completed or be in the process of completing at least 24 credits at the college or university level, after graduating from high school or earning a GED, at the time of application.
- Successfully complete college course work in the following areas: English, math, lab science and social science in order to be competitive. The more college level course work a student completes, the less emphasis the admission committee places on the high school transcript.
- Be in good standing and eligible to continue or graduate from their previous institution(s). It is the student's responsibility to provide the JMU Office of Admissions with official transcripts of work completed from all colleges attended. Concealment of previous attendance at a college or university is cause for cancellation of admission and registration. (Students with holds on their academic records will not be considered for admission until holds are released).
- The university recommends students have a "B" cumulative grade point average (3.0 on a 4.0 scale) to be competitive for admission.

## Application Procedure for Transfer Admission

To apply for transfer admission to the university, applicants must:

- Submit the online application for undergraduate admission along with the electronic application fee. This fee is not refundable or transferable and will not be credited to the student's account.
- Request official transcripts be sent from all colleges attended prior to the application deadline.

- Submit an official high school transcript or a copy of a GED in addition to college transcripts, regardless of the number of college credits completed or the number of years out of high school.
- Complete a one-page personal statement (optional) for review by the Admissions Committee.
- Indicate a major.

All materials are due by October 1 for spring admission, February 1 for summer admission and March 1 for fall admission.

## Evaluation of Transfer Credits

Credit will be awarded for those courses equivalent to courses offered at JMU in which the student has earned a grade of "C" or better.

After the student has been approved for admission, the Office of the Registrar will evaluate the transcript(s) of each transfer student to show the credits accepted by the university. The academic unit head of the program in which the student is majoring will determine the credits required for graduation.

With the exception of some community college degrees in General Studies, JMU General Education requirements will be waived for those students who have completed either the Associate of Arts, Associate of Science, or the Associate of Arts and Sciences degree at a Virginia community college. For the complete listing of degrees associated with a Virginia Community College that waive all General Education requirements, go to the Transfer Advising. Students who complete one of these associate degrees and are offered admission will receive junior-level status; however, due to varying major and degree requirements, junior-level status does not guarantee graduation in two years. For more details, consult the Office of Admissions or the JMU Virginia Community College Transfer Guide.

## Advanced Placement

Applicants for admission who have completed advanced work in secondary school may use AP test scores to apply for course credit at JMU. Information about AP exams is available at <https://apstudent.collegeboard.org/takingtheexam/about-exams>. For a full list of available AP credit opportunities at JMU, refer to the Advanced Placement table.

## 2017-2018 Academic Year Advanced Placement Courses

The score necessary to earn college credit at JMU, the corresponding course title at JMU and the credit hours which can be earned appear below. The grading scale is from one to five with five being the highest score. Credit hour equivalencies are reviewed annually by academic units.

Note: This information is subject to change at the discretion of James Madison University. For the 2017-18 academic year, the scores displayed in the online catalog supersede the scores in the printed undergraduate catalog.

Examination	Min. Required Score	JMU Equivalent Course	Credit Hours Earned
Art History	4	ARTH 206	3
Art Studio: General	4	ART 000 <sup>1</sup>	3
Biology	4	BIO 140 & BIO 150 <i>or</i> ISAT 113, ISCI 104 & BIO 000 <sup>2</sup>	8 8
Calculus AB	4	MATH 235	4
Calculus AB Subscore	4	MATH 235	4
Calculus BC	4	MATH 235 & MATH 236	8
Chemistry	4	Majors: CHEM 131 & CHEM 132 Nonmajors: CHEM 131 & CHEM 131L and CHEM 132 & CHEM 132L <i>or</i> CHEM 120 & CHEM 000 <sup>3</sup>	6 8
	3	CHEM 120 and CHEM 000 <sup>3</sup> <i>or</i> ISCI 101 and ISC 104	4
Chinese Language and Culture	4	CHIN 231	3
Comparative Government	4	POSC 240	3
Computer Science A	5	CS 149	3
	3	CS 000	3
Computer Science Principles	3	CS 000	3
Economics (Micro)	4	ECON 201	3
Economics (Macro)	4	ECON 200	3
English Language and Composition or English Literature and Composition	4	WRTC 103	3
Environmental Science	4	ISAT major: ISAT 112 & ISAT 000 <sup>4</sup> Non majors: GEOL 115, ISCI 104 & ISAT 000 <sup>4</sup>	8 4
	3	ISCI 000 <sup>5</sup>	4
French Language or French Literature	4	FR 231	3
Geography, Human	3	GEOG 280	3
German Language	4	GER 231	3
Government: U.S.	4	POSC 225	4
History: European	5	HIST 201 <i>or</i> HIST 202	3
History: U.S.	5	HIST 225	4
History: World	5	HIST 102	3
Italian Language and Culture	4	ITAL 231	3
Latin Vergil	4	LAT 231	3
Music Theory – Nonaural Subscore	5	MUS 143	1
Physics B	4	PHYS 140, PHYS 140L <i>and</i> PHYS 150 & PHYS 150L	8
	3	ISCI 101 & ISCI 104 <i>or</i> PHYS 140 & PHYS 140L	4
Physics C: Mechanics	4	PHYS 240 & PHYS 140L	4
	3	PHYS 140 & PHYS 140L	4
Physics C: Electricity and Magnetism	4	PHYS 250 & PHYS 150L	4
	3	PHYS 150 & PHYS 150L	4
Physics 1	3	ISCI 101 & ISCI 104 <i>or</i> PHYS 140 & PHYS 140L	4 4
Physics 2	3	PHYS 150 & PHYS 150L	4
Psychology	4	PSYC 101	3
Spanish Language or Spanish or Literature	4	SPAN 231	3
Statistics	4	MATH 220 <i>or</i> ISAT 251	3

1 ART 000 does not count toward major or minor requirements in art or toward general education requirements but is elective credit toward a degree.

2 BIO 000 does not count toward major or minor requirements in biology or toward general education requirements but is elective credit toward a degree.

3 CHEM 000 does not count toward major or minor requirements in chemistry or toward general education requirements but is elective credit toward a degree.

4 ISAT 000 does not count toward major or minor requirements in integrated science and technology or toward general education requirements but is elective credit toward a degree.

5 ISCI 000 does not count toward major or minor requirements or toward general education requirements but is elective credit toward a degree.

## International Admission

The Office of Admissions is responsible for the admission and enrollment of undergraduate international students. It also evaluates "A" Level examinations for academic credit.

Credit will be awarded for those courses equivalent to courses offered at JMU in which the student has earned a grade of "C" or better.

All non-U.S. citizens and nonpermanent residents of the U.S. must complete the international student application. This application and an international student information guidebook are available in the Office of Admissions, located in Madison Hall.

In addition to regular first year student and transfer admission requirements, international students must present evidence of English proficiency and documentation of sufficient financial resources.

The university welcomes international applications and is authorized by federal law to enroll non-immigrant alien students. Requests for information concerning the admission of undergraduate international students should be directed to:

Office of International Admissions, MSC 0101

James Madison University 100 E. Grace Street

Harrisonburg, VA 22807

Phone: (540) 568-5681

<http://www.jmu.edu/admissions/apply/international.shtml>

## International Examinations

### Credit

JMU will follow the recommendations of the National Council on the Evaluation of Foreign Educational Credentials when awarding academic credit based on international examinations. Questions regarding the evaluation of international examinations should be directed to the Office of Admissions.

### Cambridge International Examinations and United Kingdom "A" Level Examinations

Students who participated in the Cambridge International Examination program or the United Kingdom "A" Level examinations may be awarded general education or other credit. Credit is evaluated by the appropriate academic unit.

For a full listing of available Cambridge International Examination courses and credit opportunities, refer to the Cambridge International Examination and United Kingdom "A" Level Examination table.

The grade necessary to earn college credit at JMU, the corresponding course title at JMU and the credit hours that may be earned appear in the Cambridge International Examination and United Kingdom "A" Level Examinations table. The acceptable grading scale is A, B or C, although the acceptable grade for credit may vary between courses and the level of the exam taken. Credit hour equivalencies are reviewed annually by academic units.

### French Baccalaureate

Students with scores of 12/20 or higher on examinations in subjects studied at a coefficient of 4 or 5 may be awarded general education or other credit. Evaluation of credit will be directed by University Programs in coordination with the appropriate departmental undergraduate office. The "Total Score" of the French Baccalaureate is not used to determine credit eligibility.

### German Abitur

Students who participated in the Thirteenth Class (Dreizehnte Klasse) German Abitur program may be awarded general education and other credit for examination scores of 10 or higher (15-point scale). Evaluation of credit will be directed by University Programs in coordination with the appropriate departmental undergraduate office.

### International Baccalaureate

JMU recognizes the International Baccalaureate diploma and individual IB courses by awarding credit on IB higher-level examinations in essentially the same manner in which credit is allowed for Advanced Placement courses.

Typically, credit hours will be awarded for each higher-level examination on which a score of five, six or seven has been earned. Credit hour equivalencies are reviewed annually by academic unit.

Some standard-level examinations will also be considered for credit. The university encourages the completion of the IB diploma and will give special consideration for admission to students who have completed the IB program. The grading scale is from one to seven, with seven being the highest score.

For a full listing of available IB courses and credit opportunities, refer to the International Baccalaureate Courses table.

### United Kingdom "A" Level Examinations

Credit will be awarded to those students who receive a "C" or higher on an "A" level exam. Credit will be comparable to completing the two-course introductory sequence (six credit hours) in the subject.

## 2017-2018 Cambridge International Examination Courses

A-Level Exams			
Cambridge International Exam	Accepted Grades for Credit	JMU Equivalent Course	Credit Hours Earned
Afrikaans – Language	A,B	FL 000	3
Arabic – Language	A,B	ARAB 231	3
Biology	A	BIO 103, ISCI 104, BIO 000	8
Biology	B,C	BIO 103, ISCI 104	4
Chemistry	A	CHEM 131, 131L, 132, 132L	8
Chemistry	B	CHEM 131, 131L	4
Chemistry	C	ISCI 101, ISCI 104L	4
Chinese – Language	A,B	CHIN 231	3
Computer Science	A,B	CS 149, CS 159	6
Divinity	A,B	REL 202	3
English Language	A,B	WRTC 103	3
English (Literature in)	A,B,C	ENG 221, ENG 222	6
Food Studies	A,B	NUTR 340	3
French – Language	A,B	FR 231	3
German – Language	A,B	GER 231	3
Hindi – Language	A,B	FL 000	3
Marathi – Language	A,B	FL 000	3
Marine Science	A,B,C	ISCI 003	4
Mathematics	A,B	MATH 235, MATH 000	4+3
Mathematics further	A,B	MATH 000	4
Physical Education	A,B,C	KIN 000	3
Physical Science	A,B	ISCI 101, ISCI 104, 001	8
Physical Science	C	ISCI 101, ISCI 104	4
Physics	A,B	PHYS 140, 150, 140L, 150L	8
Physics	C	ISCI 101, ISCI 104	4
Portuguese – Language	A,B	PORT 231	3
Psychology	A,B,C	PSYC 101, PSYC 002	6
Sociology	A,B,C	SOCI 101	3
Spanish – Language	A,B	SPAN 231	3
Tamil – Language	A,B	FL 000	3
Telugu – Language	A,B	FL 000	3
Travel and Tourism	A,B	HM 000	3
Urdu – Language	A,B	FL 000	3
Urdu – Pakistan Language	A,B	FL 000	3

AS-Level Exams			
Cambridge International Exam	Accepted Grades for Credit	JMU Equivalent Course	Credit Hours Earned
Afrikaans – First Language	A	FL 000	3
Afrikaans – Language	A	FL 000	3
Arabic – Language	A	ARAB 231	3
Arabic – Language	A	ARAB 231	3
Biology	A	BIO 103, ISCI 104	4
Chemistry	A	ISCI 101, ISCI 104L	4
Chinese – Language	A	CHIN 231	3
English (Literature in)	A,B,C	ENG 222	3
French – Language	A	FR 231	3
German – Language	A	GER 231	3
Hindi – Language	A	FL 000	3
Hinduism	A,B	REL 310	3
Islamic Studies	A,B	HUM 252	3
Japanese – Language	A	JAPN 231	3
Marathi – Language	A	FL 000	3
Marine Science	A,B,C	ISCI 003	4
Mathematics	A,B	MATH 000	3
Physical Science	A	ISCI 101, ISCI 104	4
Physics	A	ISCI 101, ISCI 104	4
Portuguese – Language	A	PORT 231	3
Psychology	A,B,C	PSYC 002	3
Spanish – Language	A	SPAN 231	3
Spanish – First Language	A	SPAN 231	3
Tamil – Language	A	FL 000	3
Telugu – Language	A	FL 000	3
Urdu - Language	A	FL 000	3

## 2017-2018 International Baccalaureate Courses

This information is subject to change at the discretion of James Madison University. For the 2017-2018 academic year, the scores displayed in the online catalog supersede the scores in the printed undergraduate catalog.

### Higher-Level IB Courses

International Baccalaureate Course	Minimum Required Score	JMU Equivalent	Credit Hours Earned
Anthropology (social and cultural)	5	ANTH 195 & ANTH elective	6
Art/Design	6	ART 102 & ART elective	6
	5	ART 102	3
	4	ART elective	3
Art/Visual	5	ART 102	3
Biology	7	BIO 103 & ISCI 104 and BIO 000 <sup>1</sup>	3+1+4
	5	BIO 000 <sup>1</sup> (elective)	4
Chemistry	5	Majors: CHEM 131, 132	6
	5	Nonmajors: CHEM 131, 131L, 132, 132L	8
Computing Studies	5	CS 139	4
Economics	6	ECON 201, ECON 200	6
English A	5	WRTC 103	3
Foreign Languages (Same course numbers in each language)	7	300 + elective	6
	6	231-232	6
	5	231	3
	4	102	4
Geography	6	GEOG 200	3
	5	GEOG elective	3
History: All Regions	6	HIST elective	6
	5	HIST elective	3
History: Africa	6	HIST 263	3
	5	HIST 263	3
History: Americas	5	HIST 225	4
History: West and South Asia	6	HIST electives	6
	5	HIST elective	3
History: East and Southeast Asia and Australia	6	HIST electives	6
	5	HIST elective	3
History: Europe	6	HIST 202 & HIST elective	6
	5	HIST 202	3
Mathematics	5	MATH 235	4
Physics	5	PHYS 140 & PHYS 150	6
Psychology	4	PSYC 101	3

### Standard-Level IB Courses

International Baccalaureate Course	Minimum Required Score	JMU Equivalent	Credit Hours Earned
Social Anthropology (social and cultural)	5	ANTH 195	3
Art/Design	7	ART elective	3
	6	ART elective	3
Chemistry	6	Majors: CHEM 131	3
	6	Nonmajors: CHEM 131-131L	4
Economics	6	ECON 201 with IB diploma	3
Foreign Languages (Same course numbers in each language)	7	232	3
	6	231	3
	5	102	4
Geography	5	GEOG elective	3
History	5	HIST elective	3
Physics	6	PHYS 140 and PHYS 150	6
Psychology	6	PSYC 101	3

<sup>1</sup> BIO 000 does not count toward major or minor requirements in biology or toward general education requirements, but is elective credit toward a degree.

## Special Admission Requirements

In addition to regular first year student and transfer admission requirements, students who want to major in music, musical theatre or dance must also complete an on-campus audition. Incoming freshman intending to major in graphic design, industrial design, architectural design or studio art are highly encouraged to submit a portfolio and be interviewed.

### Art

Phone: (540) 568-6216/6661 Email: art-arthistory@jmu.edu

Website: <http://www.jmu.edu/art>

### Art History Majors

Students intending to major in art history are not required to submit a portfolio, but should follow the regular JMU admissions process. To be considered for departmental scholarships, students must submit a resume, writing sample and short essay to the department. To enroll in the museum studies concentration in art history, students must have a 3.3 GPA in the major and a minimum of nine credits in art history and general education art history courses.

### Architectural Design, Graphic Design, Industrial Design and Studio Art Majors

All prospective freshmen, transfer and change of major students intending to major in architectural design, graphic design or studio art must meet JMU admission requirements as stated in the Undergraduate Catalog. In addition to meeting JMU admission requirements, all students are required to submit a portfolio to the school's SlideRoom account (<https://jmuart.slideroom.com>). The submission of a portfolio is seen as evidence of a student's interest and potential for future success in art. The deadline for submitting portfolios to the school's SlideRoom site is the first Monday after the last portfolio review day in January. There is a \$10 charge for this submission.

### Transfer and Change of Major Students

Transfer and change of major students will also need to upload unofficial transcripts and a statement of intent to the school's SlideRoom account that explains their educational and artistic goals, articulating the reasons for choosing this area of study.

### On-Campus Portfolio Review Days and Scholarships

All students who would like to be considered for scholarships are required to attend one of the on-campus portfolio review days. Students will show their original art and participate in a faculty interview. If time-based media examples (video and animation) are included, students will need to bring their own digital device for presentation purposes. Refer to the SADAH website for the dates of the upcoming portfolio review days and for additional portfolio requirements. All scholarship awards are based on merit and vary in amount, up to the full cost of tuition. Tours of facilities and program information sessions will take place at on-campus events.

### Off-Campus Portfolio Review Days

The SADAH also offers students the opportunity for feedback on their portfolio, prior to their digital submission and before an on-campus portfolio scholarship interview. The portfolio review events provide an opportunity for feedback on actual artwork, as well as an opportunity to meet with faculty from the school. All prospective freshmen, transfer and change of major students are strongly encouraged to attend a portfolio review day, on or off campus, prior to submitting their portfolio.

### Graphic Design

Students seeking official acceptance into the graphic design major must enroll in GRPH 208 and submit a portfolio representing work completed in GRPH 200, GRPH 202 and GRPH 206. Students not admitted may reapply the following semester.

### Architectural Design

Students seeking official acceptance into the architectural design major must enroll in ARCD 208 and submit a portfolio representing work

completed in ARCD 200 and ARCD 202. Students not admitted may reapply the following year.

### Industrial Design

Students seeking acceptance into the advanced industrial design courses must enroll in INDU 208 and submit a portfolio representing work comprised of projects completed in INDU 200, INDU 202, GRPH 202, INDU 220, INDU 380 and independent design related work. It may be repeated once for a pass/fail standing.

### Music

Phone: (540) 568-3851

Email: music\_admit@jmu.edu

Website: <http://www.jmu.edu/music>

Auditions for music are given on three specific dates in January and February. It is important that students indicate their intention to participate in the audition process by January 15.

### Nursing

Phone: (540) 568-6314 Website: <http://www.nursing.jmu.edu>

In addition to the regular first year student and transfer admission requirements, students who intend to major in nursing must submit a BSN Admission Application. Applications, admission criteria and admission deadlines may be found on the School of Nursing website.

### Special Expenses

A differential tuition of \$90 per credit hour is added to the standard charge for courses carrying the NSG prefix. This charge applies to all students, both in-state and out-of-state, at the undergraduate and graduate levels, with the exception of students enrolled in the R.N. to B.S.N. program.

### Theatre and Dance

Phone: (540) 568-6342

Email: theatredance@jmu.edu

Website: <http://www.jmu.edu/theatredance/>

Admissions to the dance, musical theatre and theatre majors are by audition for performers or portfolio review for design/technical theatre, theatre studies (directing, dramaturgy, theatre scholarship, etc.) or theatre education students.

Theatre and musical theatre auditions/portfolio reviews are held in late fall, January and early February for first year student applicants. Auditions and portfolio reviews for transfer students are held in the late fall and mid-spring. Refer to the school website for more information on requirements for admission to the programs.

Dance major auditions take place in November and in February. Transfer students must audition at one of these audition dates. For the dates of the dance auditions and for information on what is required in order to audition, refer to the school website.

### Credit for Military Service

JMU encourages veterans to apply for admission as full-time or part-time students. Information regarding VA Educational Benefits is available from the veterans' coordinator, Student Success Center, 5th floor. Veterans who have one or more years of active military duty will be granted six hours of health and kinesiology elective credit (providing they have no previous credit in this area). Students must submit a Report of Separation (DD-214) to receive this credit.

Additional credit may be given for successfully completing certain service schools. This credit will be determined based on recommendations in A Guide to the Evaluation of Educational Experiences in the Armed Services. An official copy of the Joint Services Transcript (JST) is required. Consult the Office of the Registrar. Credit is allowed for courses taken at the Defense Language Institute. The amount of credit varies with the type of courses successfully completed.

JMU must receive an official transcript. Credit allowed is based on their recommendation in A Guide to the Evaluation of Educational Experiences in the Armed Services. For those languages not offered at JMU, a maximum of 12 hours is accepted.

# Academic Policies and Procedures

## Academic Standing and Continued Enrollment

Continued enrollment at JMU depends upon an undergraduate student's ability to maintain satisfactory academic progress toward attaining a degree. The university measures this ability by the student's cumulative grade point average. To assist students in maintaining satisfactory progress, JMU has adopted academic standards designed to provide early identification of students who are experiencing academic difficulty and to provide timely intervention through academic support programs.

### Academic Good Standing

Undergraduate students who maintain a cumulative grade point average of at least 2.0 are considered to be in academic good standing and are eligible for continued enrollment at JMU.

### Academic Probation

Academic probation is an indication of serious academic difficulty and applies whenever a student's cumulative grade point average falls below 2.0. Students who are placed on academic probation at the end of the fall semester may enroll for the spring semester; however, students on academic probation will be restricted to a course load of no more than 12 credit hours each semester until their cumulative grade point average has improved sufficiently enough to remove them from academic probation. The university might also require students on academic probation to confer regularly with their academic advisers and participate in educational skills development programs.

### Academic Suspension

A student will be placed on academic suspension if that student's cumulative grade point average is below the minimum required for continued enrollment as shown in the following table.

Total Number of Hours for Standing <sup>1</sup>		Cumulative GPA for Academic Suspension					
1-27 .....		less than 1.500					
28-44 .....		less than 1.650					
45-59 .....		less than 1.750					
60-74 .....		less than 1.850					
75-89 .....		less than 1.900					
90-104 .....		less than 1.994					
105-119 .....		less than 1.999					
120 or above .....		less than 2.000					

<sup>1</sup> Total Number of Hours for Standing includes all hours attempted at JMU plus:  
 § Credit hours transferred to JMU.  
 § Credit hours earned by departmental exam and AP credit.  
 § Credit hours for courses taken on a credit/no credit basis (whether the final grade was CR or NC). For instance, in the example below a student has attempted 60 credit hours at JMU and received 30 credits for transfer work and two hours of no credit work. The hours attempted plus the no credit and transfer hours place this student in the 92 credit hour category, even though the total number of hours earned is equal to 82. With a cumulative GPA of 1.991, the student is subject to suspension.

JMU Hrs Attempted	Trans Hrs	NC Earned	JMU Hrs. Earned	Cum. Hrs. Standing	Hrs for Pts Earned	Cum. GPA	Quality Cum.
60	30	2	52	82	92	19.5	1.991

Students who take fewer than nine credit hours in their first semester at JMU will not be reviewed for academic standing that semester. As a rule, academic suspension will be invoked at the end of spring semester (and summer session for students who attend summer session); however, in exceptional cases where academic performance is persistently unsatisfactory, or in cases where students fail to meet continued enrollment conditions, the university may choose to suspend students at the end of fall semester.

Suspended students who wish to rectify their academic deficiencies may enroll in the immediately following summer session. If the student uses a summer session to raise his/her cumulative grade point average to at least the minimum required for continued enrollment on academic probation, then that student will be eligible to enroll for the fall semester under the restrictions described under academic probation. Students unable to raise their grade point average to the minimum required conditions for continued enrollment will be academically suspended and ineligible for continued enrollment at JMU. The period of suspension is a minimum of one calendar year following a first suspension. Following a second suspension, the period of suspension is a minimum of two calendar years. Students who are academically suspended for a second time are eligible to apply to return to JMU by agreeing to apply for the Transfer Equivalent Option upon their approved return to JMU. Re-entry is not guaranteed but is contingent upon review by an academic review committee chaired by the Assistant Vice Provost for Academic Student Services. Such review may result in denial or conditional re-entry.

### Academic Dismissal

A student who is suspended a third time will be permanently dismissed from the university. No appeal of this dismissal will be considered, nor will students dismissed for academic deficiency be allowed to exercise the transfer equivalent option.

## Adding a Course, Changing Sections or Changing Credit Options

Students may add a course and change sections or credit options according to deadlines and instructions published on the Registrar's website. Students should note that adding a course may result in a tuition increase.

Dropping and withdrawing both result in the termination of a student's enrollment in that course.

### Dropping a Course

Dropping a course must be completed before the drop deadline, which is the second Tuesday of a regular semester. There is no fee for dropping a course, and the dropped course will not appear on the student's transcript. Depending on the student's course load, dropping a course might result in a tuition reduction.

### Withdrawing from a Course

A student may terminate enrollment in a course by withdrawing from the course after the drop deadline but before the course adjustment deadline. A student who withdraws from a course will receive a grade of "W" for the course, and this grade will be

recorded (and remain) on the student's transcript regardless of the status of the student in the course at the time of the withdrawal.

In extraordinary situations, a student unable to complete some course requirements after the course adjustment deadline (approximately one week after midterm grades are due for a regular semester) may request that the instructor consider awarding a grade of "WP" (Withdrawn Passing) or "WF" (Withdrawn Failing). A student should not assume that a late withdrawal will be provided by the instructor. There is no obligation for the instructor to assign a "WP" or "WF" grade. The instructor determines the form (e.g., verbal, written) and timing of requests for a "WP" or "WF" grade. The student must ensure that the request is made in an appropriate manner and at an appropriate time. In response to such a request, the instructor may choose to record a grade of "WP" or "WF," but is not obligated to do so and may record any grade other than "W." The course instructor may also suggest that the student contact the Office of the Dean of Students about withdrawing from the university. Withdrawing from a course will not result in a tuition reduction.

Students considering withdrawing from a course should be aware that graduate and professional schools and future employers might hold differing opinions on a student's withdrawal from a course. For this reason, a student should withdraw from a course only after serious consideration.

## Course Load

The university considers full-time enrollment in a term to be a minimum of 12 credit hours. In all programs, the normal load per semester is 15 or 16 credit hours. A student with a cumulative grade point average of 3.25 or better may register for as many as 21 credit hours per semester. Any student in academic good standing may take a maximum of 19 credit hours without securing special permission.

Students in academic good standing who wish to exceed these credit per semester limitations must secure permission from the head of the academic unit in which they are majoring.

The university strongly recommends that a student who earns a semester grade point average of less than 2.0 not register for more than 16 credit hours the following semester. A student on probation may not take more than 12 credit hours per semester without appropriate approval.

## Academic Probation and Course Load

Students on academic probation must get the approval of the office of the dean of their major college if they wish to take more than 12 credit hours per semester. Students should note that an undergraduate course load of at least 12 credit hours a semester is required for a student to live in a residence hall.

## Summer Session Course Load

During summer session, undergraduate students may take six credit hours for each four-week term, nine credit hours for each six-week term and 12 credit hours for each eight- and ten-week term. The head of the academic unit in which the student is majoring must approve overloads at the time of registration. Students are reminded that summer course work is intensive because of the condensed instructional time-frame and are encouraged to plan their summer schedules with the demanding workload in mind.

## Attendance

A student's participation in the work of a course is clearly a precondition to receiving credit in that course. Because of the wide variety of courses and teaching methods at JMU, the university recognizes that the nature of a student's participation in the work of a course cannot be prescribed on a university-wide basis. For this reason, classroom attendance is not a matter subject to regulation by the university. Attendance in class and the laboratory is a matter between the student and the faculty member in that class or laboratory.

## Absence Policy

Instructors' policies govern how many excused absences will be allowed and how these excused absences will be handled in their classes. Certain absences are often considered legitimate:

- Scheduled absences (known in advance at the start or within the first two weeks of the semester).
- Religious observance where the nature of the observance prevents student from attending class.
- Scheduled necessary medical procedures.
- Participation in intercollegiate athletic competitions.
- Functions or performance activity related to academics (music, debate, workshop, academic conferences, etc.).

Faculty are strongly encouraged to publish, as part of the course syllabus and/or discuss during the initial class session, how many excused absences will be allowed, any mandatory and/or unrepeatable components of the course, and the expected procedure for requesting and obtaining approval for scheduled absences.

Students are required to notify the faculty by no later than the end of the Drop-Add period the first week of the semester of potential scheduled absences and determine with the faculty if mutually acceptable alternative methods exist for completing the missed classroom, lab, clinical/field or other required activities. This allows students to drop the course if it is determined that missed academic activities cannot be rescheduled in a reasonable fashion or that the absences would prevent adequate mastery of the material. Students are to submit verification of scheduled absences to the faculty by no later than the first class period of the second week of the semester. Examples of unexpectedly rescheduled absences (initially scheduled for one time, then changed with limited notice) and unforeseeable unscheduled absences (compelling, verifiable circumstances beyond the student's control) include:

- Activity season extended due to achieving berth in playoffs (verified by athletic director).
- Death in immediate family (verified by funeral director and/or copy of obituary).
- Disaster services or armed services activation for duty (verified by copy of official notification).
- Inclement weather postponement of the event or postponement and rescheduling of the event by external parties, e.g., illness of featured speaker (verified by event coordinator).
- Jury duty or court-ordered appearance (verified by clerk of the court).
- Other unavoidable compelling verifiable absence.
- Student illness or injury (verified by health care provider).

Students are to notify the faculty of each unexpected absence and determine with the faculty if mutually acceptable alternative methods exist for completing or demonstrating mastery of

missed learning activities within one week of becoming aware of the projected absence.

If required by the faculty, students are to submit verification of any absence to the faculty prior to the absence if possible and upon return to class if not possible prior to the absence. Faculty may consider the absence as unexcused if the student fails to comply with published notification and verification timeframes or procedures.

## Auditing

In order to audit a class, a student must have the permission of the instructor and the academic unit head offering the class. Audited courses will not affect a student's attempted and earned credit hours or grade point average, but tuition will be billed for the course.

## Catalog of Record

For General Education and university degree requirements, students are generally subject to the curricular and graduation requirements contained in the undergraduate catalog in effect upon their enrollment at JMU. A student who declares or changes a major, minor, pre-professional program or concentration will complete the requirements in effect for the catalog year in which the declaration or change was made. With approval from the academic unit overseeing the academic program, the catalog requirement term can be adjusted forward or backward.

## Aging Credit

With the exception of undergraduates enrolled in adult degree programs, students are expected to complete all baccalaureate major and degree requirements within seven years of their original entry date to JMU or previous higher educational institution(s). If required by the academic unit, academic work completed more than seven years prior to the students' anticipated graduation date might be subject to review by the major and minor academic units and the General Education Program for applicability to the undergraduate degree program. Additional standards may apply in programs leading to licensure or certification.

## Changes in Requirements

James Madison University is a progressive educational institution, and its offerings and requirements in the undergraduate catalog are under continual examination and revision. Revisions often affect currently enrolled students. Although the university attempts to alert students to these revisions through the academic advising process, individual reports of academic progress and various campus publications, responsibility for meeting all curricular and other graduation requirements rests with the students, who are encouraged to consult regularly with their program advisers as well as Career and Academic Planning.

## Classification

The classification of students depends upon the number of credit hours they have earned.

Classification	Credit Hours
First Year .....	Fewer than 28
Sophomores.....	28-59
Juniors.....	60-89
Senior .....	More than 89

## Course Adjustment

A course adjustment is any change to a student's registered course schedule. A course adjustment can include any of the following: changing a credit option, changing a section, adding a course, dropping a course or withdrawing from a course. Deadlines for processing specific course adjustments are stated on the Registrar's website. The end of the course adjustment period (approximately one week after midterm grades are due for a regular semester) is the deadline for withdrawing from a course and changing credit options for a semester course. First semester first year students (students who have taken 27 or fewer credit hours) must secure the prior approval of their faculty adviser for any course adjustments. Each student is responsible for knowing his/her registered course schedule and for making any desired course adjustments prior to the published registration deadlines.

## Confidentiality of Educational Records

### The Family Educational Rights and Privacy Act of 1974

James Madison University adheres to and annually informs students of the Family Educational Rights and Privacy Act of 1974, as amended. This act, with which the institution intends to fully comply, was designated to protect the privacy of educational records. Under the Family Educational Rights and Privacy Act (FERPA), students have certain rights with respect to their education records. These rights include:

- The right to inspect and review the student's education records within 45 days of the day the university receives a request for access.
- The student should submit to the registrar, dean, head of the academic unit or other appropriate official written requests that identify the record(s) he/she wishes to inspect. The university official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the university official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed.
- The right to request the amendment of the student's education records that the student believes are inaccurate or misleading.
- The student may ask the university to amend a record that he/she believes is inaccurate or misleading. The student should write the university official responsible for the record, clearly identify the part of the record he/she wants changed, and specify why it is inaccurate or misleading. If the university decides not to amend the record as requested by the student,

the university will notify the student of the decision and advise the student of his/her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

- The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent.

One exception, which permits disclosure without consent, is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the university has contracted (such as an attorney, auditor or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his/ her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his/her professional responsibility. Upon request, the university may disclose education records without consent to officials of another school in which a student seeks or intends to enroll. The following is considered "Directory Information" at James Madison University and may be made available to the general public unless the student notifies the Office of the Registrar in person or in writing within five days after the first day of class registration: Student's name, telephone numbers, addresses, major and minor fields of study, college of major and year (first year, sophomore, etc.), enrollment status (full-time/part-time) including credit hours, dates of attendance, degree sought and time, degrees conferred, awards and honors conferred, participation in officially recognized activities and sports, weight and height of members of athletic teams, the most recent previous educational agency or institution attended by the student, fraternity and/or sorority and educational societies.

The right to file a complaint with the U.S. Department of Education concerning alleged failures by James Madison University to comply with the requirements of FERPA.

The name and address of the office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington, D.C. 20202-4605 or <http://www2.ed.gov/policy/gen/reg/ferpa/index.html>.

More detailed information concerning JMU's records policy is available from the James Madison University Policies Manual, Policy 2112, The Family Educational Rights and Privacy Act, at <http://www.jmu.edu/JMUPolicy>.

## Credit Hours

The JMU academic calendar is based on the semester system. The unit of credit is the credit hour. A credit hour represents one 50 minute class period (or its equivalent in other forms of instruction) each week in the semester for lectures, or two 50-minute class periods for each week in the semester for laboratory or fieldwork.

A minimum of 750 minutes of instruction or equivalent is required for each credit hour.

## Credit/No-credit Course Registration

The credit/no-credit option has been established to encourage students to explore academic areas with which they are unfamiliar. Such academic exploration allows students to fully integrate field-based learning activities into appropriate programs of study. The design of the credit/no-credit option allows students to participate in courses outside of their major and minor fields of concentration without jeopardizing their academic records. In some cases, the credit/no-credit option might also help to reduce academic pressures and competition for grades.

Students electing to take courses under this option should be selective in choosing the courses that they take as credit/no-credit. Graduate and professional schools and future employers, however, might hold differing opinions of such a nontraditional grading system. For this reason, students should consult with their academic advisers for information concerning the inclusion of credit/no-credit course grades within their programs.

Students are eligible to take a course on a credit/no-credit basis if they have completed at least 28 credit hours at JMU and have attained a 2.25 cumulative grade point average or higher. Transfer students may take courses on the credit/no-credit option only if they have completed 28 credit hours with at least 14 hours at JMU.

JMU allows students to register for kinesiology activity courses on a credit/no-credit basis at any time without regard to minimum hours completed or grade point average. Also, grades for student teaching are assigned on a credit/no-credit basis. Except for field-based courses (which may be defined by an academic unit as credit/no-credit), the following courses may not be taken as credit/no-credit:

- Courses used to meet General Education requirements
- Courses used to meet declared major requirements
- Courses used to meet declared minor requirements
- Any course listed by subject name in the major or minor program, even if the course does not specifically satisfy a requirement for the major or minor
- Courses being repeated that were previously taken for a letter grade
- Degree requirements

Students should also keep in mind the following factors when considering the credit/no-credit option:

- Students can take up to 15 credit hours on a credit/no-credit basis.
- The university limits the maximum number of credit/no-credit courses a student can take to four credit hours per semester or one course of more than four credit hours per semester.
- Student teaching is not counted as a part of these credit/no-credit totals.
- Students registering for classes should complete the required paperwork with the Office of the Registrar for courses that they plan to take on a credit/no-credit basis, and all changes to and from the credit/no-credit option must be completed by the end of the course adjustment period.
- The credit/no-credit option will only apply to final grades. All course work and quizzes will be graded as if the student were taking the course for graded credit.

- Students taking a course on a credit/no-credit basis will only be identified to the instructor after final grades have been submitted.
- Instructors will submit letter grades to the university registrar who will then change all grades of “A” through “C” to “CR” (credit) for those students enrolled under the credit/no-credit option. (The university makes exceptions to this process for field-based courses designated by the academic unit.) Students will receive credit hours, but they will not receive quality points for the work completed. Therefore, the grade of “CR” will not affect a student’s cumulative grade point averages.
- A grade of “NC” (no-credit) will be recorded for all grades of “C-” and below, and the student will not receive credit hours or quality points for the grade of “NC.” The fact that the student took the course will remain on that student’s transcript, but the grade assigned in that class will not affect that student’s cumulative grade point average.

## Credit Opportunities

The university offers options for students to earn credit toward their degree outside the traditional classroom setting:

- Admission of high school students as special students
- Admission of first year students with Advanced Placement
- Independent study

## Credit by Examination

College degrees represent growth and maturity in certain fundamental knowledge and skills rather than a mere accumulation of credit hours. In recognition of the fact that some persons may achieve academic competence through nontraditional means, such as private study, technical employment or prior instruction, JMU endorses the concept of credit by examination.

By permitting a student to earn credit by academic unit examination for knowledge already gained, highly motivated or academically advanced persons are able to accelerate their program. It is the student’s responsibility to ascertain what preparation and background are necessary for taking advantage of this means of acceleration, before attempting an examination.

Any enrolled undergraduate student may apply to take an examination for credit in selected courses in the undergraduate curriculum. Permission to take an examination for credit must be obtained from the head of the academic unit in which credit is sought. A student will not be permitted to take the examination for credit option with any of the following conditions:

- The student is presently enrolled in the course.
- The student has previously completed the course.
- The course is a prerequisite for a course in which the student is currently enrolled or has completed.
- The course is numbered at a lower level than courses in which the student is currently enrolled or has previously completed without the expressed approval of the academic unit head.
- A student’s grade in a course was assigned due to a violation of the Honor System.

Each academic unit will use its own discretion in developing the form of the examination and in determining the procedure to be followed. Students may earn as many as 30 credit hours through credit by academic unit examination, with no more than 12 credit hours in any one discipline. To receive credit, a student must

make a grade of “C” or better on the examination. Each academic unit shall determine what constitutes a “C” for that academic unit. No academic unit shall require a grade higher than a “C” for passing the examination. The examination for a course can be taken only once in a given semester. A nonrefundable fee must be paid prior to the administration of an examination for credit. (Refer to Tuition and Fees.) Each academic unit will determine its schedule for examinations.

## Independent Study

Every academic unit at JMU offers a course designed to give capable students an opportunity to do faculty-supervised independent studies. Such courses often carry more than the normal three credit hours for a semester’s work. In addition, these independent study courses allow especially capable students to work at their own, often accelerated pace. Arrangements for independent study should be made with individual faculty members.

## Final Examinations

Students are expected to attend final examinations during the times scheduled for those examinations. Extenuating circumstances, however, might prompt faculty members to approve a student’s request for an exception to attending the final examination. Students whose requests for exceptions are disapproved by the relevant faculty members have the right to appeal to the relevant academic unit head or academic dean. No appeal will be favorably considered without prior consultation with the faculty member.

## Final Examinations Missed Due to Inclement Weather or Emergency

In response to inclement weather and other emergencies, the university may be forced to cancel final exams. When the university closes due to weather or other types of emergencies, faculty will administer regularly scheduled final examinations at an official make-up time designated by the university unless otherwise announced in the course syllabus. The official make-up time will be designated as part of the closing announcement. Unless otherwise notified, make-up examination locations will be the same as locations for regularly scheduled exams.

If it is determined that exams cannot be given because of inclement weather or other emergency, faculty will assign final grades to students based on the exams, tests and projects completed prior to the regularly scheduled exam dates.

## Grade Review Procedure

Maintaining standards of excellence and the integrity of the teaching/learning process are important values to JMU faculty. The university and its faculty members also recognize that grades may sometimes be inappropriately assigned. If such disagreements occur, students have a right to voice their opinion concerning a particular course grade. Evaluation of student work and assignment of grades on the basis of academic criteria are the responsibilities and prerogative exercised by the faculty member. A faculty member has the responsibility to evaluate student performance on a fair and scholarly basis in accordance with university policy.

It is the student's responsibility to maintain all documentation for his/her classes, including copies of assignments and grades earned.

## Grade Change Procedure

If a student (graduate, undergraduate or post-baccalaureate) believes that a grade was assigned in error, because of a mistake in calculation or an error in recording a grade, the student should consult the faculty member (or faculty members, in the case of a jointly taught course) before the Friday of the second week of classes in the regular semester following the semester of the contested grade to resolve the discrepancy.

Requests for review of spring semester or summer session grades must be initiated no later than the Monday of the third week of classes in the subsequent fall semester. It is the student's responsibility to maintain all documentation for his/her classes, including copies of assignments and grades earned. If the faculty member agrees that a change should be made, the faculty member should submit a Grade Change Form, available from the Office of the Registrar, and forward it to the relevant academic unit head or cluster coordinator for signature.

A copy of the Grade Change Form will be forwarded to the dean. The only basis for this type of change is an error in grade assignment or calculation.

If the faculty member does not agree to change a grade based on an error in recording the grade, the student may activate the grade review process listed below.

## Grade Review Process

If a student (graduate, undergraduate or post-baccalaureate) believes that a final course grade was unfairly awarded, that student may initiate the grade review process. Students should be aware that, as a result of review, a grade may be raised, lowered or left the same.

Evaluation of student work and assignment of grades on the basis of academic criteria are the responsibilities of and prerogative exercised by the faculty member teaching that particular course. Grades should be assigned on a fair and scholarly basis. Grounds for grade review are limited to two categories.

1. The grade was assigned in a manner other than that listed in the course syllabus or as amended by the faculty member with appropriate notice.
2. The grade was assigned in a manner other than that used for other students in the class.

## Activating the Grade Review Process

To activate the grade review process, the student should follow these steps.

1. The student submits a Grade Review Form (available from the Office of the Registrar website) to the appropriate faculty member by Monday of the third week of classes in the regular semester that follows the semester for which the contested grade was given. The student should attach a written explanation of reasons for the dispute, including any documentation relating to the disputed grade. Requests for review of spring semester or summer session grades must be initiated no later than the Monday of the third week of classes in the subsequent fall semester.

2. The student communicates with the faculty member by Friday of the third week of classes to attempt to resolve the concern.
  - If the student and the faculty member reach an agreement that the grade should be changed, the faculty member changes the grade by submitting a Grade Change Form to the appropriate academic unit head for that individual's signature. A copy of this signed Grade Change Form will be forwarded to the dean. A copy of the Grade Review Form, with resolution noted, will be forwarded to the Office of the Registrar. For graduate students whose grade of "C," "U" or "F" is to be changed, notice of the grade change must be sent to The Graduate School before that change occurs.
  - If no resolution is reached, the faculty member signs the Grade Review Form and records a written response on the reverse side of the form. The faculty member returns the original copy of this form to the student, retains a copy of the form for his/her personal records and forwards a copy to the relevant academic unit head by Friday of the fourth week of classes.
3. The student must contact the relevant academic unit head by the Friday of the fifth week of classes to request review of statement and response.
4. The academic unit head then meets with the student and confers with the relevant faculty member.
  - The academic unit head signs the Grade Review Form and records a written response on the reverse side of the form by Friday of the seventh week of classes. The student receives the original copy of this form, the relevant faculty member receives a copy of the form and the sender retains a copy of the form.
  - If all involved parties agree that the grade should be changed, the faculty member submits a Grade Change Form to the academic unit head and the appropriate individual signs the form. A copy of the form will be forwarded to the dean. A copy of the Grade Review Form, with resolution noted, will be forwarded to the Office of the Registrar. Notice of the grade change must also be sent to The Graduate School before the grade change occurs for graduate students who have a grade of "C," "U" or "F" changed to some other grade.

After the review process outlined has been completed, if the academic unit head and faculty member agree that a grade should not be changed, a student can also request that the form, documentation and responses be reviewed by the dean of the college in which the class was taught. The college dean's responsibility is to ascertain whether all parties have had an opportunity to present all relevant facts and have received a fair and impartial hearing at each level, and to review whether the faculty member has acted appropriately in assigning the grade. To enter this phase of the process, a student should follow these procedures.

- The student contacts the dean by Friday of the eighth week of classes and requests that the dean review the overall process.
- The college dean reviews the process to be sure the student and the faculty member have had a fair hearing, and whether the faculty member has acted appropriately in

assigning the grade. If the relevant college dean believes that due process was not followed during the review process, or that the faculty member has not acted appropriately in assigning the grade, the dean consults with the relevant faculty member and academic unit head or cluster coordinator in an attempt to resolve the dispute.

- The relevant college dean sends a written response to all involved parties by Friday of the tenth week of classes. This written response is appended to the Grade Review Form. The dean returns the original copy to the student, retains a copy for him/herself and sends a copy to the relevant academic unit head and the relevant faculty member. If it is agreed that the student's grade should be changed, the relevant faculty member submits a Grade Change Form to the academic unit head. The recipient then signs the form and forwards a copy to the dean. A copy of the Grade Review Form, with resolution noted, will be forwarded to the Office of the Registrar. Notice of the grade change must also be sent to The Graduate School before the grade change occurs for graduate students who have a grade of "C," "U" or "F" changed to some other grade.

If the dean determines that the grade will not be changed, there is no further review available to the student. The entire process will not extend past the end of the semester following the contested grade with the exception of grades given for summer session courses.

## Special Circumstances

Students who spend a semester abroad should submit the Grade Review Form to the relevant faculty member by the Monday of the third week of classes in the semester following the semester during which the grade was given. These students must also notify the faculty member of their semester absence from campus.

Students can complete a written explanation of the reasons for the dispute and can submit relevant documentation upon their return to campus, but that student cannot submit the request after the end of that semester.

If a faculty member is not on campus when a student wants to initiate a grade review, the student should contact the academic unit head to begin the process. The academic unit head will contact the faculty member for his/her decision on whether the grade should be changed.

Grades for block courses are officially recorded at the end of the semester; therefore, a grade review process for a block grade should follow the same procedure as for a semester course.

## Graduation

### Graduation Requirements

The faculty adviser and the academic unit head make the official check on major and minor course requirements for graduation. The Office of the Registrar makes the final check on courses required for the final term, total credit earned, the General Education program, degree requirements and the cumulative GPA earned at the university, as well as other university-wide requirements.

To receive a degree from JMU, students must:

- Meet the General Education requirements.
- Have a minimum of 120 earned credit hours accepted by JMU.

- Have a cumulative grade point average of 2.0 or better at JMU.
- Have a cumulative grade point average of 2.0 or better in the major and minor subjects at JMU.
- Meet the major and degree requirements of one of the curricula leading to the degree for which they are candidates.
- Have been enrolled at JMU a minimum of two semesters.
- Have earned a minimum of 25% of credit hours at JMU (30 credits for degree programs of 120 credits).
- Be enrolled at JMU during the semester in which the requirements for the degree are completed.
- Have earned at least 50% of credit hours accepted by JMU from accredited senior (four-year) institutions of higher education, including JMU (60 credits for degree programs of 120 credits).

A student expecting to graduate at the end of any semester must file an Application for a Bachelor's Degree, available at the registrar's office, with the university registrar as specified in the University Calendar. Responsibility for meeting graduation requirements rests with the student.

A student who has applied to graduate may participate in commencement exercises only if the student has fulfilled or is reasonably expected to fulfill all applicable graduation requirements prior to the date of the commencement exercises. A student who is reasonably expected to fulfill all applicable graduation requirements no later than the end of summer session may participate in the spring commencement exercises immediately preceding the summer term.

Attendance at commencement exercises is expected. If a student is unable to attend commencement, the university registrar must be notified at least 21 days prior to commencement.

Permission to participate in (or actual participation in) commencement exercises does not mean or imply that a student has fulfilled all applicable graduation requirements.

### Graduation with Honors

Before becoming eligible for graduation with honors, a student must successfully complete the following:

- Enrollment at JMU for a minimum of four semesters (fall and spring).
- Completion of a minimum of 60 attempted and earned credit hours at JMU.
- A minimum cumulative grade point average of 3.50 on all course work completed at James Madison University, including any work completed at JMU as a dual enrollment student prior to undergraduate matriculation and/or any work attempted and earned beyond four semesters or 60 credit hours.

Graduation honors will be determined as specified based on all course work attempted and earned at JMU.

Cumulative Averages Required for Graduation Honors	
Honors .....	Average
Cum laude .....	3.50-3.699
Magna cum laude .....	3.70-3.899
Summa cum laude .....	3.9 and above

These standards apply only to students entering JMU for the first time in fall 2015 and thereafter. Requirements for graduation with

honors for students who entered JMU prior to 2015 are regulated by the catalog in effect at the time they enrolled.

All grades received in all courses attempted at JMU will be used to calculate the grade point average in consideration for graduation with honors.

Graduation honors will be noted in the printed commencement program. The graduation honors printed in the program will be based on the grade point average at the end of the semester preceding the semester in which final graduation requirements are met. However, for students who participate in the May ceremony but complete requirements in summer session, the honors noted in the commencement program will be based on the grade point average earned at the end of the preceding fall semester. Final graduation honors recorded on the diploma and transcript will be determined by the grade point average at the end of the semester in which all graduation requirements are met.

## Graduation Awards

The title of Valedictorian is an honor bestowed by the Faculty Senate on behalf of the JMU faculty. Criteria were established by the Faculty Senate. It is given to the May graduate with the highest grade point average who has also earned at least 100 credit hours at James Madison University as of the fall semester prior to the student's May graduation. The student must have completed an average of at least 14 credit hours per fall and spring semester during his/her career at JMU. The grade point average will be calculated using grades recorded on the official transcript through the fall semester of the student's last year of undergraduate enrollment.

The Academic Excellence Award is an honor bestowed by the JMU Faculty Senate on behalf of the JMU faculty. Criteria were established by the Faculty Senate. It is for the student graduating in August or December who holds a grade point average that equals or exceeds that of the valedictorian and who has earned at least 100 credit hours at James Madison University. The student must have completed an average of at least 14 credit hours per fall and spring semester during his/ her career at JMU. The grade point average will be calculated using grades recorded on the official transcript through the spring semester of the student's last year of undergraduate enrollment. When more than one student qualifies for the Valedictorian or Academic Excellence Awards, each qualified student will be recognized.

## Graduation with Second Baccalaureate Degree

A student may only earn two different baccalaureate degrees through concurrent or consecutive enrollment at James Madison University. The following requirements must be met to earn a second degree:

- Earn a minimum of 150 credit hours, including a minimum of 60 hours at JMU.
- Meet all degree and university graduation requirements for both degree programs.
- Meet all prerequisite and course requirements in two different major fields.

A student who has met graduation requirements for one degree may participate in the commencement activities for that degree and continue with the second degree provided the following occur:

- The second degree and major have been officially declared by the student, prior to the submission of the graduation application for the first degree, and appear on the student's academic transcript.
- No lapse in enrollment (not including summer) occurs between the completion of the first degree and the continued pursuit of the second. If an unapproved lapse occurs, the student will not be permitted to continue with the second degree.
- At the time of completion of the first degree, the student must also have completed at least 12 credit hours in the major required for the second degree. A student who has earned less than that may not continue with the second degree if he/she decides to complete the first degree and participate in commencement exercises.

Students who hold a baccalaureate degree from another institution may not earn a second baccalaureate degree at James Madison University.

## Grievance Procedure for Students

This policy applies to student grievances related to the instructional process that do not concern grades, discrimination or harassment. Policies for grievances concerning these matters are outlined elsewhere.

To initiate the grievance procedure, the student should submit to the academic unit head a written statement explaining the reason for the grievance. Supportive documentation should also be included. The academic unit head meets with the student and confers with the relevant faculty member. Following these meetings, the unit head initiates the process as follows.

1. Each academic unit head will appoint an advisory committee made up of faculty and students from the academic unit that will hear grievances of students. The advisory committee may take any of the following actions:
  - Examine materials submitted by the student and the party grieved against ("respondent").
  - Interview the student and the respondent.
  - Interview any witnesses requested by the student, the respondent or the committee.
  - Request additional materials from any person or entity relevant to the charges.
  - Make a recommendation on the grievance to the academic unit head.
2. The academic unit head may accept the recommendation of the committee, reject the recommendation, or partially accept and partially reject the recommendation. The academic unit head will take any action he/she deems appropriate on the grievance.
3. If either the student or the respondent is dissatisfied with the action taken by the academic unit head, the action may be appealed to the dean. The decision of the dean is final.
4. If the academic unit head is the party against whom the grievance is filed, the dean will receive the report of the committee and stand in the place of the head of the academic unit for the purpose of making the decision on the grievance. If the dean is the party against whom the grievance is filed, the Provost and Senior Vice President for Academic Affairs will handle any appeal.

5. Following the final disposition of the grievance, a brief written summary of the complaint and outcome is filed with the dean as per University Policy 3110.

Following exhaustion of campus-based procedures, students may direct complaints to the State Council of Higher Education for Virginia. Additional information is available from their website at <http://www.schev.edu/index/students-and-parents/resources/student-complaints>.

## Harassment

It is the established policy of JMU to provide a work and study environment for faculty and staff members and students free from all forms of harassment, intimidation and exploitation. Prohibited harassment is offensive verbal or physical conduct. Questions, assistance or violations related to this policy should be directed to the university's Office of Equal Opportunity, 1017 Harrison Street, (540) 568-6991.

As an alternative, the student may deal with harassment in any of the following ways. If a student believes that he/she has been harassed by a staff member, faculty member or a student employee, the student should take one or more of the following actions:

- Discuss the matter with the faculty or staff member involved, explaining why a particular comment or action was offensive.
- Discuss the matter with the immediate supervisor of the faculty or staff member, giving an account of the comment or action in question.

If the student believes that he/she has been harassed by a student, the student should take one or more of the following actions:

- Discuss the matter with the accused, explaining why a particular comment or action was offensive.
- Bring a charge of harassment to the Office of Student Accountability and Restorative Practices.

If a student employee believes that he/she has been a victim of harassment, he/she should take one or more of the following actions:

- Discuss the matter with the accused, explaining why a particular comment or action was offensive.
- Discuss the matter with the immediate supervisor of the accused, giving an account of the comment or action in question.
- Contact the student employment office at (540) 568-3269.

Regardless of who the alleged harasser is, a student may discuss the matter with the Associate Vice President for Student Affairs, the director of the Counseling Center or the Office of Equal Employment, giving full details of the alleged harassment. The student will be advised of proper university procedures that can be pursued. If requested, complaints will be held in confidence and counseling will be provided. No investigation or action against the accused person will be taken on a student's behalf unless the student consents to be identified, if necessary, to the individual accused in connection with the investigation.

A student also has the option of filing a formal charge of harassment with the U.S. Department of Education. Contact information is available from the affirmative action officer at 1017 Harrison Street.

## Honor System

The academic program at JMU operates under an Honor System that dates back to the 1909-10 academic session. Students adopted the present Honor System in order to uphold individual and community integrity. Each student is expected to observe complete honesty in all academic matters and to report instances where another student has violated the Honor System.

A student Honor Council administers the Honor System, and every student who matriculates at the university, whether graduate or undergraduate, becomes a member of the Honor System. The university expects the cooperation of faculty members and administrators in upholding this Honor System. The Student Handbook provides full information on the Honor System, and the Honor Council office provides students with assistance in understanding Honor System policy. All incoming JMU students are required to complete an online Honor System Tutorial and test during their first semester.

The Honor Council encourages all members of the JMU community to familiarize themselves with the Honor Code and Honor System procedures.

## Inclement Weather or Emergency

When the university is closed due to inclement weather or other emergencies, all classes are cancelled. Policies regarding class cancellations are specified in the syllabus for each course.

## Makeup Days for Classes

When it is necessary to cancel classes due to weather or other emergencies, faculty have several options for making up the missed instructional time.

- Hold class at the regularly scheduled time on the official university make-up day, normally the Saturday immediately following the missed class.
- Hold class at a time acceptable to all class members other than the regularly scheduled time or the official make-up day. Time and location will be arranged by the academic unit.
- Accommodate the missed instructional time within remaining class meeting time.
- Hold class through electronic means.

## Major Information

Students entering JMU should confer with their advisers in order to determine a major program of study. If entering students have not decided on a specific major, they may register as undeclared. JMU encourages undeclared students to discuss their interests with representatives from the office of Career and Academic Planning, professors, academic unit heads and fellow students to find a major program best suited to each student's goals and interests.

Failure to do so could extend the time that students will need to fulfill graduation requirements. Students who would like assistance in identifying career options related to their specific majors can participate in the Major and Career Decisions Program through the office of Career and Academic Planning. The program helps students decide on career direction by assessing their career interests, skills and abilities as well as providing information about career options.

## Declaration of Major

All students must declare their major by the beginning of their sophomore year. To declare a major, students should obtain a Change or Declaration of Major Form from the Office of the Registrar. Students must take this form to the head of the academic unit they wish to enter. Academic units accept students on the basis of their academic records and on the satisfaction of other criteria the academic units might establish. Academic units assign advisers for students who are beyond the level of a first year student. The Change or Declaration of Major Form is due in the Office of the Registrar by the third Friday of the first semester of sophomore year. Declaration by the deadline will ensure eligibility for continued enrollment at the university.

Transfer students who enter JMU with 30 or more credit hours must declare a major upon acceptance to the university.

## Change of Major

Students who would like to change their major should obtain a Change or Declaration of Major Form from the Office of the Registrar. Students must take this form to the head of the academic unit they wish to enter. Academic units accept students on the basis of their academic records and on the satisfaction of other criteria the academic units might establish. Academic units assign advisers for students who are accepted as majors.

## Military Service

### Class Registration for Active Duty Students

James Madison University supports active duty students in the armed forces by providing assistance with class registration when necessary and by request. Active duty students needing assistance should provide a copy of their active duty orders to the Office of the Registrar prior to the first day of class to qualify for assistance under this policy. The Office of the Registrar will serve as an additional resource for the student and the academic unit(s) to assist with the creation of an appropriate class schedule to ensure the service member remains on track to degree completion in a timely manner.

### Short Term Military Leave

### For Mobilizations and Activations of One Day to Three Weeks

Faculty members are expected to make reasonable academic accommodations or opportunities for students to complete course assignments and/or exams without penalty to the course grade for class absence(s) or missed deadlines due to mandatory military training or obligations. Students will provide faculty members with official military documentation (paper, electronic orders or a unit's memorandum) with as much advance notification as possible for absences that will result from temporal responsibilities of their military obligations. For time-sensitive state or federal emergencies/activations where written documentation may not be available until the end of the obligation, the student is responsible for securing those orders to provide to faculty members upon return to the university. For active duty deployments that exceed three weeks, students should refer to the university policy for "Students Called to Active Duty" on the registrar's website.

## Support for Armed Services Active Duty

James Madison University supports students called to active duty in the armed services by providing for tuition relief and refunds, and for reinstatement of students whose documented service in the uniformed services has required their sudden withdrawal or prolonged absence from their enrollment in the institution. Included is service in the uniformed services whether voluntary or involuntary on active duty in the Armed Forces, including such service by a member of the National Guard or Reserve. When a JMU student is under call or ordered to active duty for a period of more than 30 days, the following provisions will apply.

## Undergraduate and Graduate Students

### Academic Credit

If an enrolled student is deployed to active duty military service during the semester, the student will have three options concerning grades assigned for the semester in which the call to active duty occurs.

- If the student leaves at any time during the semester and elects to receive a full tuition refund, no notation of courses or grades will be recorded on the student's transcript.
- If the student elects to receive an "I" (Incomplete), the regulation regarding conversion of an "I" to "F" grade will be suspended until the student returns to campus. Should the student not return to JMU, the "I" will revert to a "W" (Withdrawal).
- If the student leaves at a point in the semester after which a significant amount of work has been completed, the student may request the assignment of a grade for work completed. This option requires joint agreement of the student and faculty member(s).

### Deposits

For new students, an enrollment deposit is required to confirm their acceptance of the offer of admission. If a student is deployed to active duty military service before beginning the planned semester of enrollment, the deposit will be refunded.

For returning students, deposits made with the intent of securing facilities or services in a future session will be refunded in full.

### Documentation

Students should complete Withdrawal or Leave of Absence forms and include a copy of the applicable military orders to qualify for the considerations detailed in this policy.

The Withdrawal Process is appropriate for students who are enrolled in a semester, are deployed to active duty military service and must begin that duty before the current semester has ended. Withdrawal forms are available through the Office of the Dean of Students located in Madison Union Room 300.

A Leave of Absence is appropriate for students who are deployed to active duty military service, but do not need to begin duty during a current semester; for example, if duty will begin during a future semester before classes begin. The Leave of Absence Form is available online from the Registrar's website.

### Room and Board

If an enrolled student is deployed to active duty military service during the semester, the student's dining and residence hall contract will be adjusted as follows:

- Board fees will be prorated from the dining hall opening date.
- A per diem refund of the room rent will be issued based on the student's official check-out date.

## Textbooks

When a student is called to active duty, a full refund for textbooks purchased for the semester in progress is available through the university bookstore by presenting the textbooks and a copy of the applicable military orders.

## Tuition Charges and Student Account Balances

If an enrolled student is deployed to active duty military service during the semester, the student can:

- Drop all classes and all tuition charges will be waived with:
  - Personal payments refunded
  - Financial aid adjusted as required
  - Financial aid refunds repaid by student if appropriate
  - Maintain all or part of enrollment with:
    - Tuition adjusted accordingly
    - Financial aid adjusted as required
    - Financial aid refunds repaid by student if appropriate

If there are unpaid student account balances at time of deployment, the university will work with individual students on payment arrangements. No collection actions will occur during deployment; however, student must resolve any unpaid balances prior to subsequent enrollment.

## Undergraduate Students

### Deferral of Enrollment

If an undergraduate student has been admitted to James Madison University and is called to active military duty or enlists in the National Guard before enrolling, the student may request a deferral of admission using the process below.

The student must submit a letter to the director of admissions requesting a deferment. In the letter the student should provide the reason for the request (call to active duty or National Guard boot camp will not end until after the start of the semester that the student intended to enroll) and indicate the term they wish to enroll (the term can be changed if needed).

The request is reviewed by the director of admissions who sends a letter notifying the student that his/her request has been granted and indicates when JMU expects the student to enroll. The director of admissions will also inform the following offices of the deferment: Registrar's Office, University Business Office, Financial Aid and Scholarships, Orientation Office, Residence Life, Career and Academic Planning, and University Advising (for transfer students).

During the semester prior to scheduled enrollment, JMU will send the student a letter explaining what needs to be done prior to the start of his/her enrollment at JMU.

If the student's discharge from the service is delayed, the student contacts the director of admissions and requests an extension of his/her deferment. The director will approve the delay and inform the following offices: University Business Office, Financial Aid and Scholarships, Orientation Office, Residence Life, Career and Academic Planning, and University Advising (for transfer students).

### Evaluation of Undergraduate Transfer Credits for Military Students

Credit will be awarded for those courses equivalent to courses offered at JMU in which the student has earned a grade of "C" or better.

The Office of the Registrar and the academic unit head of the program in which the student is majoring will determine the credits required for graduation.

With the exception of some Virginia community college degrees in General Studies, JMU General Education requirements will be waived for those students who have completed either the Associate of Arts, Associate of Science, or the Associate of Arts and Sciences degree at a Virginia community college. For the complete listing of degrees associated with a Virginia Community College that waive all General Education requirements, go to the Transfer Advising website at <http://www.jmu.edu/transfer>. Students who complete one of these associate degrees and are offered admission will receive junior-level status; however, due to varying major and degree requirements, junior-level status does not guarantee graduation in two years. For more details, consult the Office of Admissions or the JMU Virginia Community College Transfer Guide.

### Types of Credit Awarded

Type of Credit	Applies To	Reviewed By
Credits from other institutions of higher learning	All undergraduate degrees seeking students	Office of the Registrar and the academic unit head of the major program of study
Learning acquired in military service	All undergraduate degree seeking students	Office of the Registrar using the ACE guide recommendation on the military transcript
CLEP	Students in the Adult Degree Program	Adult degree program and the academic unit heads
DSST exams	Students in the Adult Degree Program	Adult degree program and the academic unit heads
Excelsior College examination	Students in the RN to BSN program	Nursing department and the Office of the Registrar
Individualized portfolio evaluation	Students in the Adult Degree program	Adult Degree Program
DD-214	All undergraduate degree seeking students	Office of the Registrar

For questions pertaining to transfer credit for military education and training, contact the Office of the Registrar at (540) 568-6281 or [transfer\\_credit@jmu.edu](mailto:transfer_credit@jmu.edu).

### Re-entry

Formerly enrolled undergraduate degree-seeking students who have not attended JMU for one or more semesters and who wish to return to their studies at JMU are classified as re-entry students.

The re-entry process is contingent upon the student's length of absence and academic standing at the time of departure. To avoid delays in registration, the Intent to Enroll Form (for undergraduate students who have been absent from JMU for less than two years) or the Office of Admissions Re-entry Form (for students who have been absent for two or more years) must be submitted by the indicated deadline for the anticipated

semester of return. All registration holds must be cleared before the student will be eligible to register.

### **Re-entry after Absence of Less Than Two Calendar Years** *Undergraduate Students in Good Standing*

Students who left the university in good standing and who have been absent for one semester or more must submit an Intent to Enroll Form to the Office of the Registrar.

*Undergraduate Students on Academic Probation or Suspension*  
Students who were on academic probation or suspension when they left the university for active military duty, and who have been absent for one semester or more, must submit an Intent to Enroll Form directly to the Assistant Vice Provost for Academic Student Services. A personal statement describing the student's intended academic and study plans must accompany the form. Re-entry and continued enrollment are not guaranteed, but are contingent upon review by an academic review committee chaired by the Assistant Vice Provost for Academic Student Services. Such review may result in denial or conditional re-entry.

### **Re-entry after Absence of Two Calendar Years or More**

Students who are eligible to apply for re-entry after an absence of two or more calendar years, regardless of their academic standing at the time of departure, must apply for readmission via the Office of Academic Student Services. Readmission is not automatic but subject to committee review of the application, the personal statement and evaluation of work completed at JMU, as well as work completed at other institutions during the student's absence from JMU.

If a degree-seeking student leaves James Madison University after earning a portion of General Education credits and earns an approved Virginia Community College System (VCCS) Associate Degree, JMU will accept it in fulfillment of General Education requirements. Students who earn the approved degree while on academic suspension status from James Madison University are only eligible to re-enter James Madison University by agreeing to apply for the Transfer Equivalent Option upon their approved return to James Madison University.

### *Reinstatement into Specific Undergraduate Program of Study*

When a student with a declared major wishes to return to the same program at the university after an absence of more than two years, the course work taken prior to withdrawal must be reviewed by an adviser/academic unit head prior to the student's re-enrollment. This counseling is required to assure that the previously completed course work is current and applicable to the major. The adviser will assist the student to develop an appropriate academic plan for degree completion.

Students without declared majors wishing to return to study should consult with an adviser in Career and Academic Planning to receive assistance in developing an academic plan.

## **Graduate Students** **Deferral of Enrollment**

If a graduate student has been admitted to James Madison University and is called to active military duty before enrolling, the student may request a deferral of admission using this process.

- The student must submit a request (i.e., letter or email) to the graduate program director requesting a deferment. In the communication, the student should provide the reason for the request (call to active duty) and indicate the term he/she wishes to re-enroll (the term can be changed if needed).

- The graduate program director approves the deferment and informs the director of graduate admissions that the deferment has been approved.
- The director of graduate admissions notifies the student that the request has been approved and informs the student to notify The Graduate School and their graduate program director at least 30 days prior to the first class day of the return semester.
- If the student's discharge from the service is delayed, the student contacts the director of graduate admissions and requests an extension of his/her deferment. The director of graduate admissions will approve the delay and inform the graduate program director.

## **Leave of Absence**

A military leave of absence is granted to graduate students deployed for active military service. The graduate program director of the program in which the student is enrolled must request a military leave of absence for a student in a graduate program. The request must be approved by the dean of The Graduate School. Continuous enrollment is granted for a specified time period that may not exceed four semesters total, excluding summer session. Any extension of the approved continuous enrollment period must be requested by the student 30 days prior to the deadline and approved by the dean of The Graduate School.

When a student on leave plans to resume graduate study, he/she must inform the graduate program director and The Graduate School at least 30 days prior to the first class day of the return semester. All registration holds must be cleared before the student will be eligible to register.

In the case of a military leave of absence, the time clock related to the time limit for the completion of the degree (i.e., master's and educational specialist students must complete all degree requirements within six years; doctoral students must complete all degree requirements within eight years) will be stopped at the semester in which the leave begins. The time clock will resume upon the student's return to the program. While all academic credit, including transfer credits taken before enrollment in the graduate program, will remain on the graduate transcript, courses originally approved to be counted toward the degree program which now fall outside of the original time limit must be reviewed and approved by the program director in terms of content relevancy. In some cases, additional course work may be warranted due to outdated information.

## **Misconduct in Research and Other Scholarly Work**

Policy 2205, Misconduct in Research and Scholarship, applies to all individuals involved in the performance of scholarly and creative activity and research conducted at JMU, whether performed under external or internal funding. It applies to all scientists, trainees, technicians and other staff members, students, fellows, guest researchers or collaborators.

Misconduct as defined under this policy means fabrication, falsification, plagiarism or other practices that seriously deviate from those that are commonly accepted within the scientific and academic community for proposing, conducting or reporting research. Misconduct by a student under this policy may result in disciplinary action up to and including expulsion from the university, loss of fellowship or scholarship and potential criminal prosecution.

## Non-returning Students and Leave of Absence

Students who plan to complete their current semester but who will not return to JMU for the subsequent semester (excluding summer term) must notify the Office of the Registrar in writing to ensure cancellation of housing assignments, courses for which they have pre-registered and tuition charges.

Students who are planning a temporary interruption in their studies at JMU should formally request a leave of absence by completing a Non-Returning/Leave of Absence Notice found at the Registrar's website. Questions concerning the status of non-returning or leave of absence should be directed to the Office of the Registrar.

## Prerequisite and Eligibility Requirements

Students should consult the appropriate catalog to determine prerequisite or eligibility requirements for course selections. Without special permission, students cannot take for credit a course for which the prerequisite has not been met or for which they are not eligible. In addition, students cannot take for credit a course that is a prerequisite to a course they have already taken.

Many courses require other courses as prerequisites. Students should be aware that a course in which they receive a grade below "C" probably does not adequately prepare them to take a course which requires the first as a prerequisite. Before continuing on to a succeeding course, students should discuss their level of preparation with the professor of the second course and decide whether or not they need to retake the first course to improve their understanding as well as their grade.

## Re-entry to the University

Degree-seeking students who have not attended JMU for one or more semesters and who wish to return to their studies at JMU are classified as re-entry students. The re-entry process is contingent upon the student's length of absence and academic standing at the time of departure.

To avoid delays in registration, the Intent to Enroll Form (for students who have been absent from JMU for less than two years) or the Undergraduate Re-entry Form (for students who have been absent for two or more years) must be submitted by the indicated deadline for the anticipated semester of return. The Intent to Enroll form and the Re-entry Form are available online. All registration holds must be cleared before the student will be eligible to register.

Semester.....	Deadline
Fall Semester.....	July 1
Spring Semester.....	November 1
Summer Session.....	April 1

## Re-entry after Absence of Less Than Two Calendar Years

### Students in Good Standing

Students who left the university in good standing and who have been absent for one semester or more must submit an Intent to Enroll Form to the Office of the Registrar.

Activation for students who take a leave of absence for documented medical or mental health reasons will be contingent on receipt of a letter from the attending physician indicating the student is able to attend classes. This letter must be received in the Office of the Dean of Students by the deadlines indicated previously.

### Students on Academic Probation

Students who left the university on academic probation, and who have been absent for one semester or more, must submit an Intent to Enroll Form directly to the Assistant Vice Provost for Academic Student Services, MSC 7506. A personal statement citing the reason for departure and interim activities must accompany the form. Re-entry and continued enrollment are not guaranteed, but are contingent upon review by an academic review committee chaired by the Assistant Vice Provost for Academic Student Services. Such review may result in denial or conditional re-entry.

### Students on Academic Suspension

Students who are placed on a first academic suspension may follow the appeal process stated in their suspension notification or apply for re-entry after the suspension period. A personal statement citing the reason for departure and interim activities must accompany all Intent to Enroll Forms. Students must submit all documents to the Assistant Vice Provost for Academic Student Services, MSC 7506. Re-entry and continued enrollment are not guaranteed but contingent upon review by an academic review committee chaired by the Assistant Vice Provost for Academic Student Services. Such review may result in denial or conditional re-entry.

With prior approval from the dean of the major college and the Office of the Registrar, a suspended student may choose to take courses at another institution. Course work completed during the period of suspension may be considered as part of the criteria for re-entry, but courses taken at another institution cannot be used to raise the grade point average at JMU, nor will the courses automatically transfer to JMU.

A maximum of 12 semester hours will be accepted as transfer credits. These hours will be considered once the student has been readmitted and has earned a minimum semester grade point average of 2.0 in at least 12 credit hours attempted during the semester of return.

## Re-entry after Second Suspension or Absence Exceeding Two Calendar Years

Students who are eligible to apply for re-entry after an absence of two or more calendar years, regardless of their academic standing at the time of departure, must apply for readmission through the Office of Academic Student Services. Readmission is not automatic but subject to committee review of the application, the personal statement citing the reason for absence and evaluation of work completed at JMU as well as work completed at other institutions during the student's absence from JMU.

If a degree-seeking student leaves James Madison University after earning a portion of General Education credits and earns an approved Virginia Community College System (VCCS) Associate Degree, JMU will accept it in fulfillment of General Education requirements. Students who earn the approved degree while on academic suspension status from James Madison University are only eligible to re-enter James Madison

University by agreeing to apply for the Transfer Equivalent Option upon their approved return to James Madison University.

## Registration

Semester course listings are available on the university's internet accessible information system at <https://mymadison.jmu.edu/>. The university expects all students to register on the dates indicated in the registration calendar.

Credit is not allowed in any course for which the student is not duly registered, and registration is not complete until all fees for the semester have been paid. Students must complete course work during the semester in which they are registered for a course.

## Student Assessment

James Madison University requires students to take a series of student outcomes assessments prior to their graduation. These assessments are held at three stages of students' academic careers, including:

- as entering students
- at the mid-undergraduate point when they have earned 45 to 70 credit hours, typically their sophomore year
- as graduating seniors in their academic major(s)

Testing at the first two stages occurs on scheduled Assessment Days in the fall and spring semesters. During these assessments, students are tested on their knowledge in general education areas such as history, science, mathematics and fine arts. In addition, students may also complete tests measuring critical thinking, cultural knowledge, and intellectual and personal development. Testing of seniors in their major(s) occurs on the spring Assessment Day or is embedded in academic unit courses. The university encourages students to review program requirements for details.

The information gained during assessment makes it possible to compare students who have completed course work in certain areas to those who have not. Transfer students' scores are compared with the scores of students who began their studies at JMU. In addition, assessment in the majors allows programs to determine if the majors are achieving the goals and objectives the academic units have specified. Because these assessments are important to the improvement of JMU's academic and student affairs programs, students are required to participate.

Entering students who miss the scheduled assessments (fall Assessment Day) will receive a hold on their records and will be unable to register for spring courses or make fall course adjustments until such time as the assessments are completed. Students who miss the mid-undergraduate assessments (spring Assessment Day) will receive a hold on their records and will be unable to register for fall courses or make course adjustments until such time as the assessments are completed.

JMU does not report individual student scores; the university does, however, report aggregated test results to measure how programs and services contribute to student learning and development and for student progression based on competency attainment in selected programs. Assessment results are reported within JMU and to external audiences. Internally, group-level assessment results are shared with faculty committees and administrators across the campus to improve university programs. Externally, JMU releases findings on how students perform in general education areas. This information is

used to compare the overall performance of JMU students to students from other universities in Virginia. As a result, each student has an impact on these overall scores. The Center for Assessment and Research Studies administers assessment days and works with faculty for assessment of all academic majors and student affairs programs.

## Semester Honors Lists

To qualify for the honor of being placed on the President's List, a student must earn a grade point average of 3.900 or above and be considered by the registrar to be carrying a full time course load of graded credit hours (i.e., exclusive of credit hours taken on a credit/no credit basis).

To qualify for the Dean's list, a student must meet the President's List requirement for course load and earn a grade point average of 3.500-3.899.

## Student Teaching

Student teaching should be a full-time experience. Only in exceptional cases will additional course work be approved during the student teaching period.

Moreover, student teachers cannot expect to work or participate in excessive extracurricular activities during their student teaching period as any interference with student teaching might lower the quality of the individual's performance. Students with problems or special needs must contact the Education Support Center. All student teaching grades are assigned on a credit/no-credit basis.

## Transcript

The permanent academic record or transcript is the official record of a student's grades earned to date, and it includes the date of graduation, degree received and date of withdrawal or dismissal.

The Office of the Registrar may release a student's transcript upon receipt of a written request from the student or former student and for authorized research purposes.

## Transfer Equivalent Policy for Readmitted Students

A student who returns to JMU after a separation of two calendar years and who maintains a minimum 2.0 GPA for 12 credit hours attempted at JMU after his/her return is eligible to apply for the transfer equivalent policy. This policy allows a student a quality point status equivalent to that of a transfer student admitted to the university.

The student's new GPA will initially be that attempted in the 12 credit hours taken upon readmission. In order to exercise this option, the student must submit a Transfer Equivalent Option (TEO) Form to the Assistant Vice Provost for Academic Student Services.

The following regulations govern this option:

- The option must be exercised within 30 days of receiving written correspondence from the Assistant Vice Provost for Academic Student Services indicating TEO requirements have been met.
- A student with outstanding "I" grades is not eligible to apply.
- A student who leaves the university while in good standing is not eligible to apply.
- All grades will remain a part of the transcript.

- An eligible student will receive degree credit for only those courses for which grades of "C" or better were earned prior to readmission.
- Quality points earned for any course completed prior to readmission will not count in determining the student's new cumulative grade point average.
- A student whose application for the transfer equivalent policy has been approved may request that credit hours for pre-approved courses taken at another institution be transferred to JMU. The request will be reviewed by the office of the major college dean and the Office of the Registrar.
- The option will be extended only once during the student's enrollment at JMU.

A student interested in this option must re-apply to the university through the Office of Academic Student Services according to established deadlines.

Semester .....	Deadline .....
Fall Semester.....	July 1
Spring Semester.....	November 1
Summer Session.....	April 1

## Transfer of Credit from Other Institutions

A student wishing to earn credits at another institution, either during the summer or during a regular session, must obtain permission in advance of registration elsewhere. Multiple approvals may be required. For permission to transfer credit into a major or minor program, secure permission and an approving signature from the department head or coordinator for that area. For permission to transfer credit into the General Education Program, secure permission and an approving signature from the appropriate General Education program administrator. Approvals for General Education will be based on an evaluation of the extent to which the course meets the objectives of the relevant cluster and whether or not the student has already transferred the maximum allowed (see restrictions below). Course descriptions and/or syllabi must accompany all transfer requests for courses taken outside the Virginia Community College System. To complete final hours away from JMU, students must have the approval of the dean of their major. When all necessary approvals have been secured, students must submit the completed permission form to the Office of the Registrar for final approval.

For a student on academic suspension status, a maximum of 12 semester hours will be accepted as transfer credits. These hours will be considered once the student has been readmitted and has earned a minimum semester grade point average of 2.0 in at least 12 credit hours attempted during the semester of return.

The General Education program allows students to transfer credit for a particular course based on a comparison of course objectives and content at JMU with those at the other institution. Once students have enrolled for classes at JMU, however, they are expected to complete the General Education program here. The Associate Vice Provost for University Programs or a cluster coordinator must approve any exception to this policy.

After students have enrolled for classes, some restrictions will be applied to transferring in credit for the General Education program. These restrictions include the following policies:

- Students will be allowed to transfer in no more than three courses for General Education credit.
- No more than one transferred course may be applied to any one cluster.
- Transfer credit will not be awarded for course offerings in Cluster Four, The American Experience (HIST 225, JUST 225 and POSC 225) due to the content and unique features of these courses.

Special exceptions to these policies will be reviewed on an individual basis. Such exceptions may include those students who wish to participate in study abroad programs or other special circumstances.

The student is responsible for having an official transcript mailed to the Office of the Registrar when the work has been completed.

Credit hours will be awarded for approved courses carrying a grade of "C" or better (2.0 quality points).

## Undergraduate Grading System

Maintaining standards of excellence and the integrity of the teaching/learning process are important values to JMU faculty. Evaluation of student work and assignment of grades on the basis of academic criteria are the responsibilities and prerogative exercised by the faculty member. A faculty member has the responsibility to evaluate student performance on a fair and scholarly basis in accordance with university faculty.

The university keeps a complete record of each student's work and makes grades available to students through the online student information system (MyMadison) at the end of each semester. Mid-semester grades in all courses are also made available through the online student information system (MyMadison) to new first year students, if assigned. Grades are not mailed to students.

Letter grades and quality points express the academic achievement of a student in a specific course. Quality point values are earned for each semester credit hour.

Grade	Description
A.....	Superior
B.....	Good
C.....	Average
D.....	Passing
F.....	Failure
I.....	Incomplete
CR.....	Credit for average or better work
NC.....	No credit awarded
WP.....	Withdrawal while passing
WF.....	Withdrawal while failing
W.....	Withdrawal

A course in which a grade of "F" is received does not result in earned credit hours, but does count as credit hours attempted in computing the grade point average. A course in which a grade of "WP" or "WF" is received neither results in earned credit hours nor counts as credit hours attempted in computing the grade point average.

The academic achievement of a student in a specific course is expressed by letters as in the following table.

In certain circumstances, a grade of "I" (recorded by faculty and denoting incomplete work in a given course) will be given for a

course. An "I" grade will automatically be converted to a permanent "F" grade at the end of the next regular semester. Any student receiving an "I" grade should follow the university policy on incomplete grades.

## Grade Point Average

The university computes a student's grade point average for any period by dividing the number of quality points earned during that period by the number of credit hours attempted during the same period. For instance, during a period in which a student attempts 16 credit hours and earns 40 quality points, the student's GPA is 2.5.

A student's cumulative GPA is computed by dividing the total number of quality points earned at JMU by the total number of credit hours attempted at JMU.

Except as set forth under the Graduation with Honors policy, all references to grade point average denote the grade point average derived from course work taken at JMU.

## Incomplete Grades

The "I" symbol is used to indicate incomplete work in a given course and is awarded only when a student is unable to complete course work because of illness or another equally compelling reason.

Courses in which a student receives a grade of "I" must be completed by the end of the next regular semester, or the grade is recorded permanently as "F." (See the University Calendar for the dates by which grade changes must be reported to the Office of the Registrar.) A student seeking a grade of "I" must make that request to the relevant faculty member before the end of the semester in which that course is taking place.

## Quality Points

The grade of "B" in a three credit hour course earns nine quality points; the grade of "C" in the same course would earn six quality points.

Grade	Quality Points Earned Per Credit Hour
A.....	4.00
A-.....	3.70
B+.....	3.30
B.....	3.00
B-.....	2.70
C+.....	2.30
C.....	2.00
C-.....	1.70
D+.....	1.30
D.....	1.00
D-.....	0.7
F.....	0
I (Incomplete).....	0
CR (Credit for work which is at the 20 level or above).....	0
NC (No credit awarded).....	0
WP (Withdrawal while passing).....	0
WF (Withdrawal while failing).....	0
W (Withdrawal).....	0

The following do not affect quality points earned, credit hours attempted or GPA:

- Grades received at other institutions (except when used in determining graduation honors for eligible students).
- Audited courses.
- "I," "CR," "NC," "W," "WP" or "WF" grades.

## Repeating Courses

A student may repeat any of the graded courses that he/she has taken during an undergraduate career at JMU. All grades will be included when calculating the student's grade point average. There are, however, certain exceptions to this rule.

Students may elect to repeat up to two courses during their enrollment as an undergraduate at JMU on a "repeat forgiveness" basis. As a result of the "repeat forgiveness" option, the university will exclude the previous grade and credit hours earned for the repeated course when it calculates the student's cumulative GPA and earned credit hours total, regardless of whether the previous grade was higher or lower than the repeat attempt.

Both grades will appear on the transcript, and the recalculation of the cumulative GPA will occur after the repeat/forgiveness attempt. The student must either declare the "repeat forgiveness" option at registration or complete the appropriate adjustment form prior to the end of the course adjustment period. A student may not exercise the repeat/forgiveness option for courses in which that student was assigned a grade as a result of an Honor Code violation. Courses taught on a topic basis are repeatable; however, these courses may only be designated with a repeat credit or repeat/forgiveness credit option if both course attempts have the same topic (i.e. a second attempt of the course HUM 200. Western Classics may only be assigned as a repeat credit or repeat/forgiveness credit if the original attempt of HUM 200 was taken with the topic "Western Classics").

All grades will appear on the student's transcript, but a course that has been repeated will only be counted once toward satisfying graduation requirements. Courses taken at other institutions do not qualify to be taken as "repeat forgiveness." Courses taken in a different JMU career (i.e. Continuing Education) and subsequently transferred to an undergraduate JMU career are not repeatable. Students may request approval to retake these courses utilizing the audit grading basis only.

## Withdrawal from the University

Students withdraw from the university when their enrollment is terminated before these students have completed the semester for which they registered. Students who decide to withdraw during the first three weeks of the semester must complete the Non-Returning/Leave of Absence Notice available at <http://www.jmu.edu/registrar/forms.shtml> and submit it to the Office of the Registrar. Students desiring to withdraw after the third week of the semester must contact the Office of the Dean of Students at (540) 568-6468 to schedule an appointment.

## Undergraduate Degrees at James Madison University

### Bachelor of Arts (B.A.)

Anthropology  
 Art History  
 Art, Studio  
 Biology  
 Communication Sciences and Disorders  
 Communication Studies  
 Dance  
 Earth Science  
 Economics  
 English  
 Geographic Science  
 History  
 Independent Scholars  
 Individualized Study  
 International Affairs  
 Justice Studies  
 Mathematics  
 Media Arts and Design  
 Modern Foreign Languages  
 Musical Theatre  
 Philosophy and Religion  
 Physics  
 Political Science  
 Psychology  
 Sociology  
 Theatre  
 Writing, Rhetoric and Technical Communication

### Bachelor of Business Administration (B.B.A.)

Accounting  
 Computer Information Systems  
 Economics  
 Finance  
 International Business  
 Management  
 Marketing

### Bachelor of Fine Arts (B.F.A.)

Architectural Design  
 Art, Studio  
 Graphic Design

### Bachelor of Individualized Study (B.I.S.)

Individualized Study

### Bachelor of Music (B.M.)

Music

### Bachelor of Science (B.S.)

Anthropology  
 Art, Studio  
 Athletic Training  
 Biology  
 Biophysical Chemistry  
 Biotechnology  
 Chemistry  
 Communication Sciences and Disorders  
 Communication Studies  
 Computer Science  
 Dietetics  
 Economics  
 Engineering  
 Geographic Science  
 Geology  
 Health Sciences  
 Health Services Administration  
 Hospitality Management  
 Independent Scholars  
 Individualized Study  
 Integrated Science and Technology  
 Intelligence Analysis  
 Interdisciplinary Liberal Studies  
 Justice Studies  
 Kinesiology  
 Mathematics  
 Media Arts and Design  
 Physics  
 Psychology  
 Public Policy and Administration  
 Quantitative Finance  
 Sociology  
 Sport and Recreation Management  
 Statistics  
 Writing, Rhetoric and Technical Communication

### Bachelor of Science in Nursing (B.S.N.)

Nursing

### Bachelor of Social Work (B.S.W.)

Social Work

# Undergraduate Programs

	Major	Minor	Major	Minor
<b>Accounting (B.B.A.)</b>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
Public Administration				
<b>Africana Studies</b>		<input checked="" type="checkbox"/>		
<b>American Studies</b>		<input checked="" type="checkbox"/>		
<b>Anthropology (B.A., B.S.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Archeology				
Biological Anthropology				
Cultural Anthropology				
<b>Architectural Design (B.F.A.)</b>	<input checked="" type="checkbox"/>			
<b>Art, Studio (B.A., B.F.A.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>Art, Studio (B.S.)</b>	<input checked="" type="checkbox"/>			
Industrial Design				
<b>Art History (B.A.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Museum Studies				
<b>Asian Studies</b>		<input checked="" type="checkbox"/>		
<b>Athletic Training (B.S.)</b>	<input checked="" type="checkbox"/>			
<b>Biochemistry and Molecular Biology</b>		<input checked="" type="checkbox"/>		
<b>Biology (B.A., B.S.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Ecology and Environmental Biology				
<b>Biophysical Chemistry (B.S.)</b>	<input checked="" type="checkbox"/>			
<b>Biotechnology (B.S.)</b>	<input checked="" type="checkbox"/>			
<b>Book Arts</b>		<input checked="" type="checkbox"/>		
<b>British Communication and Media</b>		<input checked="" type="checkbox"/>		
<b>Business</b>		<input checked="" type="checkbox"/>		
<b>Business Analytics</b>		<input checked="" type="checkbox"/>		
<b>Chemistry (B.S.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
American Chemical Society Certified Programs: Biochemistry, Chemistry, Chemical Education, Materials Chemistry				
Chemistry/Business				
General Chemistry				
<b>Chinese Business Studies</b>		<input checked="" type="checkbox"/>		
<b>Chronic Illness</b>		<input checked="" type="checkbox"/>		
<b>Classical Studies</b>		<input checked="" type="checkbox"/>		
<b>Communication Sciences and Disorders (B.A., B.S.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>Communication Studies (B.A., B.S.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Advocacy Studies				
Cultural Communication		<input type="checkbox"/>		
Health Communication Studies		<input type="checkbox"/>		
Interpersonal Communication Studies				
Organizational Communication Studies				
Political Communication		<input type="checkbox"/>		
Public Relations Studies				
<b>Computer Information Systems (B.B.A.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Cooperative Education				
<b>Computer Science (B.S.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>Creative Writing</b>		<input checked="" type="checkbox"/>		
<b>Criminal Justice</b>		<input checked="" type="checkbox"/>		
<b>Dance (B.A.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>Dietetics (B.S.)</b>	<input checked="" type="checkbox"/>			
<b>Disability Studies</b>		<input checked="" type="checkbox"/>		
<b>Earth Science (B.A.)</b>	<input checked="" type="checkbox"/>			
<b>Economics (B.A., B.S., B.B.A.)</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
Environmental and Natural Resource				
Financial				
International				
Political Economy				
Socioeconomics				
<b>Education</b> (See College of Education)				
<b>Educational Media</b>				<input checked="" type="checkbox"/>
<b>Engineering (B.S.)</b>		<input checked="" type="checkbox"/>		
<b>English (B.A.)</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
American Literature				
British Literature				
Creative Writing				<input type="checkbox"/>
World Literature				<input type="checkbox"/>
<b>English as a Second Language</b> (See College of Education)				
<b>Entrepreneurship</b>				<input checked="" type="checkbox"/>
<b>Environmental Information Systems</b>				<input checked="" type="checkbox"/>
<b>Environmental Management</b>				<input checked="" type="checkbox"/>
<b>Environmental Humanities</b>				<input checked="" type="checkbox"/>
<b>Environmental Science</b>				<input checked="" type="checkbox"/>
<b>Environmental Studies</b>				<input checked="" type="checkbox"/>
<b>European Business concentration</b>				
<b>Family Studies</b>				<input checked="" type="checkbox"/>
<b>Film Studies</b>				<input checked="" type="checkbox"/>
<b>Finance (B.B.A.)</b>		<input checked="" type="checkbox"/>		
Financial Analysis				
Risk Management				
<b>Geographic Science (B.A., B.S.)</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Applied Geographic Information Science				
Environmental Conservation, Sustainability and Development				
<b>Geology (B.S.)</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Environmental and Engineering Geology				
General Geology				
<b>Geophysics</b>				<input checked="" type="checkbox"/>
<b>Gerontology</b>				<input checked="" type="checkbox"/>
<b>Graphic Design (B.F.A.)</b>		<input checked="" type="checkbox"/>		
<b>Health Sciences (B.S.)</b>		<input checked="" type="checkbox"/>		
Health Assessment and Promotion				
Health Studies				
Occupational Studies				
Public Health Education				
<b>Health Services Administration (B.S.)</b>		<input checked="" type="checkbox"/>		
<b>Historical Archaeology</b>				<input checked="" type="checkbox"/>
<b>History (B.A.)</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Public History				
<b>Honors</b>				<input checked="" type="checkbox"/>
<b>Hospitality Management (B.S.)</b>		<input checked="" type="checkbox"/>		
<b>Human Resource Development</b>				<input checked="" type="checkbox"/>
<b>Humanitarian Affairs</b>				<input checked="" type="checkbox"/>
<b>Independent Scholars</b>		<input checked="" type="checkbox"/>		
<b>Individualized Study (B.I.S., B.A., B.S.)</b>		<input checked="" type="checkbox"/>		
Social Science				
<b>Industrial Design (B.S.)</b>		<input checked="" type="checkbox"/>		
<b>Integrated Science and Technology (B.S.)</b>		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
Applied Biotechnology				
Energy				
Engineering and Manufacturing				
Environment				
Information and Knowledge Management				
Telecommunications				<input type="checkbox"/>
<b>Intelligence Analysis (B.S.)</b>		<input checked="" type="checkbox"/>		
Competitive Intelligence				
National Security				
<b>Interdisciplinary Liberal Studies (B.S.)</b>		<input checked="" type="checkbox"/>		
<b>Interdisciplinary Social Science</b>				<input checked="" type="checkbox"/>
<b>International Affairs (B.A.)</b>		<input checked="" type="checkbox"/>		
Comparative Study				
International Relations				

This chart lists majors, minors and concentrations. Degrees available for majors are listed in parentheses after the name of the major.

Concentrations are listed below respective major programs with no block designation.

A solid box (■) in the minor column designates an area offered only as a minor.

An open box (□) in the minor column designates an area offered as both a concentration and a minor.

	Major	Minor		Major	Minor
<b>International Business (B.B.A.)</b>	■			<b>Nursing (B.S.N.)</b>	■
Finance				<b>Philosophy and Religion (B.A., B.S.)</b>	■
Marketing				Christian Studies	■
<b>Justice Studies (B.A., B.S.)</b>	■			Ethics	■
<b>Kinesiology (B.S.)</b>	■			Global Religions and Global Issues	■
Coaching Education		■		Interdisciplinary Philosophy	
Exercise Science				Interdisciplinary Religion	
Physical and Health Education Teacher Education				Philosophy	□
<b>Latin American and Caribbean Studies</b>		■		Religion	
<b>Logic and Reasoning</b>		■		Religious Studies	■
<b>Management (B.B.A.)</b>	■			<b>Physics (B.A., B.S.)</b>	■
Business Analysis and Consulting				Applied Physics	
Human Resource Development				Astronomy	■
Innovation and Entrepreneurship				Fundamental Studies	
<b>Marketing (B.B.A.)</b>	■			Individual Option	
European Marketing		■		Multidisciplinary	
Marketing				Physics/Engineering Combined	
Professional Sales				Physics Specialist	
<b>Materials Science</b>		□		Professional	
<b>Mathematics (B.A., B.S.)</b>	■	■		<b>Political Communication</b>	
Computational Sciences				<b>Political Science (B.A.)</b>	■
<b>Media Arts and Design (B.A., B.S.)</b>	■			<b>Pre-Professional Health Programs</b>	■
Creative Advertising				Pre-dentistry, Pre-medicine, Pre-occupational Therapy,	
Digital Video and Cinema				Pre-optometry, Pre-pharmacy, Pre-physical Therapy,	
Integrated Design				Pre-physician Assistant, Pre-veterinary Medicine	
Journalism				Pre-forensic Studies (advisory program)	
<b>Medical Humanities</b>		■		<b>Psychology (B.A., B.S.)</b>	■
<b>Medieval and Renaissance Studies</b>		■		Behavior Analysis	
<b>Middle Education</b> (See College of Education)				<b>Public Policy and Administration (B.S.)</b>	■
<b>Middle Eastern Communities and Migrations</b>		■		Public Management	■
<b>Military Leadership</b>		■		Public Policy	
Army ROTC				<b>Quantitative Finance (B.S.)</b>	■
<b>Modern European Studies</b>		■		Risk Management	
<b>Modern Foreign Languages (B.A.)</b>	■			<b>Robotics</b>	
Arabic		■		<b>Russian Studies</b>	
Business French		■		<b>Science, Technology and Society</b>	
Business German		■		<b>Secondary Education</b> (See College of Education)	
Business Italian		■		<b>Social Work (B.S.W.)</b>	■
Business Spanish		■		<b>Sociology (B.A., B.S.)</b>	■
Chinese		■		Communities, Inequalities and Public Policy	■
French		■		Environments, Technologies and Innovations	
German		■		Markets and Cultures	
Italian		■		Political and Global Analysis	
Legal Spanish		■		<b>Special Education</b> (See College of Education)	
Medical Spanish		■		<b>Sport and Recreation Management (B.S.)</b>	■
Russian		■		<b>Sport Communication</b>	
Spanish		■		<b>Statistics (B.S.)</b>	■
Spanish-English Translation and Interpretation		■		<b>Substance Abuse Prevention</b>	■
<b>Music (B.M.)</b>	■	■		<b>Telecommunications</b>	■
Composition				<b>Theatre (B.A.)</b>	■
Jazz Studies		□		<b>Urban and Regional Studies</b>	■
Music Education (Instrumental, Vocal)				<b>Women's and Gender Studies</b>	■
Music Industry		□		<b>World Literature</b>	■
Music Theatre				<b>Writing, Rhetoric and Technical Communication</b>	■
Performance (Instrumental, Vocal, Piano, Accompanying/Coaching)				(B.A., B.S.)	■
<b>Music and Human Services</b>		■		Technical and Scientific Communication	
<b>Musical Theatre (B.A.)</b>	■			Writing and Rhetoric	
<b>Nonprofit Studies</b>		■			

## Degree Requirements at James Madison University

### Bachelor of Arts (B.A.)

Requirements	Credit Hours
Foreign language courses (intermediate level required) <sup>1</sup>	0-14
General Education courses <sup>2</sup>	41
Philosophy course (in addition to General Education courses) <sup>3</sup>	3
Major concentration courses and electives <sup>4</sup>	62-76
	<hr/> 120

### Bachelor of Business Administration (B.B.A.)

Requirements	Credit Hours
B.B.A. core courses	44-45
General Education courses <sup>2</sup>	41
Major courses	24
Electives	11-21
	<hr/> 120

### Bachelor of Fine Arts (B.F.A.)

Requirements	Credit Hours
Core program – art courses	24
General Education courses <sup>2</sup>	41
Art emphasis courses	54
Electives	1
	<hr/> 120

### Bachelor of Individualized Study (B.I.S.)

Requirements	Credit Hours
General Education courses <sup>7</sup>	41
Major concentration courses	30
Electives	49
	<hr/> 120

### Bachelor of Music (B.M.)

Requirements	Credit Hours
Core music program courses	27
General Education courses <sup>2</sup>	41
Major concentration courses and electives	56-63
	<hr/> 124-131

### Bachelor of Science (B.S.)

Requirements	Credit Hours
General Education courses <sup>2</sup>	41
Quantitative requirement (in addition to General Education courses) <sup>5</sup>	3
Scientific Literacy requirement <sup>6</sup> (in addition to General Education courses)	3-4
Major concentration courses and electives <sup>4</sup>	72-77
	<hr/> 120

### Bachelor of Science in Nursing (B.S.N.)

Requirements	Credit Hours
General Education courses <sup>2</sup>	41
Nursing courses	61
Other supportive courses	14
Electives	5-8
	<hr/> 120

### Bachelor of Social Work (B.S.W.)

Requirements	Credit Hours
Core program – social work courses	42
General Education courses <sup>2</sup>	41
Social work electives	6
Electives	32-35
	<hr/> 120

1 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232), or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

2 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

3 Any PHIL course except PHIL 120 or PHIL 150. Consult the list of courses satisfying Bachelor of Arts degree requirements on the Registrar's website.

4 Includes education courses leading to licensure in teacher education.

5 Students are strongly encouraged to complete one of the following sequences: MATH 107-108, MATH 135-235, MATH 155-220, MATH 156-220, MATH 220 and one from MATH 321-327, or MATH 235-236.

6 Scientific Literacy requirement to be chosen from the list of courses satisfying Bachelor of Science degree requirements on the Registrar's website.

7 The Adult Degree Program contains a set of requirements each individualized study major must fulfill. The university recognizes this alternate general education program as a nontraditional equivalent to The Human Community.

# Academic Terms and Definitions

## Degree Requirements

A degree is an academic title conferred on students who complete a unified program of study. Degrees vary according to the major program. JMU offers eight undergraduate degrees that incorporate course requirements unique to the degree and major discipline. Majors culminating in Bachelor of Arts and Bachelor of Science degrees share common sets of course requirements appropriate to the degree with specific distinctions.

**Bachelor of Arts degree** – The B.A. is distinguished by its humanistic emphasis. Students who complete a B.A. may satisfy the degree requirements by taking courses that advance their understanding of human culture through analysis of ideas; perception of differences; appreciation of art and creative products through understanding art forms, beauty, and symmetry; knowledge of theories and principles of form, substance, argument and philosophy; understanding of the interaction between language and culture; and achievement of linguistic competency in a second language.

**Bachelor of Science degree** – The B.S. is distinguished by its scientific emphasis. Students who complete a B.S. may satisfy the degree requirements by taking courses that advance their understanding of the use of scientific analysis, experimentation and the application of scientific principles and facts in solving problems; understanding of the crucial role of mathematical reasoning; and understanding analysis and techniques in comprehending problems in the natural or social sciences.

Courses satisfying Bachelor of Arts and Bachelor of Science degree requirements are available from the Registrar's website.

## Program of Study Components

A program of study, or course of study, refers to any set of courses and experiences identified by the university as satisfying the requirements of a program or program component for a student or students. The following terms describe programs of study at James Madison University.

**Major** – A coherent set of required and elective courses approved by the Board of Visitors and meeting state criteria that, when completed by a student, signifies a degree of preparation in a field or fields of study. The credit hour requirements for the major are set by the respective colleges and academic units and may not consist of less than 30 hours. A student must formally declare a major.

**Minor** – A cohesive set of required and elective courses that, when completed by a student, connotes knowledge and skills in a discipline, region or topic area, but not at the depth of a major. The minor is designed for students who are not majoring in the same area (students may not earn a major and minor in the same subject) and typically requires between 18-24 credit hours, as set by the respective academic unit and college. A student must formally declare the minor for it to appear on the transcript of record. A minor is not required for graduation except when a student's declared major requires it.

**Concentration** – A prescribed set of courses associated with a major or minor that is designed to focus a student's course of study according to interest and/or career goals. A concentration is not a required component of all majors and/or minors. The student must formally declare the concentration for it to appear on the transcript

of record. The concentration will be noted on the transcript only after the student graduates.

**Cognate** – A set of courses outside the major that is designed to complement other components of the student's course of study and to support selected professional goals. A cognate is not a required component of a program. A student does not have to formally declare a cognate and it will not appear on the transcript of record.

**Core** – A defined group of courses within a particular major or minor that is required of all students completing that major or minor.

**Track** – A prescribed set of courses within a concentration. A track is not a required component of all concentrations. A student does not have to formally declare a track and it will not appear on the transcript of record.

**Pre-professional Program** – A defined set of courses or course options and requirements that serve as prerequisites to upper or graduate-level professional program components or courses. A pre-professional program may coincide with a major, minor or concentration, or it may be comprised by courses from two or more disciplines and concentrations.

**Pre-professional Advisory Program** – This program includes a set of recommended courses for students who wish to shape their undergraduate experience toward a related professional goal beyond the undergraduate degree, such as the pre-law and pre-forensics programs. Pre-professional advisory programs appear on the transcript during a student's undergraduate career, but do not appear on the transcript after graduation.

**Pre-professional Licensure and Degree Program** – This program must be related to a student's major as part of a planned progress toward professional credentialing, such as the pre-professional teacher education programs. It creates a distinct set of knowledge or skills that qualifies one to practice in a particular area or work in a specific field. This designation appears on the transcript.

**Professional Program** – A defined group of courses or course options designed to prepare a student for a specific professional career, certificate or license. A professional program may coincide with a major, minor or concentration, or it may be comprised by courses from two or more disciplines and concentrations. The student must formally declare the professional program for it to appear on the transcript of record. The professional program will be noted on the transcript only after the student graduates.

**Licensure Program** – A set or sequence of courses and experiences required for a student to be eligible to obtain a license issued by an agency, group or professional organization.

**Certificate Program** – A prescribed set or sequence of courses that results in a student receiving a certificate issued by the university when the identified courses and experiences are completed satisfactorily and when all other conditions have been met in accordance with the definitions and policies governing certificates.

These definitions apply to all programs of study except in cases where program nomenclature specified by the accrediting agency differs from the nomenclature stated by James Madison University.

# Student Services and Learning Resources

## Academic Affairs Mission Statement

Phone: (540) 568-6616

Website: <http://www.jmu.edu/acadaffairs>

The Division of Academic Affairs is a community of scholars engaging students in the collaborative construction and application of knowledge through intellectual pursuits in teaching, learning, research, inquiry, creative activity and service.

## Administration and Finance Mission Statement

Phone: (540) 568-6434

Website: <http://www.jmu.edu/adminfinance>

The Division of Administration and Finance is committed to the preparation of students to be educated and enlightened citizens who will lead productive and meaningful lives. The division supports the university's commitment to excellence by empowering our staff to communicate effectively with the university community and provide proactive approaches to satisfy customer expectations.

## Student Affairs Mission Statement

Phone: (540) 568-3685

Website: <http://www.jmu.edu/studentaffairs>

We are a community committed to preparing students to be educated and enlightened citizens who lead productive and meaningful lives.

## Business Services

### Bookstore

Location: 211 Bluestone Drive, MSC 2902

Phone: (540) 568-6121

Website: <http://www.jmu.edu/bookstore>

The JMU Bookstore stocks all textbooks used by the academic units, as well as a large selection of general and technical books. The store also sells school supplies, office computer supplies, Apple and Dell computers, software, clothing, gifts, magazines, and greeting cards. For students' convenience, the bookstore provides services including special orders for books, textbook buy back, gift cards, bus tickets and computer services.

### Card Services

Location: Student Success Center, MSC 3532

Phone: (540) 568-6446

Website: <http://www.jmu.edu/cardctr>

Card Services issues the JMU access card (JACard), the official identification card for all members of the university community. The JACard allows access to various campus facilities such as residence halls, and many other services. Card Services also has set up a Mobile ID app available on Apple and Android devices that allows access to many of the same services on campus. This app is a supplement to the JACard.

Services include meal plan access, dining dollar and FLEX declining balance accounts, administered by Card Services. FLEX accounts are honored for purchases or services in the bookstore, print services, copy machines, computer labs, library fees, convenience stores, parking, mail services, UREC, UPB movies, University Health Center, Forbes Center and all dining facilities, including on-campus vending machines, as well as many off-campus merchant locations.

### Dining Services

Location: JMAC 6

Phone: (540) 568-6751

Website: <http://www.jmu.edu/dining>

To meet the varied needs of individual students, Dining Services provides different meal plans. All on-campus residents choose from among three meal plans, which come with the "Student Housing and Food Contract" [19 meal plan, 14 meal plan and 10 meal plan]. Commuters, who do not automatically have a meal plan, may purchase any of the on-campus plans and have the additional options of a Weekly 7, Weekly 5, Weekly Super 5 or Commuter 50 Block.

The department offers a declining balance account that operates like a debit card; all meal plans come with declining balance. Dining dollars can reload with Dining Dollars Gold for a five percent discount and pay no sales tax on purchases. Dining Dollars Gold transfer from year to year. Cash sales are also welcome at all dining services locations.

### Parking Services

Location: Champions Drive Parking Deck, 280 Champions Drive, MSC 1301

Phone: (540) 568-3300

Website: <http://www.jmu.edu/parking>

Parking Services offers annual, semester and daily parking permits to eligible members of the university community. Permits are available to campus visitors, free of charge, upon presentation of a valid driver's license and vehicle registration. The department also maintains parking meters throughout the campus that are intended to provide convenient, short-term parking to faculty, staff, students and visitors. Any vehicle parked on university-owned or leased property is required to display a valid JMU parking permit. Hard copies of the Parking Handbook are available free of charge upon request at Parking Services.

### Print Services

Location: Medical Arts, Suite 31, MSC 5722

Phone: (540) 568-7300

Location: Engineering/Geosciences Room 1002, MSC 4311

Phone: (540) 568-8731

Website: <http://www.jmu.edu/printservices>

Print Services is owned and operated by the university as a service to the campus community. Two locations provide a full range of photocopying and digital printing services. Services include academic coursepack production, copyright permissions,

full color, black/white digital printing, binding and laminating as well as wide format posters/printing. Both locations offer computer labs for working on projects with access to the production machines to complete projects.

## Career and Academic Planning

Location: Student Success Center, MSC 1016

Advising: Room 3210

Interviewing: Room 3250 Phone: (540) 568-6555

Employer Relations and Recruiting Phone: (540) 568-7379

Website: <http://www.jmu.edu/cap>

Career and Academic Planning coordinates academic advising for all first year students and undeclared students, assists students in choosing or changing their major and deciding upon a career direction, and provides a variety of job search programs and graduate school application services.

### First Year Academic Advising

Academic advising is vital to student success. The adviser assists students in shaping their educational experience to meet specific intellectual, personal and career goals. Advisers do not decide the student's goals or program, but help students learn how to develop appropriate goals, make good choices that enhance learning and personal growth, and succeed in and out of the classroom.

During summer orientation, all new students are assigned to faculty or professional advisers who discuss with them the university's various programs of study, academic policies and procedures, advanced placement credit, and class enrollment procedures. Advisers continue to work with first year students until midway through the spring semester, at which time first year students that have declared a major are assigned to advisers in their academic unit. Students remaining undeclared are assigned to a professional adviser in Career and Academic Planning. First year students must declare their major by the beginning of their sophomore year. Refer to Academic Policies and Procedures for information on declaring a major.

JMU students are responsible for the educational choices they make, both short and long term, but they can make those choices in a supportive environment. Effective academic advising is a relationship between student and adviser. Students must be aware of their own interests, values and goals; knowledgeable about relevant policies and requirements; and willing to take initiative to seek assistance when it is needed. Advisers should respond to the student as an individual, be aware of student progress, and help the student make connections between academic choices and career possibilities.

### Career Advising and Decision-Making

Career and Academic Planning helps students understand the process of deciding on an appropriate major and relating that decision to possible career paths.

Students can meet with professionals and attend various programs to enhance their knowledge of majors, explore career fields, learn career decision-making strategies, discover more about their own interests and strengths and launch an effective internship, job, or graduate school search.

### Career and Academic Planning Course

UNST 102 Career and Academic Planning is a course for first year students who want to explore the relationship between

academic majors and career fields, identify their major and career interests and learn effective decision-making strategies for choosing a major and a career.

## Career and Academic Resource Center

The resource center, located on the 3rd floor of the Student Success Center, provides information and assistance related to choosing a major and career planning, internships/summer jobs, job search tools and career trend information. FOCUS, a web-based career exploration tool is available to all students online. Resources include books, printed materials, handouts, databases, career software and web-based information, organized on a self-help basis so that students and faculty may browse at their leisure. Staff members are available to answer questions and help students use resource materials.

## Graduate School Information

Each fall semester, JMU offers a graduate and professional school fair open to all majors. Information on the graduate or professional school application process is available on Career and Academic Planning's website. A workshop series on the application process and factors to consider are also offered each academic semester. For individual assistance, students can make an appointment with a career adviser.

## Employment, Internship and Job Search Services

### Connecting with Employers

Business, industry, government non-profit and educational employers come to JMU throughout the year to conduct job interviews with graduating seniors and internships for all class levels. Information about the on-campus interview program, participating employers and the wide range of opportunities available to students can be found on Career and Academic Planning's website. Students create a profile on Recruit-a-Duke, an online platform that connects students to on-campus interviews and thousands of position postings. Employers participate in a practice interview program that can help students prepare for actual interviews.

### Resume Development

Assistance with writing resumes is available to students in many formats. Students can access resume writing resources via Career and Academic Planning's website. Offered throughout the year are resume writing workshops and other programs such as ResumePREP where students can receive feedback from employers. Students can also see career advisers for individual assistance by making an appointment or attending walk-in resume reviews.

### Career Fairs

The office sponsors a number of career fair events each year to provide students with the opportunity to interact with employers and obtain jobs, internships and employment-related information.

### Job Search

Job search related workshops and programs are offered throughout the academic year, covering topics such as targeted job search strategies, networking and use of social media in the search process. Students may also meet individually with a career adviser to tailor their job search. To prepare for

interviews, students can use InterviewStream, a web-based interviewing practice application that students may use at any time. InterviewStream allows students to record a practice interview related to their major or career choice and review the videos themselves or share it with others for feedback.

Job postings for all majors can be found on Recruit-a-Duke, a web-based job search system. Students can use the VAULT online industry guides to research specific career fields, obtain job search tips and find additional job listings.

## Internships

Recruit-a-Duke and the Career and Academic Planning website offer resources on how to find, apply and secure an internship which span a broad range of career fields. Students can also attend a workshop or meet with a career adviser to tailor their internship search. VAULT is an online resource with extensive internship listings. Students are encouraged to speak with their respective academic departments for additional information on internships. If academic credit is desired, arrangements must be made in advance with the academic unit and the Office of the Registrar.

## Center for Global Engagement

Location: 100 East Grace St., MSC 5731

Phone: (540) 568-5209 Fax: (540) 568-3310

Website: <http://www.jmu.edu/global>

## Semester Abroad Programs

Recognizing its responsibility to provide international experiences to JMU students, the university sponsors semesters abroad in Antwerp, Florence, London, Salamanca and Scotland. JMU students experience life in a different culture and gain direct access to the historical, artistic and sociopolitical traditions of the environment while pursuing an approved course of study toward their bachelor's degree.

The programs are open to all students in good academic standing. Applicants should have at least a 2.0 grade point average.

### Semester in Antwerp

Offered during the fall, spring and summer semesters, the Semester in Antwerp program is an experience-based program, blending classroom theory with field trips to actual European businesses and sites of historic and cultural interest. While in Belgium, students attend classes onsite at the University of Antwerp with business faculty who specialize in European Integration and the effects of economic and monetary union. This program is open only to business majors who have been accepted into COB 300. No foreign language is needed to participate in this program.

### Semester in Florence

The program curriculum for the Semester in Florence program highlights the Renaissance tradition of the city through art, literature and culture-related courses, as well as focusing on 20th- and 21st-century Italy and Europe through politics and history. Previous background in Italian is not required; however, students must take at least 3 credit hours of Italian while in Florence. Offered all 3 semesters, fall, spring and summer, this program gives students the opportunity to complete 6 credits toward the JMU General Education requirement for arts and humanities. Interested students can also earn substantial credit toward a minor in Modern European Studies.

## Semester in London

During the Semester in London, students study both classic and modern literature and then examine those great works in context, exploring how history influenced the present in Europe's most cosmopolitan city. Internships are also available as part of the program. With more than 200 possible intern sites in London, positions are widely varied and open to all majors. This unique opportunity allows students to build essential life and career skills while experiencing the British lifestyle first-hand. This program is offered during the fall, spring and summer. Interested students can also earn substantial credit toward a minor in British Communication and Media.

## Semester in Salamanca

Offered fall, spring and summer, the Semester in Salamanca program gives students the opportunity to experience the cultural richness of Spain, as their exposure to theaters, concerts, cinemas and other performing arts groups will unveil a new aspect of learning. All courses are taught in Spanish; thus, all applicants must have completed the intermediate level of Spanish (SPAN 232) prior to departure. Upon arrival in Salamanca, students enroll in a 3-credit intensive language class at the level appropriate to their needs during their first month abroad. This requirement permits time for students to adapt to Spanish language and culture before entering regular semester courses.

## Semester in Scotland

Students spend four weeks in Edinburgh and four weeks in St. Andrews as part of the Semester in Scotland program. This study abroad opportunity is open to all majors. Classes are taught by JMU professors and faculty members from the University of Edinburgh and University of St. Andrews, two of the best and most prestigious universities in the United Kingdom. Participating students take 12-13 credits in General Education courses. Course offerings vary each summer but will always cover courses in Clusters Two, Three, Four and Five of JMU's General Education curriculum.

## Summer Abroad Programs

During the summer, many international courses and travel study classes are offered (60-70 programs). Specific course offerings vary from year to year. A typical summer schedule might include classes in Argentina, Australia, Belgium, Cameroon, Canada, China, Costa Rica, England, France, Germany, Ghana, Greece, India, Ireland, Italy, Japan, Jordan, Kenya, Lebanon, Madagascar, Malta, Mexico, Montreal, Morocco, the Netherlands, the Philippines, Scotland, South Africa and Spain.

## Program Cost

The programs' costs differ, but all programs include tuition, housing, a basic food allowance, course-related travel, including extended weekend trips, instructional events, such as theater, concerts, historical tours and guest lectures, and some social activities.

All programs exclude the costs of students' travel to and from the program site. Loans and scholarships may be applied, and semester abroad scholarships and assistantships are available. Students live in a central, convenient part of each city and have ready access to the faculty member in residence or the on-site director if any health problems or emergencies arise. Students enrolled in JMU-sponsored study abroad programs will be

covered by a medical insurance policy for the period of time that they are participating in the JMU program.

Interested students can get information about study abroad programs from the Center for Global Engagement.

## International Exchange Programs

The university is committed to increasing the opportunities for students' global awareness. Numerous exchange programs with schools and universities abroad are available. JMU's exchange programs are based at prestigious universities around the world, such as Flinders University in Australia; University of Leicester in England; Hiroshima University, Nanzan University and Ritsumeikan University in Japan; Yonsei University in South Korea; the Universidad de Salamanca in Spain; American University of Cairo in Egypt; University of Versailles in France; and Malmo University in Sweden. Language requirements and curricula vary.

Exchanges are available to all majors and minors. Students should consult the Center for Global Engagement for application deadlines and further information.

## Study at Oxford, Cambridge or St. Andrews

The university also offers the opportunity to study abroad for a semester or a full academic year at three of Great Britain's oldest and most respected universities: the University of Cambridge and the University of Oxford in England and the University of St. Andrews in Scotland. Participants will take part in tutorials across a wide range of topics and live with and share all of the benefits of regular university students. Study at Oxford, Cambridge or St. Andrews is open to all JMU students possessing a 3.3 grade-point average; students do not need to be honors students to participate in this program.

## External Abroad Programs

Students may apply to participate in other approved study abroad programs. The university will accept credits earned abroad at approved institutions in accordance with its policy of accepting transfer credits. Approval of proposed study programs must be obtained from the Center for Global Engagement and the head of the academic unit in which the transfer credit will be awarded.

## Center for Multicultural Student Services

Location: Madison Union, Room 207, MSC 3504

Phone: (540) 568-6636

Website: <http://www.jmu.edu/multicultural>

The Center for Multicultural Student Services celebrates the diversity of JMU students by fostering student growth and development, heightening awareness and educating its constituents regarding ethnic and cultural diversity.

The purposes of CMSS are:

- To assist the university in its goal of recruiting and retaining a diverse student population through a variety of programs and services designed to assist students in achieving their academic and career aspirations.
- To encourage the development of a climate in which the accomplishments of multicultural students are appreciated.

- To create an environment through which multicultural students can continue to share in and contribute to the mainstream of campus life.

The office works diligently to provide the following services:

- Cultural Programming and Awareness
- Leadership Development
- Recruitment and Retention
- Student Support

## Community Service-Learning

Location: Student Success Center, 2nd Floor

Room 2100, MSC 1011 Phone: (540) 568-6366

Website: <https://www.jmu.edu/csl>

Community Service-Learning (CS-L) programs allow students to learn and develop through active participation in thoughtfully organized community service. Students, faculty, staff and community agencies partner to help prepare students for lifelong community service and civic engagement. Students can serve in over 80 community agencies through service-learning courses or by coming to the CS-L office during the first three weeks of each semester.

In addition to local service opportunities, Alternative Break Programs are student led and developed service trips to locations in the United States and abroad. Trips are offered at Thanksgiving, spring and May breaks. Local trips are also offered on weekends. Trips fill up quickly, so check the CS-L website regularly for sign up details. For students eligible for Federal Work Study, America Reads and Community Work Study places students in elementary schools to tutor in reading and in community service agencies that address a variety of community needs.

## Counseling Center

Location: Student Success Center, Room 3100, MSC 0801

Phone: (540) 568-6552

Website: <http://www.jmu.edu/counselingctr>

The Counseling Center provides free, confidential personal counseling services to all full-time JMU students. Appointments can be made in person or over the phone (568-6552). After-hours crisis services may be accessed by contacting the Office of Public Safety (568-6911).

Counseling at the Counseling Center frequently involves issues such as relationship problems, self-esteem, depression, anxiety/stress, eating and body image concerns, and difficulty adjusting to college life.

Services include:

- Personal Counseling: Individual counseling provides students with the opportunity to freely explore any personal problems or concerns which have a negative impact on the quality of their lives. The Counseling Center operates under a short-term treatment model in which the student and counselor collaboratively identify and address the student's primary concerns within a limited number of sessions. Students who request or require longer-term treatment are referred to community resources.
- Specialized Treatment Programs:
  - Tackling Anxiety: This treatment program provides effective strategies and interventions to reduce anxiety, worry, nervousness and panic symptoms.

- Tackling Society: This treatment program helps reduce social anxiety symptoms and increase confidence, assertiveness and connection.
- Group Counseling: Each semester, students may participate in small group experiences on issues related to their needs (e.g., depression, eating disorders, anxiety, grief, etc.).
- Sexual Trauma Empowerment Program (STEP): The Counseling Center provides crisis, individual and group counseling to students who are survivors of sexual assault. Referral services are also available to students who choose to pursue judicial charges through JMU or criminal charges through the court system.
- Psychiatric Services: The Counseling Center has psychiatric providers who prescribe medications that may be helpful to students dealing with psychological issues. Only students who are currently engaged in ongoing treatment at the Counseling Center are eligible to receive these services. The cost of any medication and/or necessary lab work is the financial responsibility of the student. Students who are exclusively interested in psychiatric services are provided an off-campus referral.
- Consultation: In person or over the phone, the Counseling Center provides consultation to students, faculty, staff and others who are concerned about the distressed, unusual, problematic or potentially harmful behavior of others.
- Outreach Programming: Workshops on a wide variety of mental health topics may be requested by visiting the Counseling Center online.
- Peer Mentor Program: This program is designed to help first year and transfer multicultural and international students make a successful transition from high school to the university.

## Office of the Dean of Students

Location: Madison Union, Room 300, MSC 3534

Phone: (540) 568-6468

Website: <http://www.jmu.edu/deanofstudents>

Staff are committed to providing students with impartial and independent support regarding university policies, procedures and regulations. Specific types of assistance include:

- Assisting students who are considering withdrawing from the university prior to the end of the semester.
- Facilitating communications and connections with university personnel and departments.
- Notifying faculty of extended class absences when a student is incapacitated or has experienced extraordinary circumstances over the course of several days. Such notifications are sent as a convenience for the student, but do not excuse the student's absence. It is the responsibility of the student to contact each professor upon their return regarding the professor's policy for missed classes, assignments, etc.
- Referring students to resources to increase the likelihood of their success.
- Supporting and advising students and families in crisis and/or challenging situations.
- Consulting with faculty, staff and students regarding distressed and disruptive students to include referrals to appropriate resources.

## Office of Disability Services

Location: Student Success Center, Suite 1202

Email: [disability-svcs@jmu.edu](mailto:disability-svcs@jmu.edu)

Phone: (540) 568-6705 Fax: (540) 568-7099

Website: <http://www.jmu.edu/ods>

Disability services collaborates with the JMU community by providing programs and services that support the university in creating inclusive, equitable environments that value disability, diversity, and accessibility. Services include:

- Equal access to university programs and services
  - Provision and coordination of reasonable accommodations
  - Disability-related support services
  - Liaison to faculty, staff and students on disability-related issues
- Disability services is comprised of the following areas:

### Accessible Media & Technology

Email: [alt-media@jmu.edu](mailto:alt-media@jmu.edu)

Website: <http://www.jmu.edu/ods/accommodations/accessible-media>

Accessible Media & Technology provides course materials in alternative formats for students with qualifying disabilities, manages the accessible technology labs, and supports university faculty and staff with designing accessible course materials. Services include:

- Textbooks and articles in alternative formats such as audio, large print, accessible PDFs and Braille
- Captioning for videos and recorded audio
- Educational programs on creating accessible course materials

Accessible technology computer labs with specialized software and furniture are located in Carrier Library (Room 119), Rose Library (Room 1204) and the Student Success Center (Suite 1202).

### Learning Strategies Instruction

Email: [lsi@jmu.edu](mailto:lsi@jmu.edu)

Website: <http://www.jmu.edu/lsi>

Learning Strategies Instruction (LSI) is the direct instruction of curriculum-based strategies designed to improve the actual process of learning. Available to any student, LSI promotes learning efficiency in current courses and is available in such areas as:

- Memory
- Note-taking
- Reading comprehension
- Studying
- Test-taking
- Time management

### Screening & Referral Service

Website: <http://www.jmu.edu/ods/accommodations/screening-and-referral.shtml>

This office provides a one- and one-half hour clinical interview exploring a broad range of historical, academic, study habits/skills, academic frustrations and emotional components. A screening does not yield a diagnosis; rather, it assists in the decision make process for recommending the next steps in the process.

### Housing Accommodation Committee

Email: [specialhousingrequest@jmu.edu](mailto:specialhousingrequest@jmu.edu)

Website: [https://www.jmu.edu/ods/\\_files/housing-accommodation.pdf](https://www.jmu.edu/ods/_files/housing-accommodation.pdf)

Deadlines for housing accommodation requests are concurrent with deadlines for the associated housing contract.

## Office of Equal Opportunity

Location: 1017 Harrison St., MSC 5802

Phone: (540) 568-6991

Website: <http://www.jmu.edu/oeo>

The Office of Equal Opportunity administers JMU's commitment to providing an equitable and safe environment for the entire JMU community. JMU adheres to a strict policy that prohibits discrimination of any kind in JMU's hiring practices, admissions, academics or programs involving JMU employees or students. The Office of Equal Opportunity is a resource for all university community members to ensure the protections and rights provided in the non-discrimination policy and other university policies and/or state and federal laws.

The responsibility for overall coordination, monitoring and information dissemination about JMU's program of equal opportunity, non-discrimination and affirmative action is assigned to the Office of Equal Opportunity. The OEO also monitors JMU's compliance with federal and state laws.

Any university community member who believes they have been subjected to discrimination due to age, color, disability, gender identity, genetic information, national origin, parental status, political affiliation, race, religion, sex, sexual orientation or veteran status may file a complaint with the OEO. Our office investigates complaints of discrimination and harassment and provides preliminary findings.

## Honorary Societies

The following honorary and professional societies recognized by the Association of College Honor Societies maintain active chapters on the JMU campus. These honors societies are not administered by the Honors Program.

- Beta Gamma Sigma (business)
- Golden Key National Honor Society
- Kappa Delta Pi (education)
- Omicron Delta Epsilon (economics)
- Omicron Delta Kappa (scholarship and leadership)
- Percy H. Warren Chapter of Mortar Board Honor Society
- Phi Alpha Theta (history)
- Phi Beta Kappa
- Phi Kappa Phi National Honor Society
- Phi Sigma Tau (philosophy)
- Psi Chi (psychology)
- Sigma Tau Delta (English)

Other honorary and professional societies at JMU include:

- Alpha Kappa Psi (professional business society)
- American Production and Inventory Control Society (resource management)
- Beta Alpha Psi (accounting)
- Beta Beta Beta (biology)
- Data Processing Management Association (information systems)
- Delta Sigma Pi (professional business society)
- Epsilon Chi Omicron (international business)
- Eta Sigma Delta (hospitality and tourism management)
- Eta Sigma Gamma (honorary)
- Financial Management Association (finance)
- Institute of Management Accountants (accounting)
- Kappa Delta Pi (education)

- Kappa Pi (art)
- National Association of Social Workers Program Unit
- Order of Omega (Greek leadership)
- Phi Alpha National Social Work Honor Society
- Phi Chi Theta (business and economics)
- Phi Epsilon Kappa (physical education honorary)
- Phi Mu Alpha Sinfonia (music)
- Pi Mu Epsilon (mathematics)
- Pi Sigma Epsilon (marketing)
- Rotaract (business)
- SIGGRAPH (digital media production)
- Sigma Alpha Iota (music)
- Society for Collegiate Journalists
- Society of Human Resources Management
- Society of Professional Journalists
- Tau Beta Sigma (band)

## JMU Learning Centers

Location: Student Success Center, Room 1164

Phone: (540) 568-2932

Website: <http://www.jmu.edu/learning>

JMU's Learning Centers support students, faculty and staff through the following programs and free services:

### Communication Center

Location: Student Success Center, Room 1155

Phone: (540) 568-1759

Website: <http://www.jmu.edu/commcenter>

The Communication Center provides resources and assistance with digital and oral communication projects and promotes students' communication excellence through attention to process, innovation and audience-centered design. The center offers consultations, class workshops and online resources for faculty and students across campus.

Services for digital communication include:

- One-on-one consultations for choosing the most effective online tools and planning a project
- Resources and tutorials on effective digital design, communication, navigation and usability
- Usability testing for digital projects
- Collaborating with faculty to design effective digital assignments

Services for oral communication include:

- Speech preparation assistance
- Assistance with speech outlines and research
- Speech anxiety reduction strategies
- Developing audience-centered presentations and visual aids
- Enhancement of speech delivery and style

### English Language Learner Services

Location: Student Success Center, Room 1155

Phone: (540) 568-2881

Website: <http://www.jmu.edu/ells>

In addition to opportunities to work on academic skills in a cooperative environment, multilingual learners can seek consultation on such topics as:

- Reading, writing, listening and speaking
- American academic culture
- Multilingual writing groups

## Peer Assisted Study Sessions

Location: Student Success Center, Room 1119

Phone: (540) 568-4370

Website: <http://www.jmu.edu/pass>

Peer Assisted Study Sessions (PASS) help students successfully complete historically challenging courses. Students work together in regularly scheduled out-of-class study sessions that are facilitated by peer educators. These sessions are designed to help students master course content and develop their organizational, study and learning skills. Refer to the PASS website for a current list of supported courses.

## Science & Math Learning Center

Location: Student Success Center, Room 1107

Phone: (540) 568-3379

Website: <http://www.jmu.edu/smlc>

The Science and Math Learning Center (SMLC) provides support to JMU students enrolled in first and second year science and mathematics courses by providing a secure, supportive learning environment that fosters independent thinking. The center provides a walk-in tutoring service by both faculty and trained peer tutors in the following subject areas: physics, chemistry, mathematics and statistics. Consult the website for a current list of supported courses. The SMLC is equipped with a 34 unit educational computing lab.

## University Writing Center

Location: Student Success Center, Room 1121

Phone: (540) 568-1759

Website: <http://www.jmu.edu/uwc>

The University Writing Center works directly with student and faculty writers, provides resources on writing strategies and supports writing across campus. The center provides:

- Individualized writing consultations
- Writing space for Writing Center users
- Faculty consultations for designing assignments and responding to student writing
- In-class workshops on writing-related issues for any academic course or department

## JMU Libraries & Educational Technologies

Carrier and Rose Libraries, Music Library, Educational Technology and Media Center, Visual Resources Center

Phone: (540) 568-6150

Website: <http://www.lib.jmu.edu>

JMU Libraries & Educational Technologies (LET) engage with JMU's diverse communities in their creation and search for knowledge through academic resources, physical and virtual spaces, and educational and research services. LET values adaptability, collaboration, diversity, learning and strategic innovation. LET nurtures a user-oriented focus in helping students, faculty and staff succeed at JMU.

LET is here to support students' academic success. It provides comfortable, safe places to learn, create, explore and collaborate, as well as collections, technology and help from knowledgeable faculty and staff. Students who take full advantage of the libraries'

resources early in their academic careers are more confident and skilled when it comes to doing university-level research.

LET recognizes that a big university library system can be overwhelming. It offers assistance navigating the libraries and educational technology services at the help desks, via email or online chat, or by appointment. LET manages the Madison Research Essential Skills Test (MREST), a General Education requirement for all freshmen and select transfer students. LET also provides online tutorials and walk-in workshops on a variety of information literacy and technology topics, from finding articles for papers to 3D printing. Every major has a dedicated librarian, who will teach in classes and work with students at any stage of their university careers. There are two main libraries (Carrier on West Campus and Rose on East Campus) that each provide study, collaboration and maker spaces, and several small branches.

## Orientation Office

Location: Student Success Center, Suite 2200, MSC 1010

Phone: (540) 568-1787

Website: <http://www.jmu.edu/orientation>

The Orientation Office provides a variety of academic and social programs and services to support new students' transition to the university. All first-year students entering in the fall semester attend a one-day orientation program in June or July and a five-day program in August. All transfer students entering in the summer and fall semesters attend a one-day orientation program in May or June and a three-day program in August. For new transfer students entering in the spring semester, Orientation is offered as a one-day program in December.

All orientation programs provide new students with academic advising, information about essential student services and insights on how to be a successful student. There are numerous opportunities to meet new people, learn about key academic resources and get involved in campus and community activities.

## Pre-Professional Health Advising

Dr. Sharon Babcock, Director

Dr. Heather Strine-Patterson, Assistant Director

Phone: (540) 568-6652

Email: [pph@jmu.edu](mailto:pph@jmu.edu)

Website: <http://www.jmu.edu/pph>

Pre-professional health (PPH) advising offers minors and advisory programs that outline recommended courses, activities and competencies for students who are preparing for careers in health professions that require masters or doctoral education.

Health professions schools are most concerned with the overall scope and quality of an applicant's undergraduate performance. Students are encouraged to select a major based on interests and aptitudes. Regardless of baccalaureate degree program, competitive applicants must demonstrate excellence in academic accomplishments, prerequisite course work, career exploration, health-related experience, community service and standardized admission tests, as well as intra- and inter-personal competencies. Students are encouraged to establish mentoring relationships with faculty, clinical mentors and supervisors. Pre-professional health advisers are available to assist students in making academic and career-related decisions. Planning and evaluation services are available for students and alumni during the application process to health profession schools.

Service in the community and experience in health-care settings are highly recommended to students considering a professional health career. Requirements for these types of activities vary among programs; students should inquire with their respective program adviser for guidance. Student organizations provide venues to participate in community service and to interact with health professionals; thus, students are encouraged to become involved in the American Medical Student Association, Pre-Dental Society, Pre-Med Association, Pre-Occupational Therapy Association, Pre-Optometry Club, Pre-Pharmacy Society, Pre-Physical Therapy Society, Pre-Physician Assistant Club, Pre-Vet Society, International Service Learning Club, The Huber Connection and The Institute for Healthcare Improvement.

Students must complete all courses to earn a minor. The courses outlined below fulfill the admission requirements of many, but not all, professional programs. Since professional schools have unique requirements, students must inquire with schools of interest for definitive admissions requirements.

## Pre-Dentistry Minor<sup>1</sup>

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
CHEM 131-132. General Chemistry I-II (including labs 131L-132L)	8
CHEM 241-242. Organic Chemistry I-II (including lab 242L)	8
CHEM 361. Biochemistry I	3
PHYS 140-150. College Physics I-II (including labs 140L-150L)	8
Mathematics (calculus and statistics)	6
English (WRTC 103, any ENG or HUM 200)	6

To become competitive applicants, students need to complete at least four (16 or more credit hours) of the following: genetics (BIO 240), microbiology (BIO 245), human anatomy (BIO 290), physiology (BIO 370), histology (BIO 482) and cell biology. Students should complete three or more credit hours of psychology (PSYC 101 or PSYC 160) or sociology (SOC1 110 or SOC1 140). Students should check admission requirements of individual dental schools.

## Pre-Forensic Studies Advisory Programs

Forensic scientists apply scientific knowledge and techniques to legal investigations. The results of these investigations are vital to enforcing criminal law and government regulations, settling civil disputes and protecting public health. Scientists working in the forensics field have a wide variety of subject area backgrounds, typically at the master's level or higher. Preparation guidelines are outlined below for three of the most common disciplines for forensic scientists. Although students should investigate the specific requirements for individual graduate programs, these recommendations outline a set of commonly desired courses. Students may also wish to minor in criminal justice.

### Forensic Biology

A biology or chemistry major is recommended with the following:

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 240. Genetics	4
BIO 324. Human Genetics	3
BIO 343. Immunology	3
BIO/CHEM 361. Biochemistry	3
CRJU 215. Introduction to Criminal Justice	3

### Forensic Chemistry

A biology or chemistry major is recommended with the following:

Courses	Credit Hours
CHEM/MATS/PHYS 375	3
CHEM 331. Physical Chemistry	3
CHEM 351. Analytical Chemistry	4
CHEM/BIO 361. Biochemistry	3
CRJU 215. Introduction to Criminal Justice	3

### Forensic Anthropology

An anthropology major (biological anthropology concentration) or biology major (anthropology minor) is recommended with the following:

Courses	Credit Hours
ANTH 196. Biological Anthropology	3
BIO 270. Human Physiology or BIO 370 Animal Physiology	4
BIO 290. Human Anatomy	4
ANTH 319. Human Osteology or BIO 426/ANTH 395. Topics in Biology (when topic is Forensic Anatomy)	3
Choose two of the following:	6
MATH 321. ANOVA and Experimental Design	
MATH 324. Applied Nonparametric Statistics	
MATH 421. Applied Multivariate Statistical Analysis	

Students are encouraged to take advanced course work in human anatomy (BIO 410) and human osteology (ANTH 319).

## Pre-Medicine Minor<sup>1</sup>

### Declaring Pre-Medicine

Incoming first year and transfer students can declare pre-medicine without verification from PPH Advising. Current students can request declaration of pre-medicine but will need a signature for the request to be granted. If the student has completed fewer than 13 credit hours in biology, chemistry, physics and math at JMU, the request will be granted after verification of course work. If the student has completed 13 or more credit hours in biology, chemistry, physics and math at JMU, the request will be granted only if the student's overall GPA and science GPA (biology, chemistry, physics and math) are 3.00 or greater.

### Access to Pre-Medicine Advising

Students who progress successfully will have access to advising as they move through the program. Entry level advising is targeted for students who have not yet completed 13 hours of biology, chemistry, physics or math course work and will be done mainly in group settings or via electronic communication. Once students have completed 13 or more credit hours in biology, chemistry, physics and/or math course work at JMU, they become subject to twice yearly review of their academic progress. Performance queries will be conducted after summer and fall semester grades are posted. Students who achieve and/or maintain an overall GPA and a science GPA (biology, chemistry, physics and math) of 3.00 or above retain access to advising with emphasis on excellence in advanced course work, intrapersonal and interpersonal competencies, leadership, research, service, and health-related experience.

Students whose performance falls below the standard of a 3.00 overall GPA and science GPA are at high risk of not being admitted to medical school. Targeted advising for these students focuses on improving/developing academic skills as well as career exploration. If students fall below the standard in all subsequent performance reviews, the pre-medicine declaration will be administratively dropped.

Students who wish to re-enter the pre-medicine program can do so as long as they meet the GPA standards (3.00 or greater

overall GPA and science GPA). This applies to students who may have voluntarily dropped the pre-medicine minor as well as those who were dropped administratively.

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
CHEM 131-132. General Chemistry I-II (including labs 131L-132L)	8
CHEM 241-242. Organic Chemistry I-II (including laboratory 242L)	8
CHEM 361. Biochemistry I	3
PHYS 140-150. College Physics I-II (including labs 140L-150L)	8
Psychology (PSYC 101 or 160)	3
Sociology (SOC 110 or 140)	3
Mathematics (calculus and statistics)	6
English (WRTC 103, any ENG or HUM 200)	6

To become competitive applicants, students need to complete 12 or more credit hours of the following: genetics (BIO 240), microbiology (BIO 245), physiology (BIO 370) and cell biology. To strengthen preparation for the MCAT, students are encouraged to consider additional course work in the behavioral and social sciences (PSYC 308, SOCI 375, SOCI 385, or ANTH 360) and critical thinking (PHIL 120).

## Pre-Occupational Therapy Minor<sup>1</sup>

Courses	Credit Hours
ANTH 195. Cultural Anthropology	3
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 120. Concepts in Chemistry or CHEM 131 and 131L	3-4
HTH 210. Medical Terminology	3
MATH 220. Elementary Statistics	3
PHYS 140. College Physics I (including laboratory 140L) or HTH 441/KIN 407. Rehabilitative Biomechanics	3-4
PSYC 160. Life Span Human Development	3
PSYC 250. Introduction to Abnormal Psychology	3
SOCI 110. Social Issues in a Global Context, or SOCI 140. Microsociology: The Individual in Society	3

To become competitive applicants, students need to complete three hours in introductory biology (BIO 140 or BIO 103), additional psychology (PSYC 101) and ethics (PHIL 150).

Students should check admission requirements of individual occupational therapy schools.

## Pre-Optometry Minor<sup>1</sup>

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 245. General Microbiology	4
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 131-132. General Chemistry I-II (including labs 131L-132L)	8
CHEM 241-242. Organic Chemistry I-II (including laboratory 242L)	8
CHEM 361. Biochemistry I	3
PHYS 140-150. College Physics I-II (including labs 140L-150L)	8
Mathematics (calculus and statistics)	6
English (ENG, HUM 200 or WRTC 103)	6
PSYC 101. General Psychology	3

To become competitive applicants, students need to complete four or more credit hours of the following: genetics (BIO 240), cell biology, immunology (BIO 343) or molecular biology (BIO 480).

## Pre-Pharmacy Minor<sup>1</sup>

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4

BIO 245. Microbiology	4
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 131-132. General Chemistry I-II (including labs 131L-132L)	8
CHEM 241-242. Organic Chemistry I-II (including lab 242L)	8
SCOM 121. Fundamental Human Communication: Presentations or SCOM 122. Fundamental Human Communication: Individual Presentations	3
Mathematics (calculus and statistics)	6
PHYS 140. College Physics I (Including laboratory 140L)	4-8
Psychology (PSYC 101 or 160)	3
Sociology (SOC 110 or 140)	3
English (WRTC 103, any ENG or HUM 200)	6

To become competitive applicants, students need to complete biochemistry (CHEM 361), college physics II (PHYS 150 and 150L), economics (ECON 201 or ECON 200) and four or more credit hours of genetics (BIO 240), cell biology, immunology (BIO 343) or molecular biology (BIO 480).

Students should check admission requirements of individual pharmacy schools.

## Pre-Physical Therapy Minor<sup>1</sup>

### Declaring Pre-Physical Therapy

Incoming freshmen and transfer students can declare pre-PT without verification from PPH Advising. Neither group will be subject to monitoring until they have completed 10 hours of the defined prerequisite courses. AP, dual enrollment and transfer credit hours are not included in the progression standards.

Current JMU students can request declaration of pre-PT but will need a signature for the request to be granted. If the student has completed fewer than 10 hours of the prerequisite credits the request will be granted after verification of course work. If the student has completed 10 hours or more of the prerequisite credits, the request will be granted only if the cumulative GPA is 3.0 or greater and the prerequisite GPA is 2.7 or greater.

### Access to Pre-Physical Therapy Advising

Students who progress successfully will have access to advising as they move through their program. Entry level advising is targeted for students who have not yet completed 10 hours of the prerequisite list and will be done mainly in group settings or via group electronic communication. Once students have completed 10 hours of the prerequisite list, they become subject to twice yearly review of their academic progress. Performance queries will be conducted after summer and fall semester grades are posted. If the review indicates successful progress, they will be invited to benchmark advising activities. These events target students who are progressing but are not yet at the point of preparing an application. Topics include learning about different PT programs, deciding where to apply and discussing fulfillment of non-academic requirements/recommendations (shadowing, volunteering). Assuming continued progress, students will reach the applicant stage (typically spring of the junior year), during which they will be invited to participate in an application workshop.

Pre-PT students who fall below the standard of a 3.0 cumulative GPA and a 2.7 prerequisite GPA are at high risk of not being admitted to a PT program. Targeted advising for these students focuses on improving/developing academic skills as well as career exploration. Once they have participated in such advising, it will be incumbent upon them to improve their performance such that they attain and maintain the GPA standard. If students

fall below the standard in a subsequent performance review, their pre-PT designation will be administratively dropped. This action will not impede a student from applying to PT programs, nor will it have any impact on a student's degree program as the pre-PT designation is not a major, minor or concentration.

Students who wish to re-enter the pre-PT advisory program can do so as long as they meet the GPA standard (3.0 or greater cumulative GPA and 2.7 or greater prerequisite GPA). This applies to students who may have voluntarily dropped the pre-PT designation as well as to those who were administratively dropped.

Courses	Credit Hours
BIO 270. Human Physiology <sup>1</sup>	4
BIO 290. Human Anatomy <sup>1</sup>	4
BIO 140 <sup>1</sup> - BIO 150. Foundations of Biology I-II	8
CHEM 131-132. General Chemistry I-II (including labs 131L-132L) <sup>1</sup>	8
MATH 220. Elementary Statistics <sup>1</sup>	3
PHYS 140-150. College Physics I-II (including labs 140L-150L) <sup>1</sup>	8
English (WRTC 103, any ENG or HUM 200)	6
PSYC 101. General Psychology <sup>2</sup>	3
PSYC 160. Life Span Human Development <sup>2</sup>	3
PSYC 250. Abnormal Psychology <sup>2</sup>	3

<sup>1</sup> Course grade used for progression standards.

<sup>2</sup> Course grade in one PSYC course used for progression standards.

To become competitive applicants, students need to complete course work in exercise physiology (KIN 302), biomechanics (HTH 441, KIN 407 or BIO 490), sociology (SOC1 110), calculus and medical terminology (HTH 210).

Students should check admission requirements of individual physical therapy schools.

## Pre-Physician Assistant Minor<sup>1</sup>

### Declaring Pre-Physician Assistant

Incoming first year and transfer students can declare pre-physician assistant without verification from PPH Advising. Current students can request declaration of pre-physician assistant but will need a signature for the request to be granted. If the student has completed fewer than 12 credit hours in biology and chemistry at JMU, the request will be granted after verification of course work. If the student has completed 12 or more credit hours in biology and chemistry at JMU, the request will be granted only if the student's overall GPA is 3.00 or greater and the BC (biology, chemistry) GPA is 2.70 or greater.

### Access to Pre-Physician Assistant Advising

Students who progress successfully will have access to advising as they move through the program. Entry level advising is targeted for students who have not yet completed 12 hours of biology and chemistry coursework and will be done mainly in group settings or via electronic communication. Once students have completed 12 or more credit hours in biology and chemistry course work at JMU, they become subject to twice yearly review of their academic progress. Performance queries will be conducted after summer and fall semester grades are posted. Students who achieve and/or maintain an overall GPA of 3.00 or above and a BC GPA of 2.70 or above retain access to advising with emphasis on excellence in advanced course work, intrapersonal and interpersonal competencies, leadership, research, service and health-related experience.

Students whose performance falls below the standard of a 3.00 overall GPA and BC GPA are at high risk of not being admitted to PA school. Targeted advising for these students focuses on

improving/developing academic skills as well as career exploration. If students fall below the standard in all subsequent performance reviews, the pre-physician assistant declaration will be administratively dropped.

Students who wish to re-enter the pre-PA program can do so as long as they meet the GPA standards (3.00 or greater overall GPA and 2.700 or greater BC GPA). This applies to students who may have voluntarily dropped the pre-physician assistant minor as well as those who were dropped administratively

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
BIO 245. General Microbiology	4
CHEM 131-132. General Chemistry I-II (including labs 131L-132L)	8
Complete six or more credit hours of the following:	6
CHEM 241. Organic Chemistry I	
CHEM 242. Organic Chemistry II	
CHEM 260. Concepts of Biochemistry	
CHEM 361. Biochemistry I	
Complete two or more credit hours of the following:	2
CHEM 241L. Concepts of Organic Chemistry Lab (1 credit)	
CHEM 242L. Organic Chemistry Laboratory (2 credits)	
CHEM 260L. Concepts of Biochemistry Lab (1 credit)	
CHEM 366L. Biochemistry Laboratory (2 credits)	
HTH 210. Medical Terminology	3
MATH 220. Elementary Statistics	3
Choose two of the following:	6
PSYC 101. General Psychology	
PSYC 160. Life Span Human Development	
PSYC 250. Abnormal Psychology	

To become competitive applicants, students need to complete four or more credit hours of the following: genetics (BIO 240), cell biology, immunology (BIO 343) or histology (BIO 482).

Students should check admission requirements of individual physician assistant schools.

## Pre-Veterinary Medicine Minor<sup>1</sup>

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 240. Genetics	4
BIO 245. General Microbiology	4
CHEM 131-132. General Chemistry I-II (including laboratories 131L-132L)	8
CHEM 241-242. Organic Chemistry I-II (including laboratory 242L)	8
CHEM 361. Biochemistry	3
English (WRTC 103, any ENG or HUM 200)	6
Mathematics (calculus and statistics)	6
PHYS 140-150. College Physics (including laboratories 140L-150L)	8

To become competitive applicants, students need to complete 13 or more credit hours of the following: comparative vertebrate anatomy (BIO 320), animal physiology (BIO 370), cell biology, immunology (BIO 343), medical parasitology (BIO 420), molecular biology (BIO 480), histology (BIO 482), animal development (BIO 316) and virology (BIO 444). Students also need to complete course work in communication (SCOM), and psychology (PSYC 101).

Students should check admission requirements of individual schools of veterinary medicine.

<sup>1</sup> Pre-professional health programs do not ensure that all prerequisites for admission to health professions schools are met. Students should inquire with schools of interest, including JMU, to confirm details of admission requirements.

## Public Safety

Location: Anthony-Seeger Hall, MSC 6801

Phone: (540) 568-6913

Website: <http://www.jmu.edu/pubsafety>

The Office of Public Safety consists of law enforcement and safety services. The office supports and advances the educational purposes of the university through the provision of a safe and secure environment for learning, working and personal development.

## Police

The university police are commissioned officers with comprehensive law enforcement powers. University police continually patrol JMU's campus and facilities, providing full-service protection to the JMU campus community.

The Campus Police Cadet Program carefully screens and trains students to aid the university police. Cadets are on duty from 7 p.m. until 2 a.m. each weeknight and until 3 a.m. on weekends. Cadets are responsible for patrolling the campus and securing academic and administrative buildings each evening. In addition, they provide escort services to students walking across campus. When cadets are off duty, university police officers escort students as needed.

## Safety

The university safety engineer is responsible for conducting safety surveys and inspections; investigating fires, hazardous material spills and other dangerous conditions; and providing environmental and workplace safety and health awareness training.

## Office of the Registrar

Location: Student Success Center, Room 5300, MSC 3528

Phone: (540) 568-6281

Website: <http://www.jmu.edu/registrar>

The Office of the Registrar is responsible for:

- Athletic certification
- Class enrollment
- Class schedule preparation
- Degree audits
- Diploma issuance
- Enrollment verifications
- Graduation
- Student records
- Transfer credit evaluation
- Transcript issuance
- Veterans Affairs

## Residence Life

Location: Huffman Hall, MSC 2401

Phone: (540) 568-4663

Website: <http://www.jmu.edu/orl>

The Office of Residence Life oversees multiple functions related to living and learning at James Madison University. Offices and programs within the department focus on student learning, student development and successful transitions throughout the university experience.

Student Learning Initiatives focuses on the development of resident students by offering many services and programs

specifically targeted toward this group. Community Development oversees the selection, training and supervision of residence hall staff, develops policies and procedures for hall operations, and administers the delivery of programs and services designed to promote student success. Housing Operations manages all university-sponsored housing facilities, including the administration of contracts and room assignments. Business Operations coordinates all maintenance and housekeeping services and manages residence hall summer projects.

Office	Telephone Number
Business Operations.....	(540) 568-7576
Community Development.....	(540) 568-3501
Director's Office.....	(540) 568-6275
Student Learning Initiatives.....	(540) 568-4767
Housing Operations.....	(540) 568-4663

## Office of Student Accountability and Restorative Practices

Location: Student Success Center, Room 2122

Phone: (540) 568-6218

Website: <http://www.jmu.edu/osarp>

We support JMU's mission by developing and upholding university standards with cooperation from students, faculty and partners in order to promote accountability, student development and the restoration of the individual and the community.

## Student Government Association

Location: Madison Union, Room 203, JMU Box 3523

Phone: (540) 568-6376

Website: <http://sga.jmu.edu>

Students, faculty and administration share the responsibility for governing JMU. They are represented on the University Council, on its commissions and on standing and special committees reporting to these bodies. The Student Government Association collectively represents the university student population. SGA promotes the welfare of students by providing the medium through which students can actively voice their concerns and by serving as a liaison between the students, faculty and administration at JMU.

## Student Handbook

Website: <http://www.jmu.edu/handbook>

The student handbook contains a wealth of information about university policies and regulations, university facilities and student organizations.

## Student Success Center

Location: Student Success Center, Room 3010, MSC 1012

Phone: (540) 568-5959

Website: <http://www.jmu.edu/successcenter>

At JMU, all students can be successful if they rise to the challenges they face as students, take full advantage of the many academic and student support services available to them on the campus, and participate deeply in engagement opportunities on campus and beyond.

Student success succinctly describes JMU's pervasive philosophy of collaborative, campus-wide efforts to coordinate programs and support services that: help students become more efficient,

effective and engaged learners; address students' physical and emotional health; and provide advice and assistance for a variety of financial, curricular, technical and employment concerns.

In addition to a pervasive philosophy in a comprehensive facility, student success also designates a cross-divisional set of departments focusing on academic achievement, decision-making, civic engagement, individual responsibility and equitable access to the college experience.

The James Madison University Student Success Center houses a number of university departments, resources and functions that support student learning, student health and student services. These include: Card Services; Career and Academic Planning; Centennial Scholars Program; Community Service-Learning; Counseling Center; Dining Services; EPIC Center; Financial Aid and Scholarships; Information Technology Computing Support; Learning Centers; Wellness, Orientation, & Multicultural Engagement Associate Vice President; Office of Disability Services; Orientation Office; Office of the Registrar; Office of Student Accountability and Restorative Practices; Student Affairs Technical Services; Student Success Center Operations; Student Life & Involvement Associate Vice President; University Business Office; and University Health Center. The Student Success Center is a comprehensive facility unlike any other in scale and scope of programs, services and resources. All of the departments in the center collectively contribute to the success of all JMU students.

## Title IX

Location: 4035 Madison Hall, MSC 7806  
100 E. Grace Street  
Phone: (540) 568-5219  
Email: [titleix@jmu.edu](mailto:titleix@jmu.edu)  
Website: <https://www.jmu.edu/titleIX/>

Title IX of the Education Amendments of 1972 and James Madison University policy protect people from discrimination based on sex in education programs or activities which receive federal financial assistance. Title IX states that no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.

## University Advising

Location: Roop Hall, Room 200, MSC 1024  
Phone: (540) 568-7350  
Website: <http://www.jmu.edu/advising>

University Advising provides support to help students understand graduation requirements and assists them with their academic planning and tracking. The office develops advising resources for students and faculty and maintains the academic advising website for the university.

## Advising Services

### Major Advising

University Advising provides full-time academic advising support in select academic programs with large student enrollments to help students make progress in major requirements. Full-time academic advisers are joint appointments between the academic unit and University Advising.

## International Study Center Students

The international advising coordinator helps international students make progress from the International Study Center to JMU by assisting them with General Education requirements, selection of a major, graduation requirements and course registration.

## Prospective Transfer Students

Three transfer advising coordinators have office hours on the following Virginia community college campuses to assist prospective transfer students with their academic planning: Blue Ridge, Germanna, John Tyler, Lord Fairfax, Northern Virginia, Piedmont and Reynolds. Transfer advisers are available by appointment to advise prospective students on JMU majors and General Education requirements.

## New Transfer Students

University Advising coordinates the advising and class registration process for new transfer students matriculating to JMU in the fall and spring semesters. All new transfer students who have earned at least 30 transfer credits must declare a major upon entering the university and are advised by an adviser in their major.

## Madison Advising Peers

Madison Advising Peers (MAP) are JMU students who care about their fellow students and are committed to helping them achieve their college goals. MAPs work in conjunction with faculty advisers by providing supplemental academic advising information and assisting other JMU undergraduate students who may have general advising questions. A MAP can be a supportive and friendly resource for students who feel overwhelmed and confused.

## University Health Center

Location: Student Success Center, MSC 7901  
Phone: (540) 568-6178  
Fax: (540) 568-6176  
Website: <http://www.jmu.edu/healthcenter>

The University Health Center is staffed by a team of board-certified medical providers, substance abuse prevention specialists and health educators who administer care in a confidential and professional manner.

All students must submit an Immunization Form (including a TB screening) to the UHC as a condition of admission. This information is needed to satisfy Virginia law and university requirements and to assist in care. Students will use the UHC's online portal, MyJMUHealth, to upload the completed and signed immunization form (or other official record), upload a copy of their health insurance card and complete a brief health history. If the Immunization Form is not completed and uploaded, an enrollment hold and \$50 fine will be placed on the student's account.

The University Health Center offers office visits at no additional cost and low-priced specialty services to students.

In addition, the health center offers:

- Alcohol and other drug prevention, intervention and recovery programs and services
- Allergy Clinic
- General Medicine Clinic for routine and preventative care
- Health education programs
- International travel immunizations
- Lab services

- LGBTQ & Ally Education Program
- Patient advocate
- Peer health education organizations
  - CARE (Campus Assault ResponsE, which runs a 24/7 sexual violence response helpline when JMU is in session)
  - REACH (Reality Educators Advocating Campus Health)
- Pharmacy dispensing (for prescriptions written by on-campus providers)
- Nutrition services
- X-ray services
- Safer Sex Supplies
- Self-Care Station for minor illness/injury
- Sexual violence prevention and advocacy services
- Specialty clinics including dermatology and orthopedics
- Urgent Care Clinic
- Women's Health Clinic

## University Recreation

Location: University Recreation Center, MSC 3901

Phone: (540) 568-8737

Website: <http://www.jmu.edu/recreation>

University Recreation (UREC) promotes and advances healthy lifestyles through participation opportunities, educational experiences and supportive services. The qualified staff is committed to excellence and attentive to the developmental needs of participants. Educational programming areas include adventure, aquatics, challenge courses, fitness, group exercise, informal recreation, intramural sports, nutrition, safety, sport clubs, wellness and youth programs.

The main UREC facility is located near the JMU Convocation Center on the east side of campus. The recently expanded and renovated multi-level fitness and wellness center has 278,515 square feet of activity space. UREC features a wide range of facility spaces, including a six group exercise studios, three multi-activity centers, two sports forums, two indoor tracks, seven racquetball courts, one squash court, a demonstration kitchen and a meditation room. There is a Fitness Center with cardio deck, an Aquatics Center with two indoor pools, spa and sauna, and a Wellness Center with an athletic training room, personal training, assessment, and massage studios. The Adventure Center has a 360 degree climbing wall, bouldering wall, cycle repair and adventure equipment checkout. Visit the Equipment Center to check out sporting equipment and learn more about locker rooms and towel services.

UREC also encompasses several satellite facilities. University Park, located at 1090 Devon Lane, includes an open event lawn, tennis, sand volleyball and basketball courts, sports turf, pavilion, disc golf course, and TEAM Challenge Course. Additional UREC satellite facilities include the UREC Turf, East Campus Fields, spaces within Godwin and Memorial Halls, and several fields and courts around campus.

A valid JACard is needed to enter UREC and University Park. Online registration is available for educational programs, group exercise classes and intramural sports. Programs requiring fees can be registered for in-person at the main UREC facility using FLEX or online at [URECregister.jmu.edu](http://URECregister.jmu.edu) using a credit card.

## University Unions

Location: Madison Union 200, MSC 3501

Phone: (540) 568-3341

Website: <http://www.jmu.edu/universityunions>

The University Unions Department reflects a broad range of programs, facilities and services created to build a sense of community for the campus as a whole. The facilities are the gathering places for the campus, with meeting rooms, assembly spaces, lounges and support services available. They are places where ideas come to life, learning is put into practice and the various constituencies of the campus find common ground.

University Unions is comprised of the following units:

### The Dux Center

Location: Madison Union 330, MSC 3501

Phone: (540) 568-5901

Website: <http://www.jmu.edu/dux>

The Dux Center (pronounced "dukes," which is Latin for "to lead" or "leadership") is JMU's leadership resource clearing house for students. The premier program sponsored by the Dux Center is Kijiji Citizens of Influence.

The Dux Center also provides information about leadership programs offered by areas across campus. Students may check out equipment, books and other resources useful for leadership development, team building and experiential learning leadership activities.

Professional staff in the Dux Center are certified trainers for the DISC Personality Assessment program and can provide customized workshops to help people learn more about themselves, how to connect with others and how to build teams more effectively. They also serve as leadership consultants, assisting individuals, groups and organizations in the development of their leadership capabilities.

### Festival Conference and Student Center Scheduling

Phone: (540) 568-8932

Website: <http://www.jmu.edu/festival>

University Unions provides a comprehensive approach to the coordination of services necessary for campus events and coordination of scheduled meetings and conferences throughout the year.

### Facilities Services (University Unions)

Madison Union, MSC 3501 Phone: (540) 568-5555

Festival Conference and Student Center, MSC 4201

Phone: (540) 568-1715

Four buildings house the programs and services which the University Unions provide for the JMU community. They are the Madison Union (Grafton-Stovall Theatre, Taylor Hall and Warren Hall) and Festival Conference & Student Center. Facilities Services address physical building, operations and information concerns in these spaces.

## Fraternity & Sorority Life

Location: Madison Union 404, MSC 3501

Phone: (540) 568-4195 Fax: (540) 568-6444

Website: <http://www.jmu.edu/osai>

The Office of Fraternity & Sorority Life works with social fraternities and sororities to foster cooperation and communication amongst the chapters, the university and the community. Staff members advise the InterFraternity and Panhellenic Councils, as well as Greeks Advocating the Mature Management of Alcohol (GAMMA), Greek InterVarsity and Order of Omega Greek Leadership Honor Society. Staff members also work with individual chapters to promote the development of character, leadership, scholarship and service.

## Madison Union Scheduling

Location: Madison Union 245, MSC 3501

Phone: (540) 568-6330

Website: <http://www.jmu.edu/madisonunion>

## Student Activities and Involvement

Location: Madison Union 320, MSC 3501

Phone: (540) 568-8157

Fax: (540) 568-2382

Website: <http://www.jmu.edu/osai>

The Office of Student Activities and Involvement houses Student Organizations, Student Government, Mad4U, Make Your Mark on Madison Leadership Program and the University Program Board. The Office of Student Activities and Involvement provides a wide range of educational, social and cultural events, as well as support services for all JMU student clubs and organizations. Student Organization Night at the beginning of each semester offers an opportunity for all students to meet members of clubs, learn about organizations and discover how to become involved with them.

## Taylor Down Under

Phone: (540) 568-7853 or (540) 568-5555

Taylor Down Under, located on the ground floor of Madison Union, is comprised of a lounge, the Corner Pocket Game Room and a coffee bar. The TDU lounge area is a popular hangout for all students. This area offers computers for student use, television, evening entertainment on the TDU Stage, comfortable seating and an information desk.

## University Program Board

Location: Madison Union 324, MSC 3505

Phone: (540) 568-6217

Website: <http://www.jmu.edu/upb>

Campus entertainment is scheduled through the University Program Board, a student organization advised through the University Unions. Concerts, films, speakers, trips and numerous other activities designed to complement the educational mission of JMU are arranged by the UPB. The board also solicits collaborative programs with other student organizations, university departments and schools. Committees for which students may volunteer include film, special events, center stage, spirit and traditions, and spotlight sounds.

## Withdrawal from the University

Location: Office of the Dean of Students

Madison Union, 300, MSC 3534

Phone: (540) 568-6468

Website: <http://www.jmu.edu/deanofstudents>

The Office of the Dean of Students assists students who are considering withdrawing from the university after the first three weeks of the semester. The student and staff member discuss personal, financial and academic implications including pertinent policies and procedures directly involved with their withdrawal. The staff member will provide and assist the student with the proper withdrawal procedure. Details regarding the process are located at <http://www.jmu.edu/studentaffairs/departments/deanofstudents/withdrawals-loa.shtml>.

# University and Post-Graduate Resources

## The Graduate School

*Dr. Jie Chen, Dean*

*Dr. Terry Dean, Associate Dean*

Location: Madison Hall, MSC 6702

Website: <http://www.jmu.edu/grad>

The Graduate School coordinates graduate and post-graduate education throughout the university. The JMU Graduate School was established in 1954 when the State Board of Education authorized the university to offer programs leading to the Master of Science in Education degree. There have been over 18,000 graduate degrees awarded through 2016, and enrollment growth and ongoing development of graduate programs of distinction are key strategic initiatives of the university.

It is the mission of The Graduate School to support, facilitate and promote excellence in lifelong education through graduate programs of distinction, innovative outreach programs and a diverse student body.

The Graduate School at James Madison University is a leading institution for graduate study that is recognized for innovative advanced degree programs, distinguished faculty, collaborative student-centered research and applied learning. The Graduate School is responsible for administering over 52 different graduate programs offering master and doctoral degrees across seven academic colleges. Currently, more than 1,700 students from all areas of the world are enrolled and pursuing post-baccalaureate studies through JMU.

The Graduate School is authorized to offer graduate programs leading to master's, Educational Specialist, Doctor of Audiology, Doctor of Philosophy, Doctor of Psychology, Doctor of Musical Arts and Doctor of Nursing Practice degrees. Many graduate programs also offer concentration areas. Refer to the Graduate Catalog or the graduate school website for details.

The Graduate School offers the following programs and degrees:

- Accounting (M.S.)
- Adult Education/Human Resource Development (M.S.Ed.)
- Art Education (M.A.)
- Assessment and Measurement (Ph.D.)
- Biology (M.S.)
- Business Administration (M.B.A.)
- Business Administration – (Northern Virginia) (M.B.A.)

*Dr. Michael Stoloff, Associate Dean*

Phone: (540) 568-6131

- Clinical Mental Health Counseling (M.A./Ed.S.)
- College Student Personnel Administration (M.Ed.)
- Combined – Integrated Clinical and School Psychology (Psy.D.)
- Communication and Advocacy (M.A.)
- Communication Sciences and Disorders (Clinical Audiology) (Au.D.)
- Communication Sciences and Disorders (M.S.; Ph.D.)
- Computer Science (M.S.)
- Counseling and Supervision (Ph.D.)
- Education – Fifth year format (M.A.T.)
- Education (M.A.T.; M.Ed.)
- Education, Special – Fifth year format (M.A.T.)
- Education, Special (M.A.T.; M.Ed.)
- English (M.A.)
- Health Sciences (M.S.)
- History (M.A.)
- Integrated Science and Technology – (Environmental Management & Sustainability) (M.S.)
- Kinesiology – Fifth year format (M.A.T.)
- Kinesiology (M.S.)
- Mathematics (M.Ed.)
- Music (M.M.)
- Nursing (M.S.N.; D.N.P.)
- Occupational Therapy (M.O.T.)
- Performance/Conducting, Pedagogy, Literature (D.M.A.)
- Physician Assistant Studies (M.P.A.S.)
- Political Science – European Union Policy Studies (M.A.)
- Psychological Sciences (M.A.)
- Public Administration – Fifth year format (M.P.A.)
- Public Administration (M.P.A.)
- School Counseling (M.Ed.)
- School Psychology (M.A.; Ed.S.)
- Speech Pathology (Clinical) (M.S.)
- Speech Pathology (Online) (M.S.)
- Strategic Leadership (Ph.D.)
- Studio Art (M.A.; M.F.A.)
- Writing, Rhetoric and Technical Communication (M.A.; M.S.)

## Outreach & Engagement

*Dr. Melissa Lubin, Dean*

*Ms. Carol Fleming, Assistant Dean*

Phone: (540) 568-4253

Location: Ice House, 127 W. Bruce Street, MSC 6906

Outreach & Engagement (O&E) is part of University Programs, a division of Academic Affairs. O&E offers credit and non-credit programs as well as targeted one-time courses, certificate programs and complete degree programs at a distance. O&E seeks to provide access to anyone seeking opportunities for educational or personal growth. O&E works with faculty, academic units, students and community organizations to design, market and deliver a wide array of programs. O&E also oversees the enrollment of non-degree seeking students, who are individuals who enroll in credit courses, but are not seeking a degree.

### Certificate Program Admission

Individuals who wish to pursue a certificate must apply to the program and be approved before registering for classes. Individuals must complete the Certificate Application available at <http://www.jmu.edu/outreach>. Virginia residents must also complete the "Checklist and Application for Virginia In-State Tuition Rates." A non-refundable \$45 application fee must accompany the application. Although certificate program students are considered non-degree seeking students, applicants for certificate programs need only complete the Certificate Application once for the semester in which they wish to begin the program. Students must take at least one course in their certificate program in every twelve month period, or they will be deactivated from the program and will need to reapply if they wish to continue. Applications for certificate programs are forwarded to the appropriate academic unit for review. A list of available certificate programs can be found at the O&E website under "Certificate Programs" at <http://www.jmu.edu/outreach>.

### Non-degree Seeking Student Admission

The non-degree seeking student classification includes adult non-degree students, high school non-degree students and teacher licensure students. Individuals seeking enrollment as a non-degree seeking student must complete the "Non-degree Seeking Student Application." Virginia residents must also complete the "Checklist and Application for Virginia In-state Tuition Rates." A non-refundable \$20 application fee must accompany the application. Non-degree seeking students must submit the application and processing fee each semester they enroll in courses.

Non-degree seeking students can enroll and register for up to 11 hours of credit per semester. If additional credits are needed, students should contact O&E. Course prerequisites may apply. Courses at the 500 or 600 level and above require approval by the appropriate department head. Non-degree seeking students can complete the non-degree student application and the in-state form by going to <http://www.jmu.edu/outreach> and clicking "Apply."

*Ms. Sarah MacDonald, Assistant Dean*

Website: <http://www.jmu.edu/outreach>

Students should register online during the dates identified for non-degree seeking students following the instructions at <http://www.jmu.edu/registrar> and clicking "For Students" then "Registration Dates and Deadlines." Walk-in registration and course adjustments are permitted for non-degree seeking students; contact the Registrar's Office.

The courses taken in the non-degree seeking student category carry university credit, and they may be transferred into a degree program, once admitted, at the discretion of the program. JMU reserves the right to deny admission to non-degree seeking students; admission as a non-degree seeking student does not guarantee admission to a degree program at the university.

### Non-credit Courses and Certificates

O&E offers a wide variety of non-credit courses for workforce and professional development. These programs are available for supplementing and updating knowledge, skills and abilities. Some non-credit courses and workshops award continuing education units (CEUs) as a uniform measure of professional development and to signify the student has completed the course or workshop.

### Senior Citizen Tuition Waiver

Legal residents of the State of Virginia who have reached 60 years of age before the beginning of an academic term and who have a taxable income that did not exceed \$23,850 for the year preceding the term may register for and enroll in courses as full-time or part-time students and pay no tuition but will incur a \$20 application fee as well as fees established for the purpose of paying for course materials, such as laboratory fees. Senior citizens who have a taxable income higher than \$23,850 may choose to register to audit courses under the same policy, subject to instructor and department approval. Senior citizens shall be subject to the admissions requirements of the institution and a determination by the institution of its ability to offer the course or courses for which the senior citizen registers. A senior citizen shall only be admitted to a course in which enrollment is sought after all tuition-paying students have been accommodated. A senior citizen tuition waiver form must be submitted to Outreach & Engagement to determine eligibility according to section 23-38:54 of the Code of Virginia.

Forms can be found on the O&E website.

# Tuition and Fees

Student Success Center, Room 5100

Email: ubo@jmu.edu Phone: (540) 568-6505

Website: <http://www.jmu.edu/ubo>

Tuition and fee charges for the 2017-2018 sessions are available online at <http://www.jmu.edu/ubo>. The tuition and fees listed contribute to general maintenance and operation, instruction, and other university service costs, including recreational and health-service facility costs. The fees also support student activities such as the Student Government Association, University Program Board and student publications.

The amounts listed for tuition do not include certain additional tuition for some academic programs, academic fees, course fees or the cost of books or supplies. The university reserves the right to adjust tuition and fee charges because of rising costs or other conditions upon approval of the JMU Board of Visitors.

For a full description of the tuition and fee rates, refer to the University Business Office website.

## Billing and Registration

Registration for returning students is conducted in March for the summer semester, April for the fall semester and November for the spring semester. Students will be notified in April and May by email when their initial electronic billing statement Madison Money Manager (M3) is ready for the summer semester, early August for the fall semester and mid-December for the spring semester. Thereafter, all new charges, payments and adjustments will be posted electronically in the real-time section – "Account History" – of M3. Authorized users will only be emailed when students have a balance on their account.

New students who attend an orientation session will be notified of the amounts due through the electronic billing statement in early August.

Students are encouraged to review their financial account for amounts due after any registration or course adjustment activity or meal plan addition or change. Students may access their financial account by using the student information MyMadison link on the Registrar's website or through the Web link provided in the billing email. Students are strongly encouraged to set their parents up as "Authorized Users" in the M3 system to assure the timely payment of their student account and to avoid unnecessary delays in communicating information. Student account balances are due in full by the first week of classes.

To keep university costs as low as possible, the Commonwealth of Virginia has instituted the following financial policies:

- There is a \$50 fee for each check returned due to non-sufficient funds or stop-payment.
- There is a late fee applied to all delinquent accounts. If a student has a balance due that is not covered by financial aid, or the installment payment plan, by the payment due date (Friday of the first week of classes), a late payment fee will be applied to the account which cannot be waived. Financial aid must be accepted and the installment plan must be set up by the due date to avoid the late payment

fee. The late payment fee is 3% of the balance due and is non-negotiable.

- Student account balances are due in full by the first week of classes to avoid a late fee and/or hold.

## Payment of Tuition and Fees

Payment may be made by the following means:

- Remitting payment by personal check cash, money order or cashier's check to the University Business Office, Student Success Center, Room 5100 by mail or in person.
- Remitting an electronic check payment or credit card payment online through M3 or through the University Business Office website. This service is provided by an outside vendor.
- Contracting with our third party vendor in M3 to set up the installment payment plan no later than the payment due date (Friday of the first week of classes) for an amount that covers any balance not included in a financial aid award or other anticipated payments.
- Accepting financial aid, completing the Master Promissory Note (MPN) when applicable and the Loan Request Form (LRF) by the payment due date (Friday of the first week of classes) for an amount that covers the entire balance due.
- Any combination of personal payments, installment payment plan and/or financial aid that covers the entire balance due.
- Personal payments may be made by a combination of personal check, cash, money order, cashiers check, electronic check and credit cards.

Payments drawn on foreign banks must be converted to U.S. dollars prior to transmittal to the university or payment must be remitted through the M3 system Western Union link. The student's account number (campus ID number) should be included on all payments to ensure its application to the proper account.

Debts owed to the university are governed by the following policies:

- No credit for university work may be given to any student for a diploma, teacher's license or transfer purposes until all debts to the university have been settled.
- Until a student's account is paid in full, he/she will be ineligible for readmission or registration for a future semester.
- Upon recommendation of the director of the University Business Office and with the approval of the Assistant Vice President for Finance, students in debt to the university may be suspended from their classes or may be withdrawn.

## Audit Fees and Internships

A student registering to audit a course or for an internship will pay the same tuition and fees as one who registers for credit.

## Examination for Credit Fee

Arrangements for attempting credit by departmental examination may be made by paying a nonrefundable \$25 fee to the University Business Office and presenting the receipt to the Office of the Registrar.

## Late Fee

As of July 1, 2009 the Commonwealth of Virginia has passed legislation requiring late fees to be placed on past due balances owed to the university. The mandatory late fee is 3% of the balance due.

## Returned Check Fee

A \$50 per check fee is assessed for checks returned unpaid to the university. If a check is returned, the University Business Office staff will notify the student by email. If the student does not make appropriate alternative payment as specified, the student's class registration will be canceled and the student may be withdrawn from the university. The university will also hold the student's records, future registration, transcripts, teaching license and diploma until the check is redeemed. When a Returned Check Hold is placed on a student's financial account, any future payment by personal check will require 15 business days to clear before a hold is released.

## Service Fee

Electronic Student Account payments made by credit card through MyMadison or at UBO's website will be assessed a service fee by the outside vendor. This fee is based on the total charges paid. The calculated amount is displayed separately, assessed at the time payment is made and cannot be refunded. There is no fee charged for electronic check payment.

## Specialized Class Fees

Certain courses which use off-campus facilities have additional charges which will be determined at the time the course is offered. Certain courses may require additional fees.

## Specialized Program Tuition

Some courses offered through the College of Business and the Department of Nursing require additional tuition charges.

## Collection of Past Due Accounts Financial Information and Disclosure Statement

Students are expected to access financial information through M3 in MyMadison. Failure to receive email notification of posted electronic billing statement is not a justification for granting immunity in financial matters. Failure to access available data through self-service access via MyMadison or to read and comply with university regulations will not exempt students from whatever financial penalties they may incur.

## Course Cancellation

Failure to attend a course after registering is not justification for elimination of charges. A student must officially drop a course to qualify for a refund or release of charges by the drop/add deadline posted by the Office of the Registrar. Failure to pay will not release a student from the responsibility for these charges.

## Outstanding Debts/Delinquent Accounts

Students with outstanding debts are denied any registration activity and access to an official transcript of their grades until all debts are paid in full. Student accounts are subject to the

financial policies of James Madison University, as specified in the undergraduate catalog. Unless students resolve the debt, the university will advance the matter to the next step in the collection process.

## Collection Activities

Once an account is 60 days past due, the delinquent balance is subject to transfer to a collection agency. At that point, repayment arrangements must be made directly with the collection agency, and the account holder is responsible for the additional fees associated with collection efforts. The fee associated with collection efforts are 33.33% of the outstanding balance, which is the standard and customary amount for the collection industry.

## Collections in the Commonwealth of Virginia

The university pursues debt in accordance with the guidelines set forth by the Commonwealth of Virginia in the Virginia Debt Collection Act. Virginia state law requires that the university make every attempt to collect past due amounts owed to state agencies. If, after 60 days, full payment of a debt has not been received, the student account will be placed with a collection agency. Students are responsible for any collection fee incurred at a rate of 33.33% of the total due.

Students also risk tarnishing their credit rating and will be subject to further enforcement proceedings. Collection efforts are costly to the student. Avoid them by paying on time. Agencies charge the university a 33.33% fee that must be reimbursed by the student. Collection fees cannot be appealed. If a student finds that his/her account has been referred to a collection company, he/she should contact the company immediately to make payment arrangements.

Additionally, the account can be listed by the Credit Bureau as a bad debt, a delinquent account can be collected in full from income tax refunds, lottery winnings, or other refunds due from the state, and the account may be turned over to the Virginia Attorney General's Office for litigation. Timely payment is strongly encouraged so that collection efforts can be avoided.

## University Agents

Todd, Bremer and Lawson, Inc.

Post Office Box 36788

Rock Hill, SC 29732-0512

Phone: 1-800-849-6669

Fax: 1-803-328-5211

Williams and Fudge

Post Office Box 11590

Rock Hill, SC 29731-6266

Phone: 1-800-849-9791

Fax: 1-803-329-0797

## Setoff Debt Collection Act

Under the provisions of this act, an individual's Virginia income tax refund or lottery winnings will be subject to the university's claim for any unpaid balance of tuition and fees. Any communication disputing an amount owed must be submitted in writing to the director of the University Business Office.

## Eligibility for In-state Tuition

Eligibility for in-state tuition charges is based on the provisions of Section 23.1-500 of the Code of Virginia in effect on the first day of classes for each term. Students who exceed the minimum number of credit hours required for graduation by 25 percent should refer to the UBO website for additional tuition charges. A link to the Code of Virginia guidelines can be found on the website of the Assistant Vice President for Finance and the University Business Office. This statute limits in-state tuition to those with Virginia domiciliary status. Domicile is defined as the "present, fixed home to which you return following temporary absences and at which you intend to stay indefinitely." If there is any question of the right to classification as a domicile of Virginia, it is the student's obligation, prior to the first day of classes for the semester, to raise the question with JMU administrative officials.

## Restriction on In-state Tuition

In accordance with Virginia law, in-state students initially entering a Virginia public institution during or after the fall 2006 semester will be assessed a surcharge for any credit hours over 125% of their degree program requirements. Exceptions may apply when credit hours are required for an additional program.

## Dependent Students

To qualify for in-state tuition, a dependent student or an emancipated minor shall establish by clear and convincing evidence that, for a period of at least one year prior to the date of the alleged entitlement, the person through whom he/she claims eligibility was domiciled in Virginia and had abandoned any previous domicile, if another existed. A link to the Code of Virginia, as well as Residency Guidelines, can be found on the University Business Office website under the section "Residency Requirements." Certain exceptions apply to Active Duty Military and veteran dependents.

## Independent Students

The statute defines an independent student as one whose parents have surrendered the right to his/her care, custody and earnings; have ceased to support him/her and have not claimed him/her as a dependent on federal and state income tax returns for at least 12 months prior to the alleged eligibility. Certain exceptions apply to Active Duty Military and veteran students.

To qualify for in-state tuition, an independent student shall establish by clear and convincing evidence that for a period of at least one year immediately prior to the date of the alleged entitlement, he/she was domiciled in Virginia and had abandoned any previous domicile, if such existed.

Domiciliary status shall not ordinarily be conferred by the performance of acts which are auxiliary to fulfilling educational objectives or are required or routinely performed by temporary residents of the commonwealth. Mere physical presence or residence primarily for educational purposes shall not confer domiciliary status. A matriculating student who has entered an institution and is classified as an out-of-state student shall be required to rebut by clear and convincing evidence the presumption that he/she is in the commonwealth for the purpose of attending school and not as a bona fide domiciliary.

Initial determinations of eligibility are made by the Office of Admissions (incoming first year students, re-entries and transfers), The Graduate School (graduate students), and Outreach and Engagement (for continuing education and special students). Decisions on returning degree-seeking students are made by the director of the University Business Office.

To establish eligibility after entering JMU as an out-of-state student, an applicant must complete the reclassification form posted on the University Business Office website. For information on special provisions of Section 23.1-500, contact the Office of Admissions, The Graduate School, Outreach and Engagement or the University Business Office.

Once a student receives an initial determination of eligibility, he/she may appeal for a review of the application by contacting the office which made the decision. If there is any question of the right to classification as a domicile of Virginia, it is the student's obligation prior to or at the time of registration to raise the question with the administrative officials of James Madison University. Any party aggrieved by a final administrative decision shall have the right to petition within 30 days for a review by the Circuit Court of Rockingham County.

A change to in-state status may be made only when the completed application for reclassification form is received by the University Business Office prior to the first day of classes for that semester. Students are responsible for paying out-of-state tuition rates until in-state status has been approved.

## Room and Board

Part-time students cannot purchase a housing contract without prior approval of the Office of Residence Life. Students residing in university housing are required to have a Meal Plan with their housing contract.

Commuter students may purchase one of several meal plans through Card Services in the Student Success Center and can have the charge posted to their student account. Commuter contracts purchased after the first week of classes are due immediately. A commuter contract must be purchased each semester.

If a student arrives late by 10 or fewer days, the boarding fee will not decrease. The only exception, however, is lateness because of hospital confinement. If a student is late by seven days or longer due to hospital confinement, the university will review adjusting the board fee. Contact Card Services in the Student Success Center on the second floor at (540) 568-6446 for additional information.

## Refunds

Any overpayment of a student account can be either refunded or posted to a future semester as a payment. An overpayment created by a credit card payment must be refunded back to the credit card. All overpayments are refunded to the student except for Parent PLUS loans, which are refunded as specified by the parent in the PLUS application. All student refunds are processed through the university's vendor, BankMobile. Each student has the option of receiving his/her refund through direct deposit to a current bank account, using a BankMobile Vibe account or by paper check mailed to his/her home address. Selection is made when the student logs into the BankMobile

website at [www.RefundSelection.com](http://www.RefundSelection.com) and uses the unique number received through the mail. If a student has not received the code through the mail, he/she needs to contact the University Business Office at (540) 568-6505, by email at [ubo@jmu.edu](mailto:ubo@jmu.edu) or by going to the UBO's office in the Student Success Center during regular business hours, and an access code will be generated and sent via JMU email.

Parents who are eligible to receive a refund on their federal Parent PLUS loan will receive a paper check at the home address of record.

Students who officially withdraw from the university by the deadline for fall semester or by the deadline for spring semester will be refunded all tuition and fees except the tuition and room deposit.

Withdrawing after the end of this period will not reduce tuition charges. Board fees will be prorated from the dining hall opening date. After the deadline dates, refunds will be for only a pro rata share of the board fee. Room refunds will be made in accordance with the Residence Life refund schedule as stated in the current Residential Contract.

Students who withdraw from the university due to physical or mental health reasons certified by an appropriate health care provider or for unavoidable emergency or extenuating circumstances approved by the Dean of Students will be refunded a pro rata share of tuition, fees and board. Refunds for withdrawal from the university are calculated from last date of attendance as approved by the Dean of Students. Room refunds will be made in accordance with the Residence Life refund schedule as stated in the current Residential Contract.

For further information on withdrawal from the university, see the section Withdrawal from the University.

## Room and Tuition Deposits

### New Students

For new students, a deposit of \$250 is required to confirm their acceptance of the offer of admission. When a student pays the deposit, the money is applied to the student's account. The deadline for this deposit is May 1. Refunds after the stated deadlines will be made only for personal illness certified by a physician or other extenuating circumstances approved by the Dean of Admissions.

### Returning Students

For returning students who want to live in university residential facilities, a signed room and board contract must be submitted online to the Office of Residence Life at <http://www.jmu.edu/orl>. A contract fee will be billed through the student's financial account.

# Financial Aid, Scholarships and Student Employment

Location: Student Success Center, Room 5200

Phone: (540) 568-7820      Email: [fin\\_aid@jmu.edu](mailto:fin_aid@jmu.edu)

Website: <http://www.jmu.edu/financialaid>

## Scholarships, Grants and Loans

The Office of Financial Aid and Scholarships helps qualified students secure a financial aid package designed to meet their financial needs. An award package may consist of grants, scholarships, loans and work-study. Students interested in information on financial assistance programs should visit the financial aid website at <http://www.jmu.edu/financialaid>, contact the Office of Financial Aid and Scholarships at the above address or send an email to [fin\\_aid@jmu.edu](mailto:fin_aid@jmu.edu). The website includes a link to JMU Terms and Conditions for Financial Aid – Consumer Information, which provides information regarding general financial aid rules and required disclosures.

## Application Procedures and Deadlines

All financial aid applicants must undergo a standardized federal "needs analysis" by completing the Free Application for Federal Student Aid (FAFSA). To receive priority consideration, it is essential that applicants ensure their FAFSA has reached the federal government by March 1 prior to the academic year for which they are seeking financial assistance. Failure to apply by the priority filing date may cause delays in receiving aid and can result in less attractive aid packages.

A student must complete a FAFSA before financial aid eligibility can be determined for the following sources of aid:

- Federal Pell Grant
- Federal Supplemental Educational Opportunity Grant
- Commonwealth Award
- Virginia Guaranteed Assistance Program
- Federal Subsidized Direct Loan
- Federal Unsubsidized Direct Loan
- Federal Parent PLUS Direct Loan
- Federal Work-Study Program
- Need-based JMU Foundation Scholarships
- University Grant

When students file the FAFSA, the federal processor calculates their Expected Family Contribution (EFC). The EFC is an estimate of the family's ability to contribute to the student's overall educational expenses for one year. JMU calculates the student's financial "need" by subtracting the EFC from the Cost of Attendance (described later). Due to limited funding, grants are awarded to students who have the highest financial need, and in many cases to those who met the priority FAFSA filing date.

Financial aid recipients must complete the FAFSA each school year. Amounts and types of assistance may vary from year to year. If funds are available, the Office of Financial Aid and Scholarships continues to assist students who meet the following conditions:

- Complete the FAFSA, with priority given to those who apply by the priority filing date of March 1, prior to the academic year for which they are seeking financial assistance.
- Meet general eligibility requirements for aid as defined by the FAFSA.
- Maintain Satisfactory Academic Progress.

The financial aid office sends an electronic notification to students offered financial assistance by JMU. The aid notice has important information, so the recipient should follow all instructions to ensure the completion of required forms. Students can find consumer information regarding the financial aid process, including pertinent rules and regulations, through the financial aid website. If any of the information included in the financial aid package or award notification is incorrect, the student should immediately notify the Office of Financial Aid and Scholarships. Financial aid is awarded based on FAFSA information, as well as the student's status at JMU (e.g., academic level, enrollment status and residency).

Parents of dependent undergraduate students may qualify for a Federal Parent PLUS Direct Loan. For those eligible to apply for the Parent PLUS, the financial aid office sends award notifications to parents with instructions for applying. The parent award notice does not include any information about student awards.

Federal and state regulations also require the Office of Financial Aid and Scholarships to consider any outside sources of assistance when awarding financial aid. These outside sources can be JMU scholarships, private scholarships, veteran's benefits, tuition waivers, etc. The student's financial aid package may fluctuate throughout the year based on changes in FAFSA information, JMU status or the receipt of additional aid. Financial aid notices are usually sent to returning students in early summer. New students may receive aid notices in the spring prior to enrollment.

## Cost of Attendance

An important part of determining a student's eligibility for financial aid is calculating a Cost of Attendance. In accordance with federal regulations, JMU has developed a Cost of Attendance (i.e., budget) for anticipated expenses a student may incur during the current school year. These expenses include tuition, room, board, books and supplies, travel and personal. Room and board can refer to either residence hall or off-campus living expenses, depending upon a student's response on the FAFSA. Expenses are also considered for students who live at home with parents or relatives, but the Cost of Attendance is lower than for those living elsewhere. Travel expenses include items such as gasoline, vehicle maintenance and insurance. Personal expenses include laundry, clothing and entertainment.

Many of the elements in the Cost of Attendance are estimates, so it is possible for a student to spend more or less than anticipated during any given year.

## Repeating Course Work

For information on how repeat courses may affect a student's financial aid, visit: <http://www.jmu.edu/financialaid/terms-and-conditions.shtml#Set-1-A-section14>

## Satisfactory Academic Progress

Website: <http://www.jmu.edu/financialaid/learn/sap/index.shtml>

In order to qualify for financial assistance, federal regulations indicate that a student must meet certain academic requirements as determined by the Office of Financial Aid and Scholarships. State, federal and some institutional aid programs are subject to the Satisfactory Academic Progress (SAP) policy. For a complete description of the policy, refer to the SAP website.

## Understanding Satisfactory Academic Progress (SAP)

According to federal regulations, the Office of Financial Aid and Scholarships must ensure that students meet both qualitative (grade-based) and quantitative (time-related) requirements before certifying eligibility for financial aid. The term qualitative refers to grade point average (GPA). Quantitative components include both pace and maximum time. Refer to the pertinent sections below for a detailed description of each SAP component.

Students who have not completed the required number of hours or achieved the required cumulative GPA are not eligible to receive financial aid until such time that they meet the requirements. If extenuating circumstances contributed to students' inability to meet SAP requirements, they may request reconsideration by submitting an Appeal Form with appropriate supporting documentation. This form is available on the SAP website.

Refer to the financial aid website for more information on how repeating courses may affect financial aid.

## GPA Requirement

Students must fulfill GPA requirements as described by the academic suspension policy in the current JMU catalog. For more information, refer to Academic Policies and Procedures.

## Pace Requirement

Undergraduate students must be making satisfactory progress toward degree requirements by earning passing grades in at least 80 percent of the classes attempted. The Office of Financial Aid and Scholarships includes transfer credits, course withdrawals, incompletes and use of the "repeat forgiveness" option in the calculation of attempted hours.

## Maximum Time Requirement

Undergraduate students who have attempted more than 150 credit hours are not eligible for financial aid. The Office of Financial Aid and Scholarships includes transfer credits, course withdrawals, incompletes and use of the "repeat forgiveness" option in the calculation of attempted hours.

## Evaluation Process

All undergraduate students who file a Free Application for Federal Student Aid (FAFSA) are subject to the SAP policy. Upon receipt of

the results of a student's FAFSA each year, the Office of Financial Aid and Scholarships will evaluate the student's SAP status before awarding financial assistance. If students were unable to meet SAP requirements during their previous enrollment, they will receive notification regarding their area(s) of deficiency. Students who do not meet SAP standards cannot receive financial aid.

## Appeals Process

If extenuating circumstances contributed to students' inability to meet SAP requirements, they may request reconsideration by submitting an Appeal Form with appropriate supporting documentation. This form is available on the SAP website. Students who wish to appeal must do so by a prescribed deadline.

## 2017-18 Appeal Deadlines

- Summer 2017: Monday, June 26, 2017
- Fall 2017: Monday, September 11, 2017
- Spring 2018: Monday, January 22, 2018

Students choosing not to appeal may become eligible for future assistance by attending without financial aid and resolving their academic deficiency.

## Grants

### Federal Pell Grant

Pell grants are generally awarded only to undergraduate students who are seeking their first bachelor's degree and whose Expected Family Contribution (EFC) falls within the federally prescribed range.

### Federal Supplemental Educational Opportunity Grant

SEOG is awarded to Pell-eligible students with the highest financial need as long as funds continue to be available.

### Commonwealth Award

The Commonwealth Award is a need-based grant for Virginia residents who are seeking an undergraduate degree. The maximum award will not exceed the cost of tuition and fees. Awards will be made as long as funds are available, with priority given to those who met the FAFSA priority filing date.

### Virginia Guaranteed Assistance Program

VGAP is a need-based grant for undergraduate, full-time, dependent, Virginia residents who graduated from a Virginia high school with at least a 2.5 GPA. The maximum award will not exceed the cost of tuition, fees and an allowance for books. Awards will be made as long as funds are available, with priority given to those who met the FAFSA priority filing date.

### University Grants

These institutional grant programs are primarily available to undergraduate students. The FAFSA is used to determine each student's need level, and grants are awarded accordingly. Awards are made as long as funds continue to be available.

## Student Loans

### Federal Direct Loan Program

The Direct Loan (subsidized and unsubsidized) is a long-term, low-interest loan, for which undergraduate students may apply. Interest rates for Direct Loans disbursed on or after July 1, 2016–June 30, 2017 are as follows:

- Undergraduate Subsidized Direct Loans = 3.76%
- Undergraduate Unsubsidized Direct Loans = 3.76%

Once disbursed this interest rate is fixed over the life of the loan. Interest rates on new loans will change on an annual basis each July 1st. Visit the financial aid website for up-to-date information and interest rates.

For a subsidized loan, the government will pay the interest while the student is in school. For an unsubsidized loan, the student can either pay the interest while in school or have it capitalized (i.e., added to the principle). Payments on the principle amount do not begin until six months after the student graduates or drops below half-time status.

Students must be making satisfactory academic progress and be enrolled at least half time for the period covered by the loan. Each year, dependent undergraduate students may borrow up to \$5,500 at the first-year level (no more than \$3,500 subsidized), up to \$6,500 at the sophomore level (no more than \$4,500 subsidized) and up to \$7,500 at the junior and senior levels (no more than \$5,500 subsidized). Independent undergraduate students may borrow no more than \$9,500 at the first-year level, up to \$10,500 at the sophomore level and no more than \$12,500 at the junior and senior levels.

Dependent undergraduate students may not borrow more than \$31,000 in Direct Loan funds during their undergraduate career (no more than \$23,000 subsidized). Independent students may borrow no more than \$57,500 during their undergraduate career (no more than \$23,000 subsidized). For students who received prior Federal Stafford Loans at JMU or another institution, the career total is the sum of all Direct and Stafford Loans.

### Federal Parent PLUS Direct Loan

Biological parents, adoptive parents or any stepparent of a dependent undergraduate student listed on the FAFSA may apply for a loan through the Parent PLUS Direct Loan program. The borrower must be a citizen or permanent resident of the United States. In addition, the student must be making satisfactory academic progress and be enrolled at least half time for the period covered by the loan. A student must complete a FAFSA before Parent PLUS Direct Loan eligibility can be determined.

Parent PLUS borrowers may apply for an amount up to the Cost of Attendance minus any other financial aid received by the student for that academic year. The interest rate on the Parent PLUS disbursed after July 1, 2016 – June 30, 2017 is 6.31%. Once disbursed this interest rate is fixed over the life of the loan. Interest rates on new loans will change on an annual basis each July 1st. Visit the financial aid website for up-to-date information and interest rates.

Interest begins to accrue on the date of the first loan disbursement. The first payment is due after the last disbursement for the loan period. Parents who wish to delay repayment on the PLUS loan should contact the Direct Loan Servicing Center.

## Alternative/Private Loans

Some banks offer credit-based alternative loans to students and parents who either do not qualify for the Direct or PLUS Direct loans or cannot receive enough money through these loan programs to cover their educational expenses. Terms of these private loans vary. Undergraduate borrowers are typically required to have a credit-worthy co-signer. The financial aid office strongly encourages students and parents to exhaust other sources of aid before pursuing an alternative loan. Interested individuals may obtain more information about alternative loan options from the financial aid website.

## JMU Scholarships

Website: <http://www.jmu.edu/scholarships/>

Many scholarships for students are established through the JMU Foundation and individual university departments. Scholarships are awarded either through the Office of Financial Aid and Scholarships or by the appropriate college or division according to established criteria. Awards are based upon merit and/or need. To be considered for need-based scholarships, students must complete the FAFSA. For information on specific scholarships, students should visit the scholarships website.

## Private Off-campus Scholarships

Private off-campus scholarships include those awarded to students by outside (non-JMU) organizations. These scholarships are credited to the student's account upon receipt of the funds. If this type of scholarship is to be used to pay tuition and fees, the funds must be received prior to the payment due date for that semester.

Mail all off-campus scholarship checks to:  
James Madison University Business Office  
Student Success Center  
738 South Mason Street  
MSC 3516  
Harrisonburg, VA 22807

The student is responsible for compliance with the provisions of the scholarship (i.e., grade reporting, verification of attendance, etc.).

## Virginia Military Survivors and Dependent Education Program (VMSDEP)

This program provides eligible students, as confirmed by the Virginia Department of Veterans Services (DVS), with a waiver of all tuition and mandatory fees at a Virginia public college or university. In addition, as funds are available, eligible students may receive a stipend to offset other educational expenses, such as room and board.

## Virginia Line of Duty

Students whose parent or spouse was disabled or killed in the line of duty while employed or serving as a public safety officer or firefighter with the Commonwealth of Virginia or one of its political subdivisions shall be entitled to free undergraduate tuition and the payment of required fees under certain conditions.

## Student Employment

<http://www.jmu.edu/stuemploy>

JMU employs both graduate and undergraduate students in academic, administrative or service-oriented areas. Students must be degree-seeking and enrolled on at least a half-time basis during the academic year to be employed in these positions. They receive payment for their services via direct deposit twice a month. Wages earned in student positions are not applied directly toward the cost of tuition; however, they serve as a source of income for weekly living expenses. There are three work programs at JMU.

### Federal Work-Study Program

Federal Work-Study jobs are part of the financial aid package for students who demonstrate financial need as determined by their FAFSA. Students who are offered Federal Work-Study will need to apply and interview with employers to secure a position; however, employment is not guaranteed. These jobs provide a student with the opportunity to earn a paycheck throughout the year. The money earned through this program is not counted as income when the student applies for financial aid next year if the student reports FWS earned on the FAFSA.

## Institutional Employment

Institutional employment positions are on-campus positions available to degree-seeking JMU students regardless of financial need. To obtain additional information concerning available on-campus positions, refer to JobLink at <http://joblink.jmu.edu>. There are approximately 2,000 Institutional Employment positions available on campus each year. Students may not work more than 20 hours per week in any on-campus position during the fall and spring semesters.

### Off-Campus Part-Time Jobs

The Off-Campus Part-Time Job Program is designed to assist students in securing off-campus, part-time employment regardless of their financial aid eligibility. The program's coordinator works with local employers to promote hiring JMU students and to assist with advertising their opportunities. Additionally, the program is centered on creating real-world experiences for students that will not only increase self-knowledge but also develop marketable skills that will provide a solid foundation for securing career options beyond graduation.

## University Withdrawal

If students withdraw from the university, the University Business Office may adjust their charges based upon their withdrawal date and the JMU Refund Policy. For the university refund policy, refer to the University Business Office.

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# College of Arts and Letters

*Dr. J. Christopher Arndt, Interim Dean*

*Dr. Siân White, Interim Associate Dean, School of Liberal Arts and Social Sciences*

*Dr. Melinda Adams, Interim Associate Dean, School of Public and International Affairs*

*Prof. Dietrich Maune, Associate Dean, Schools of Communication, Information and Media*

Phone: (540) 568-6334

MSC: 2105

Location: Harrison Hall, Suite 1109

Website: <http://www.jmu.edu/cal>

## Academic Units

### School of Communication Studies

Dr. Eric M. Fife, Director

### Department of English

Dr. Dabney A. Bankert, Head

### Department of Foreign Languages, Literatures and Cultures

Dr. Giuliana Fazzion, Head

### Department of History

Dr. Gabrielle Lanier, Interim Head

### Department of Justice Studies

Dr. Glenn P. Hastedt, Head

### School of Media Arts and Design

Dr. Gwyneth Mellinger, Director

### Department of Philosophy and Religion

Dr. Charles Bolyard, Head

### Department of Political Science

Dr. Jonathan W. Keller, Head

### Department of Sociology and Anthropology

Dr. Beth A. Eck, Head

### School of Writing, Rhetoric and Technical Communication

Dr. Traci A. Zimmerman, Director

## Mission Statement

The College of Arts and Letters serves multiple vital needs of JMU students. First, it offers high-quality programs of specialized study in the social sciences, humanities and communication, and in several pre-professional and cross disciplinary areas. Second, the college provides a challenging array of courses designed to promote lifelong learning by sharpening analytical abilities; improving computational and communications skills; cultivating a facility with written expression; enhancing cultural awareness, intensifying moral and aesthetic sensitivity, and fostering awareness of the contingent nature of knowledge. Linking these two missions is a college-wide commitment to free but rigorous and controlled inquiry into human nature.

## Goals

In addition to the special goals of each major, all programs in the college are committed to helping the students achieve the following common objectives:

- Improve foundational skills fostered by general education courses: writing, critical thinking, information access

through technology and, where appropriate, foreign languages.

- Develop the ability to use writing to acquire knowledge and to communicate ideas effectively through writing-intensive courses required in the major.
- Enrich cultural perspectives essential to effective citizenship in the 21st century, global awareness and appreciation of American cultural diversity.
- Provide significant active-learning experiences through field courses, research projects, internships, studies abroad and simulations.

## Majors and Minors

Students may select from a broad spectrum of major and minor programs in the seven departments and three schools. The departments and schools fully describe their programs in the "Academic Units" section.

## Cross Disciplinary Activities

In addition to departmental majors and minors, the college offers a wide array of interdepartmental majors, minors, pre-professional programs, general education courses, annual

events and supporting services, some of which reach out to the regional community. Information on cross disciplinary programs offered by the College of Arts and Letters may be found in the "Cross Disciplinary Programs" section.

## Pre-professional Programs

### Pre-law

*Dr. Jessica Adolino, Coordinator*

Phone: (540) 568-6413 Email: adolinjr@jmu.edu

Students who plan to apply to law school may select their major from a wide range of fields, depending upon their interests. The scope of the law is broad and offers room for individuals of varied educational and intellectual backgrounds. Students should choose courses that provide them with broad informational and cultural preparation and develop their reasoning abilities.

Especially valuable to a pre-law program are courses in:

- Communication, including composition, language and speech, which enable students to express themselves well.
- The humanities and social sciences, which help students to appreciate and perform effectively in their culture and society.
- Logic, mathematics and the natural sciences, which develop skills of fact discrimination, analysis and synthesis.
- Accounting and economics.

Also important to the pre-law program is Phi Alpha Delta, a student organization that organizes law-related activities.

### Pre-theology

*Dr. Robert Brown, Coordinator*

Phone: (540) 568-5415 Email: brownre@jmu.edu

The pre-theology program prepares students to enter professional schools of religion (divinity schools, seminaries, theological schools). These professional schools prepare the student for a variety of careers, such as ministry, religious education and religious work with youth and others. The program at JMU will provide excellent preparation not only for acceptance at these schools but also for enriched professional training.

A student in this program may major in any field he/she chooses, although the American Association for Theological Schools recommends substantial pre-professional training in philosophy and religion. This professional accrediting agency also recommends a broad background in English language and literature; history (American and European); both the physical and the life sciences; the social sciences (particularly psychology, anthropology and sociology); and interdisciplinary studies on the relationship between the "political" and religion(s) (variously defined); biblical and classical (Greek and Latin) languages and, of course, religion, including the sacred scriptures, history of religious traditions and theology.

## Resource and Service Centers

### Archaeology Collection

*Carole Nash, Coordinator*

Phone: (540) 568-6805 Email: nashcl@jmu.edu

The archaeology collection contains artifacts dating from early in prehistory through the modern era that were excavated from numerous Virginia archaeological sites. It also includes an extensive library of site reports, field records, maps and artifact

identification guides. Artifact study collections spanning the 12,000 year occupation of Virginia's Ridge and Valley Province are being developed for teaching and research purposes. The collection is an important teaching and research asset of the Department of Sociology and Anthropology.

### Center for Public Broadcasting/ WMRA-WEMC

*Mr. Al E. Bartholet Jr., Director*

Phone: (540) 568-6221 Email: wmra@jmu.edu

Website: <http://www.wmra.org>

The Center for Public Broadcasting's mission is to inform, connect and engage communities through journalism, broadcasting and outreach. It serves over 50,000 listeners in the Shenandoah Valley, Charlottesville and Farmville areas.

The center comprises a network of non-commercial public radio stations, serving Harrisonburg at 90.7 FM, Charlottesville at 103.5 FM, Lexington at 89.9 FM and Winchester at 94.5 FM, and one standalone station, WEMC, serving Harrisonburg at 91.7 FM. The WMRA network stations are licensed to the James Madison University Board of Visitors. WEMC is licensed to Eastern Mennonite University, but is operated entirely by the center. Much of WMRA's programming is rebroadcast by WMLU 91.3 FM, the station owned by Longwood University in Farmville, Virginia. WMRA and WEMC are members of National Public Radio, and are affiliated with Public Radio International and American Public Media. The stations broadcast 24 hours per day year-round, offering extensive in-depth news coverage and classical, folk, blues and jazz music. The center also operates Valley Voice Radio Reading Service for the print-impaired. Listeners and local businesses contribute nearly three-quarters of the center's annual budget.

## Annual Events

### Conference on Global Issues

*Dr. Giuliana Fazzion*

Phone: (540) 568-6068 Email: fazziogx@jmu.edu

The Department of Foreign Languages, Literatures and Cultures organizes a yearly conference on global issues, held in the spring. The conference brings together scholars and researchers from a variety of disciplines to address and assess specific global issues, issuing a call for papers in the fall on an announced topic. Proposals for papers, panels and workshops should be sent to the coordinator.

### Madison Writing Awards

Madison Writing Awards (MWA) is a university-wide biennial competition that celebrates writing across the curriculum in all undergraduate academic programs. Winners are recognized at a spring awards reception and the top papers receive generous cash prizes. These awards reflect the commitment of the School of Writing, Rhetoric and Technical Communication and the College of Arts and Letters to promote cross-disciplinary dialogue and engagement as well as to acknowledge the power of writing in all its forms and contexts.

## MadRush

*Dr. Chris Arndt*

Phone: (540) 568-3993

Email: arndtjc@jmu.edu

The MadRush Undergraduate Research Conference features outstanding work by undergraduate humanities and social science majors. Held every spring, it attracts students from across the eastern United States and has become one of the largest humanities and social science undergraduate research conferences in the region.

## Visiting Scholars Program

*Prof. Dietrich Maune*

Phone: (540) 568 6472

Email: maunedx@jmu.edu

The Visiting Scholars Committee organizes campus visits during the year by 12-15 people who have made significant contributions in their fields. The scholars, who represent a wide variety of disciplines, expose students and faculty members to different perspectives and encourage intellectual exploration. During a visit, a scholar meets with at least one group of students in a class or informal setting and gives a public presentation and discussion of his/her work.

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# College of Business

*Dr. Mary A. Gowan, Dean*

*Dr. Michael E. Busing, Associate Dean, Academic Affairs*

*Ms. Kimberley A. Foreman, Associate Dean, Human Resources and Administration*

*Ms. Molly G. Brown, Associate Dean, Undergraduate Programs*

Phone: (540) 568-3254

MSC: 0207

Location: Zane Showker Hall, Sixth Floor

Website: <http://www.jmu.edu/cob>

## Academic Units

### School of Accounting

Dr. Michael Riordan, Director

### Department of Computer Information Systems and Business Analytics

Dr. J. Art Gowan Jr., Head

### Department of Economics

Dr. Ehsan Ahmed, Head

### Department of Finance and Business Law

Dr. Hui Sono, Head

### Program of International Business

Dr. Marion M. White, Director

### Department of Management

Dr. Paula S. Daly, Head

### Department of Marketing

Dr. Andy Wood, Head

## Mission Statement

The JMU College of Business is a learning community committed to excellence in:

- Preparing students to be engaged, principled business professionals and leaders;
- Advancing scholarship in business disciplines; and
- Enhancing organizational performance through our outreach activities.

## Vision Statement

To be regarded as a leader in preparing collaborative business partners engaged with ideas and the world.

## Values

**Integrity:** We are a community dedicated to honesty, mutual respect, ethical reasoning and responsible behavior.

**Intellectual Growth:** We value academic excellence achieved through the intellectual curiosity and growth of both faculty and students, and through the creation and maintenance of a challenging and rigorous learning environment that encourages critical thinking and life-long learning.

**Community:** We value a supportive, inclusive culture where diverse ideas, backgrounds, and experiences strengthen our community, contributing to a global and multi-cultural mindset.

**Engagement:** We value an engaged, active learning environment inside and outside the classroom. We enrich the student experience through mutually beneficial internal and external relationships.

**Innovation/Collaboration:** We value initiative, creativity, collaboration and entrepreneurial spirit. We promote new ideas and solutions that advance intellectual growth and have a positive impact.

## Overview

The College of Business offers baccalaureate degree programs leading to a Bachelor of Business Administration (B.B.A.), a Bachelor of Arts (B.A.) and a Bachelor of Science (B.S.). All degree programs offered by the College of Business are accredited by AACSB International – The Association to Advance Collegiate Schools of Business. The following academic majors are offered as a B.B.A.: accounting, computer information systems, economics, finance, international business, management and marketing. Students may also earn a B.A. or B.S. in economics. Quantitative finance is offered as a B.S. degree. The B.B.A. degree essentially requires the same general structure consisting of the four components shown below:

- General Education component
- B.B.A. core component
- Major component
- Electives (non-business electives and free electives)

## General Education Component

General Education is required of all students regardless of their major or professional program. While much of the general education component of a student's baccalaureate program is completed during the first two years of study, a student has four years to complete this component.

## B.B.A. Core Component

B.B.A. majors must complete all of the B.B.A. core components as part of their degree program. The following courses comprise the B.B.A. Lower-Level Core Component:

COB 191. Business Analytics I (3 credits)<sup>1</sup>  
 COB 202. Interpersonal Skills (3 credits)  
 COB 204. Computer Information Systems (3 credits)  
 COB 241. Financial Accounting (3 credits)  
 COB 242. Managerial Accounting (3 credits)<sup>4,5</sup>  
 COB 291. Business Analytics II (3 credits)<sup>3</sup>  
 ECON 200. Introduction to Macroeconomics (3 credits) ECON 201. Introduction to Microeconomics (3 credits)  
 MATH 205 or MATH 235. Introductory Calculus or Calculus with Functions (3-4 credits)<sup>3</sup>

The following courses comprise the B.B.A. Upper-Level Core Component:

COB 300A. Integrative Business: Management (3 credits)<sup>5,6</sup>  
 COB 300B. Integrative Business: Finance (3 credits)<sup>5,6</sup>  
 COB 300C. Integrative Business: Operations (3 credits)<sup>5,6</sup>  
 COB 300D. Integrative Business: Marketing (3 credits)<sup>5,6</sup>  
 COB 318. Legal and Ethical Environment of Business (3 credits)  
 COB 487. Strategic Management (3 credits)<sup>7</sup>

- 1 MATH 220 may be substituted for COB 191.
- 2 COB 191 and MATH 205 or MATH 235 must be completed before COB 291 is taken.
- 3 Calculus is required but not used in calculating the B.B.A. core GPA.
- 4 COB 241 must be taken before COB 242.
- 5 COB 242 is pre- or corequisite for COB 300 and is not used in calculating the B.B.A. core GPA. COB 242 is a prerequisite for COB 300 for students taking COB 300 in Antwerp.
- 6 All four COB 300 courses must be taken during the same semester.
- 7 COB 487 must be taken during the senior year.

## Major Component

The eight academic majors offered by the College of Business consist of 24-33 credit hours. Students pursuing a B.B.A. degree may take major courses after being formally accepted into the college and after they have enrolled/completed COB 300. The major program component of the B.B.A. degree is designed to be completed in three traditional semesters after COB 300. Students should plan their course work with that timetable in mind.

Acceptance into the College of Business permits a student to enroll in COB 300 and to be formally accepted as a business B.B.A. major. However, some majors in the college may impose standards that exceed those of the college as a whole. A student must meet both the College of Business requirements and the requirements of the major in which he/she seeks to enroll. Refer to the appropriate sections of the catalog for specific degree requirements for the individual majors in the College of Business.

## Non-business Elective Component

The B.B.A. degree requires a minimum of 120 credit hours of undergraduate course work. Fifty percent of this work, 60 credit hours, must be taken outside of the College of Business. In counting the 60 credit hours of non-business courses, B.B.A. students may include all hours taken in general education (usually 41), up to nine hours of economics courses (including ECON 200 and ECON 201) and three hours of COB 191. The remaining hours, to bring the total to 60, must be taken from any academic unit outside the College of Business. Students should carefully select these non-business electives to help them gain additional knowledge and expertise for their careers and personal lives.

## Recommended Course Sequence

In order to remain on a four-year graduation track, students should follow the recommended course sequence below:

### Courses to be Completed During the First Year

COB 191. Business Statistics (3 credits)<sup>1</sup>  
 COB 204. Computer Information Systems (3 credits)  
 ECON 200. Introduction to Macroeconomics (3 credits)  
 ECON 201. Introduction to Microeconomics (3 credits)  
 MATH 205 or 235. Introductory Calculus or Calculus I (3-4 credits)

<sup>1</sup> MATH 220 may be substituted for COB 191 if MATH 220 was taken prior to declaring a B.B.A. major at JMU.

### Courses to be Completed During the Sophomore Year

COB 202. Interpersonal Skills (3 credits)  
 COB 218. Legal and Ethical Environment of Business (3 credits)  
 COB 241. Financial Accounting (3 credits)  
 COB 242. Managerial Accounting (3 credits)  
 COB 291. Introduction to Management Science (3 credits)

## Progression Standards for the College of Business<sup>1</sup>

Any student admitted to JMU can declare any major offered by the College of Business. Students are not formally accepted into the College of Business until certain requirements are met. Requirements to continue pursuing a B.B.A. degree are described here.

Students are formally accepted into the College of Business as a B.B.A. major and permitted to register for COB 300 when the following requirements are met:

- A completed application for acceptance into the College of Business is submitted to the COB Academic Services Center according to the following schedule:
  - November 1 for upcoming spring semester.
  - April 1 for upcoming summer session and fall semester.
- Successful completion with a B.B.A. core GPA of 2.7 or better in the business lower-level core courses: COB 191, COB 202, COB 204, COB 241, COB 291, ECON 200 and ECON 201.
- Successful completion of calculus.
- Resume uploaded to COB 300 "position" on Recruit-A-Duke

No core course may be attempted more than two times. Attempted courses include courses in which a final letter grade, including "W," "WP" and "WF," is recorded on the student's official JMU transcript.

Acceptance is granted within one calendar year of the applicant's first application. Two applications, in consecutive semesters or sessions of enrollment, are permitted.

The B.B.A. core GPA is calculated using grades earned in the B.B.A. lower-level core excluding calculus (MATH 205 or MATH 235). Only grades earned at JMU will be used.

The university policy for calculating repeat-credit and repeat-forgive will be followed. Students with a 2.7 B.B.A. core GPA are assured acceptance into the College of Business and COB 300. Students who meet all of the requirements above but fail to achieve a 2.7 B.B.A. core GPA will be accepted to the College of Business and COB 300 based on B.B.A. core GPA, pending resource and space availability.

Students who fail to meet the standards described above will be denied acceptance into the College of Business and will be

referred to Career and Academic Planning for assistance in choosing another major.

Consult with the major department for further progression requirements in the specific degree programs.

<sup>1</sup> Requirements to be accepted into the College of Business are effective based on when a student intends to enroll in COB 300. Students are advised to consult the College of Business Academic Services Center for current requirements.

## Declaration of a Business Major

JMU students pursuing a major outside the College of Business who wish to change their current major in the College of Business must be in good academic standing at the university on the date they submit a "Change or Declaration of Major" form. This policy affects students desiring to change their major to one of the following: accounting, computer information systems, economics, finance, international business, management and marketing.

## Business as a Second Major

A student enrolled in any JMU degree program other than the B.B.A. program who wishes to select a B.B.A. major field (i.e., accounting, computer information systems, economics, finance, international business, management or marketing) as a second major must complete the following courses:

- All B.B.A. core courses (refer to the B.B.A. core component section); and
- All requirements specific to the major selected.

## Transfer Credit Policy

AACSB International-accredited colleges of business generally allow only a limited amount of business course work prior to the junior year. Because of that restriction, accredited colleges are required to detail a process for accepting transfer courses.

To meet that requirement, the JMU College of Business has established the following transfer credit policy: The College of Business normally does not award transfer credit for courses that were taken at the 100 or 200 level if those courses are offered at the 300 or 400 level at JMU. If a transfer student wishes to receive credit for such a course, the following steps must be taken:

1. The student must present the course syllabus and appropriate course materials to the academic unit head of the relevant academic program in the JMU College of Business.
2. The academic unit head must determine that the course covers material similar to that covered at JMU. If the material is not deemed sufficiently similar, then the student must take the course at JMU. This decision is final and may not be appealed.
3. If the material is considered sufficiently similar, the student may take a comprehensive examination covering the JMU course material and must pass it with at least a grade of 70 percent, or the student may choose to complete the course itself.

If the student passes the comprehensive examination, the academic unit head will report that result to the College of Business Academic Services Center, which will prepare a course substitution form.

Additionally, each academic program in the College of Business will accept no more than two courses for transfer credit toward the major. The major is defined as the course work required by a major field of study in addition to the lower- and upper-level B.B.A. core courses. For a course to be considered for acceptance in the student's major, it must have been completed in an AACSB International-accredited business program at a four-year university. Certain majors within the College of Business may have more restrictive policies on transfer credit. Those policies are explained in later sections of the catalog.

The JMU College of Business prescribes that at least 50 percent of the business credit hours required for the B.B.A. degree be earned at JMU. Specifically, this statement means that no fewer than 28 of the required credit hours in the College of Business be completed at JMU. Required credit hours include the B.B.A. Core and the courses required for the major. The following B.B.A. core courses do not count toward meeting this requirement: COB 191, ECON 201 and ECON 200.

Individual academic programs in the College of Business may have transfer credit limitations in addition to this overall requirement. Refer to the specific academic major.

## Internships for Business Majors

Students with majors in the College of Business are encouraged to participate in at least one formal business internship prior to graduation. Most commonly, students serve as interns in business organizations during the summer between their junior and senior years, but internships are not restricted to that period of time.

In some cases, students may receive academic credit for internships. In such cases, the maximum amount of credit that may be obtained is three credit hours. The minimum requirements for such academic credit are the following:

- The student must have at least junior standing.
- The internship must be approved in advance by the Faculty Internship Coordinator and the academic unit head in the student's major, and the student must be registered for the class credit during the internship experience.
- The intern must complete a minimum of 200 hours of work experience.
- The intern's immediate supervisor must submit at least one performance evaluation to the Faculty Internship Coordinator.
- The intern must submit a final written paper and participate in an exit interview with the Faculty Internship Coordinator.
- Internships in more than one program are permitted. However, double counting (i.e., receiving credit for a single internship experience in more than one major) is not permitted.

Some majors in the College of Business may have higher requirements than these minimum standards.

## College of Business Minors and Concentrations

### Chinese Business Studies Minor

The Chinese business studies minor can be completed by taking one Chinese language course, POSC 371. Topics in Comparative Politics, HIST 341. Selected Themes in World History, IB 298 or IB

498–I. Business Environment in China and Southeast Asia, IB 298 or IB 498–II. Chinese Business Operations, and MKTG 380. Principles of Marketing. Note that business majors will take COB 300D rather than MKTG 380. MKTG 380 (or COB 300D) will be taken at JMU. The other five courses will be taken in conjunction with the JMU Study in China Program, and will be taught by professors or instructors from Chinese universities.

Students in this minor will:

- Become aware of China's history and culture.
- Learn about China's political, social, and economic systems.
- Become familiar with China's government, and business operations.
- Understand China's economic role in Asia and the world.

## European Business Concentration

The European business concentration can be completed by taking COB 300A-D (Integrative Business: Management, Finance, Operations, Marketing—12 credit hours) and COB 301 (European Integration, Culture and History—3 credit hours) in Belgium as part of the Semester in Antwerp program.

These two courses will be taught in the context of the European Union and, as a part of the curriculum, students will visit and study European businesses (e.g., European high-tech startup companies, businesses in the Port of Antwerp) and the institutions that comprise the European Union (e.g., the Council of Europe, the European Parliament). Students will visit business, governmental and cultural institutions in such countries as France, England, Germany, Luxembourg, Norway, the Netherlands, Austria and others, depending on which semester the student goes abroad.

Students in this concentration will:

- Acquire an in-depth understanding of the European business environment.
- Learn about the institutions of the European Union.
- Gain an understanding of the issues surrounding economic and monetary union.

- Apply the integrated functional systems to the European market.
- Understand the role of culture in conducting business in Europe.

This concentration is only available to students who complete COB 300 and COB 301 with the Semester in Antwerp program.

## General Business Minor

The general business minor is available to all JMU undergraduate students. Students should submit a declaration of minor form to the College of Business Academic Services Center (Zane Showker Hall 205) to officially declare the general business minor.

The following courses must be successfully completed with a minimum 2.00 grade point average in order to graduate with the general business minor:

Required Courses	Credit Hours
ACTG 244. Accounting for the Non-Business Major	3
CIS 204. Computer Information Systems	3
ECON 201. Introduction to Microeconomics	3
FIN 345. Finance for the Non-Financial Manager	3
MGT 305. Management and Organization Behavior <sup>1</sup>	3
MKTG 380. Principles of Marketing	3
	18

<sup>1</sup> Engineering majors may substitute ENGR 221 and ENGR 322 for MGT 305.

Matriculated JMU students may only take one minor course for transfer credit. Students who plan to take a course for transfer credit should complete the Permission to Take Courses for Transfer Credit form, including all signatures, prior to registering for the course elsewhere.

# College of Education

*Dr. Phillip M. Wishon, Dean*

*Dr. Steven Purcell, Assistant Dean*

*Dr. Jane Thall, Interim Associate Dean*

*Dr. Richard G. Clemens, Director of Educational Technology and Media Center*

*Dr. Amy D. Thelk, Director of Assessment*

*Dr. Nancy Barbour, Accreditation and Special Projects*

*Dr. Diane L. Foucar-Szocki, Coordinator for Grants, Contracts and Special Projects*

*LTC (ret.) Nick Swayne, Coordinator for External Relations and Outreach*

Phone: (540) 568-6572

MSC: 6907

Location: Memorial Hall, Suite 3175

Website: <http://www.jmu.edu/coe>

## Academic Units

### Department of Early, Elementary and Reading Education

Dr. Teresa Harris, Head

### Department of Educational Foundations and Exceptionalities

Dr. William White, Head

### Department of Learning, Technology and Leadership Education

Dr. Diane Wilcox, Interim Head

### Department of Middle, Secondary and Mathematics Education

Dr. David Slykhuis, Interim Head

### Department of Military Science

LTC Thomas Tolman, Head

## Mission Statement

The mission of the James Madison University College of Education is to prepare educated and enlightened individuals who can skillfully contribute to the common good of society and who can enter competently into positions of teaching and educational leadership, civic responsibility and national service. The personal and professional development of students is accomplished by emphasizing excellence and continuous innovation in quality undergraduate, graduate and professional programs. The College of Education is distinguished through faculty and student achievements, academic rigor, excellence in teaching, student and faculty interactions and relationships, technological innovations and national recognitions. The college maintains relevance through active and growing interactions with other colleges within the university and with local, state, regional, national and international communities. The college is committed to providing:

- Undergraduate programs that are composed of or complemented by strong liberal arts preparation, in-depth specialty studies and opportunities for students to develop professional knowledge and skills.
- Graduate programs that support initial teacher licensure emphasizing advanced knowledge in a specialty area and the development of effective leadership and professional skills for addressing the needs of a changing society.
- Continuing professional development and in-service programs in cooperation with public and private schools and agencies, other colleges, institutions and businesses.

The undergraduate and graduate educator preparation programs are accredited by the National Council for Accreditation of Teacher Education (now CAEP) and approved by the Virginia State Board of Education.

The basic philosophy of the college is reflected in these goals:

- To educate individuals for the multiple professions included in the college at both the undergraduate and graduate levels, not merely by transmitting skills and knowledge but by stimulating creativity, developing cognitive abilities and encouraging the testing of hypotheses and reinterpretation of the human experience.
- To encourage a balanced faculty orientation toward teaching, research, scholarship, community service and professionalism that recognizes individual strengths and preferences of the college's faculty.
- To create an environment that fosters an atmosphere of open communication among students, faculty members and community.
- To anticipate societal needs and provide necessary resources for implementing effective off-campus programs now and in the future.

The college has undergraduate and graduate programs that are designed to lead to majors and minors in pre-professional education, initial teacher licensure, advanced programs for teachers, educational leadership, educational technology, adult education, human resource development and military science.

The college is organized into five departments:

- Department of Early, Elementary and Reading Education
- Department of Educational Foundations and Exceptionalities

- Department of Learning, Technology and Leadership Education
- Department of Middle, Secondary and Mathematics Education
- Department of Military Science

## Programs and Licensure

The College of Education offers undergraduate minors and pre-professional education programs across a range of concentrations in teaching and non-teaching areas. Students who wish to pursue a teacher licensure program complete a major in one of several approved fields of study, in addition to an undergraduate pre-professional education program.

With the exception of the four-year Teaching English to Speakers of Other Languages, teacher licensure programs in the College of Education are completed during a fifth year Master of Arts in Teaching (M.A.T.) program.

## Advisement

### Elementary, Inclusive Early Childhood and Middle Programs

Students interested in inclusive early childhood (early childhood education and early childhood special education), elementary, or middle education major in interdisciplinary liberal studies (IDLS) and complete a pre-professional education program for their specific teacher licensure area.

Each IDLS major is assigned two advisers. One adviser is the education adviser who guides the student through the specific pre-professional program requirements. The other is the IDLS adviser who will guide the student through the IDLS major requirements.

An initial education adviser is assigned when the student declares the licensure program. This is typically done during a student's second semester of the first year at JMU. Once a student has completed all the requirements for admission into teach education (typically during the first semester of the sophomore year), the education program adviser is assigned. The IDLS adviser is assigned when the first year student advising folders are transferred to the IDLS office (second semester, first year). Students are expected to check with advisers regularly to ensure timely graduation.

### Teaching English to Speakers of Other Languages and Special Education

Students interested in Teaching English to Speakers of Other Languages (TESOL) may major in IDLS but have the option to select majors that will provide the needed preparation for their selected pre-professional education program. Students choosing to enroll in the TESOL program often major in modern foreign languages, while students pursuing the field of special education, may major in psychology. Students enrolled in the TESOL or special education licensure programs are assigned two advisers. One adviser is the education adviser who guides the student through the specific pre-professional program requirements. The other adviser is the major adviser who will guide the student through the major requirements. The major adviser is assigned when the first year student advising folders are transferred to the major departments (second semester, first year). Students are expected to check with advisers regularly to ensure timely graduation.

## Secondary Education

Students seeking licensure in secondary education major in the subject area in which they wish to become licensed (i.e., biology, history, etc.) and complete a pre-professional licensure program in secondary education at the undergraduate level.

Students enrolled in a secondary education licensure program are assigned two advisers. One adviser is the education adviser who guides the student through the specific pre-professional program requirements. The other adviser is the major adviser who will guide the student through the major requirements. Students should plan on consulting both advisers regularly. Typically, the education adviser is assigned when the student declares the licensure program. This may be as early as the second semester of the first year at JMU. The major adviser is assigned when the first year student advising folders are transferred to the major departments (second semester, first year). Students are expected to check with advisers regularly to ensure timely graduation.

## Licensure Programs

The College of Education offers the following pre-professional licensure programs:

- Inclusive Early Childhood Education (Early Childhood Education and Early Childhood Special Education)
- Elementary Education
- Middle Education
- Secondary Education
- Special Education (K-12 Adapted Curriculum)
- Special Education (K-12 General Curriculum)
- Teaching English to Speakers of Other Languages (ESL K-12) (can be completed at undergraduate level)

The College of Education offers these undergraduate minors:

- Educational Media
- Human Resource Development
- Military Leadership
- Exceptional Education – Non Teaching
- The following endorsements are also available:
- Algebra I
- Gifted and Talented
- Journalism

Undergraduate students pursuing licensure to teach by completion of graduate M.A.T. programs should:

- Meet requirements indicated by the respective program prior to submitting an application to The Graduate School.
- Apply for admission to The Graduate School according to program deadlines.
- Complete all pre-professional studies requirements before enrolling in graduate courses in education.
- See the JMU Graduate Catalog for more information on the requirements for the M.A.T. and the M.Ed. degrees and for teacher licensure in the identified areas.

Students interested in teacher licensure will major in an academic field and complete all of the requirements for the teacher education program. Depending on the field of study, initial licensure is earned at the bachelor or master's level. The following chart describes the licensure areas, degree required, major field of study and academic unit for students who will enroll in their licensure programs as undergraduates.

Major Field of Study	Licensure Area	Degree Required	Academic Unit
Art	Art Education, PreK-12	Bachelor's	School of Art, Design and Art History
Dance	Dance Education, PreK-12	Bachelor's	School of Theatre and Dance
IDLS with education pre-professional licensure program	Elementary Education, PreK-6	Master's	Interdisciplinary Liberal Studies Department of Early, Elementary and Reading Education
Modern Foreign Languages	Foreign Language PreK-12	Bachelor's	Department of Foreign Languages, Literature and Culture
IDLS with education pre-professional licensure program	Inclusive Early Childhood Education Birth-Age 8	Master's	Interdisciplinary Liberal Studies Educational Foundations and Exceptionalities
IDLS with education pre-professional licensure program	Middle Level, Education, 6-8	Master's	Interdisciplinary Liberal Studies Department of Middle, Secondary and Mathematics Education
Music	Music Education, PreK-12	Bachelor's	School of Music
Kinesiology	Physical/Health Education, PreK-12	Master's	Department of Kinesiology
Content major <sup>1</sup> with education pre-professional licensure program	Secondary Education, 6-12	Master's	Department of Middle, Secondary and Mathematics Education
See program adviser for options with education pre-professional licensure program	Special Education, K-12	Master's	Educational Foundations and Exceptionalities
See program adviser for options with education pre-professional licensure program	Teaching English to Speakers of Other Languages – TESOL (ESL)	Bachelor's Master's	Educational Foundations and Exceptionalities
Theater	Theatre Education, PreK-12	Bachelor's	School of Theatre and Dance

<sup>1</sup> Available majors are biology, chemistry, earth science, English, history or political science, mathematics, or physics.

## Professional Education Unit

The mission of the James Madison University professional education unit is to prepare caring, knowledgeable, skilled and reflective educators who believe that all students can learn and succeed. Our candidates and faculty are committed to lifelong learning and aspire to meet educational needs in a changing, pluralistic and democratic society. The personal and professional development of candidates is accomplished by emphasizing excellence and continuous innovation in quality undergraduate, graduate and professional programs.

The Professional Education Unit is comprised of all programs across the university designed to lead to licensure or advanced study in education.

The initial teacher licensure programs of the unit include:

- Art Education
- Dance Education
- Inclusive Early Childhood Education (Early Childhood Education and Early Childhood Special Education)
- Elementary Education
- Foreign Language Education
- Middle School Education
- Music Education
- Physical and Health Education
- Secondary Education<sup>1</sup>
- Special Education K-12 General Curriculum
- Special Education, Birth-Age 5 (ECSE)
- Special Education K-12 Adapted Curriculum
- Special Education: Visual Impairments
- Teaching English to Speakers of Other Languages (TESOL)
- Theater Education

<sup>1</sup> Secondary education licensure programs include biology, chemistry, Earth science, physics, English, mathematics, history and social sciences.

These initial licensure programs are offered at the undergraduate level:

- Art Education
- Dance Education
- Foreign Language
- Music Education
- TESOL (ESL)
- Theater Education

These initial licensure programs are offered at the graduate level for those having baccalaureate degrees:

- Early Childhood Education
- Elementary Education
- Inclusive Early Childhood Education
- Middle School Education
- Physical and Health Education
- Secondary Education<sup>1</sup>
- Special Education: Birth-Age 5 (ECSE)
- Special Education K-12: Adapted Curriculum
- Special Education K-12: General Curriculum
- Special Education: Visual Impairments
- TESOL

<sup>1</sup> Secondary education licensure programs include biology, chemistry, Earth science, physics, English, mathematics, history and social sciences.

Advanced programs are offered at the graduate level for licensed teachers or other school personnel:

- Educational Leadership
- Educational Technology
- Master of Music
- Master of Arts: Art Education
- Master of Education: Special Education
- Mathematics
- Mathematics Specialist K-8
- Reading Education
- School Counseling
- School Psychology

## Professional Education Coordinating Council

The Professional Education Coordinating Council (PECC) is the official governing body within the university responsible for the preparation of teachers and other school personnel. The membership of the PECC includes the coordinators or representatives of all initial licensure and advanced study programs in education, a representative from the IDLS major, the director of assessment and the directors of the Education Support Center and the Educational Technology and Media Center. The Dean of the College of Education serves ex officio as head of the Professional Education Unit. The Associate Dean of the College of Education serves as the chair of PECC.

## Teacher Education Conceptual Framework

The JMU conceptual framework is a guiding set of principles, beliefs and concepts that provide a basis for designing, implementing, monitoring, assessing and changing programs that prepare teachers and other educators who work closely with children and others in school settings. The overarching purpose, therefore, is to produce resilient, effective educational professionals for a dynamic and changing society.

The JMU Conceptual Framework is grounded in the best of what we know about learning, teaching, and development, and is further based on a moral mission; that is, the work of teachers affects the lives of human beings. In a human sense, it makes a difference in people's lives; in a larger sense, education contributes to societal development and democracy.

The conceptual framework reflects our recognition that teaching is a complex and difficult task, requiring a significant degree of education, preparation and experiences in order to meet the learning needs of all children, regardless of age, culture, condition or ability.

The programs at JMU rely on collaborative partnerships with schools and other community agencies, strong field-based teacher development, a continuum of skills development and reflective professional practice.

Program completers, therefore, should be skilled and adept in a set of competencies that are based on the propositions found in the Conceptual Framework. Those competencies include demonstrating:

- Certain personal qualities and dispositions reflective of a professional educator.
- Deep understanding of the content to be taught and ways to effectively teach the content.
- An understanding of the impact of research on learning and development and how culture influences development.
- An understanding of how students differ in approaches to learning and creating instructional opportunities for diverse learners.
- Skill in effective planning for learning.
- Skill in a wide variety of instructional strategies and technologies.
- Skill at creating positive, effective learning environments.
- The use of effective verbal, non-verbal and media techniques that foster inquiry, collaboration and positive interactions.
- Skill in a variety of effective assessment techniques.
- The ability to reflect on practice, adjust teaching methods and techniques, and seek professional growth.
- Skill in developing positive relationships with parents, colleagues and families.

## Education Support Center

*Dr. Steve Purcell, Assistant Dean*

Website: <http://www.jmu.edu/coe/esc>

The Education Support Center (ESC) has four major responsibilities for assisting students with their pursuit of a teaching license:

- monitor admission to, and retention in, the professional education program;
- coordinate field experiences for all programs;
- approve applications for Virginia Licensure; and
- serve as the center for information about professional education programs.

Information and application materials for admission to teacher education, appeals, registration for PRAXIS exams, student teaching and licensure are available on the Education Support Center website. Also provided is information regarding costs associated with required tests and subscriptions to Tk20.

## Admission to Teacher Education

Candidates who want to pursue a course of study leading to the initial Virginia teaching license must be admitted to the teacher education program. Admission is a prerequisite to most education courses; candidates not admitted to teacher education will be blocked from registering for those courses.

## Admission Criteria

Some teacher education programs may have additional requirements for acceptance into their own programs. Consult the program area coordinator for more specific information.

Criteria	Four & Five Year Initial Programs	Graduate Programs
Approved major and declared pre-professional teaching program	X	
Two satisfactory references	X	X
Grades of "C" or better in <ul style="list-style-type: none"> <li>▪ WRTC 103 or equivalent</li> <li>▪ A MATH course</li> <li>▪ PSYC 160, PSYC 614 or equivalent</li> <li>▪ EDUC 300 or equivalent</li> </ul>	X	X
Passing score on Praxis Core Academic Skills Tests for Educators, or VCLA and Praxis Core Mathematics Academic Skills for Educators Tests or SAT or ACT exemption	X	X
Child Abuse Prevention (CAP) training online	X	X
Cumulative GPA of 2.5 or higher	X	X
Universal Precautions (UP) training online	X	X
No record of felony conviction or misdemeanors involving children or drugs or founded complaint of child abuse or neglect	X	X
Purchase and subscription to Tk20	X	X
Specific program requirements.	X	X

## Deadline

Freshmen are expected to apply to Teacher Education by April 15th of their freshmen year and complete all admission requirements by October 15 of the following semester.

Transfer, post-baccalaureate and graduate candidates should apply during their first term of enrollment at JMU. Students must complete all requirements for admission into teacher education programs in order to enroll in required education courses. A full schedule of application and admission deadlines can be found on the ESC website.

Students can check the status of their admission to the teacher education program online at the ESC website.

## Field Experiences

Field experiences (including practica and internships) are required for candidates in all programs of the professional education unit. The number and nature of these experiences may differ based on program structure and candidates' individual needs and/or goals. Transportation and other arrangements for the practicum and internship courses/experiences will be the candidate's responsibility.

## Student Teaching

Student teaching is required as an integral part of the sequence of professional experiences in all teacher education programs.

Its purpose is to enable pre-service teachers to apply acquired skills, understandings and attitudes in K-12 classrooms or comprehensive child development programs. Each individual licensure program determines the length of its particular student teaching experience.

The Education Support Center coordinates the student teaching program with participating school divisions, assigning all candidates to their student teaching sites and assisting in the planning and supervision of their work. Experienced teachers serve as cooperating teachers who coach and mentor the student teachers in their classrooms. University supervisors have the major responsibility for the supervision and evaluation of student teachers. Student teaching is graded on a credit/no-credit basis.

Candidates must student teach in the area for which they are seeking licensure or endorsement. A candidate enrolled in multiple teacher licensure programs must complete a student teaching experience in each area.

Student teaching placements are made in accredited Virginia public and private schools, programs, and agencies.

Most placements are made within approximately one hour's driving distance from campus. Some programs also place students in northern Virginia, Richmond and/or Tidewater, and Roanoke. Other local and non-local placement sites may be assigned in accordance with individual program and/or student needs. All placements are based on availability and efficiency of appropriate supervision. Student teaching is a full-time experience. Permission to take additional course work other than that required by the program will be made only in exceptional cases. Student teachers should not expect to work or participate in excessive extracurricular activities during student teaching. Students with problems and/or special needs must contact the director of the ESC for prior approval.

Opportunities exist for qualified candidates to complete a portion of their student teaching at international locations. Those interested in pursuing this option must meet additional requirements and have permission of their programs at time of application to student teach. Refer to the ESC website for additional information.

## Student Teaching Criteria

To be approved for student teaching, all candidates must:

- Complete (prior to acceptance) all stated requirements for admission to teacher education.
- Submit a student teaching application.
- Complete all course work prior to student teaching.
- Submit a recommendation for student teaching by their licensure program.
- Meet any additional admission and retention standards of their academic department or school.
- Submit paperwork to show that the student is free from exposure to communicable tuberculosis.

Professional behaviors are expected of all candidates throughout the program. School divisions routinely require a background check prior to student teaching. Convictions for criminal offenses or charges pending may result in schools refusing to make a placement for practicum or student teaching. There may also be serious consequences when being considered for a license to teach in Virginia and in other states. Therefore, students are required to inform the Education Support Center in writing of any conviction or pending charges for a felony, violation of a criminal drug law, an alcohol beverage control law or law that governs driving while intoxicated. Notification should be made within five calendar days after such charge or conviction.

## Application Deadlines

Student teaching applications are accepted during the fall semester for the next academic year. It is the student's responsibility to be aware of all application requirements and deadlines.

## Teacher Education Licensure

Candidates should apply for a Virginia teaching license upon completion of a teacher education program; this license is not issued automatically. Virginia licensure requirements include the following assessments:

- Virginia Communication and Literacy Assessment (VCLS) for all licensure areas.
- Praxis II Specialty Area Tests for most licensure areas.
- Reading for Virginia Educators for selected programs.

In addition, all candidates shall provide evidence of completion of certification or training in emergency first aid, cardiopulmonary resuscitation (CPR) and the use of automated external defibrillators (AEDs).

## Licensure Criteria

A statement indicating completion of an approved teacher education program will be entered on the candidate's transcript after:

- education requirements have been met, including a cumulative 2.5 GPA for undergraduates and a 3.0 for graduates;
- degree is awarded; and
- scores (sufficient for subject area) on all state mandated assessments are achieved.

## Out-of-State Licensure

It is recommended that candidates applying for out-of-state licenses first obtain the Virginia license. Out-of-state licensure requirements and application forms must be obtained directly from the desired state agencies. Other states may have additional testing and GPA requirements the applicant must meet.

## Educational Technology and Media Center

*Dr. Richard G. Clemens, Director*

Phone: (540) 568-6302

Website: <http://www.jmu.edu/coe/etmc>

The primary goal of the Educational Technology and Media Center (ETMC) is to support students, faculty and staff in their effective use of technologies for learning. This goal is achieved through access, instruction and promotion of educational technologies available within the center. ETMC houses more than 5,000 items including K-12 textbooks, DVDs, computer software, and a variety of other instructional resources. The center houses the children and youth literature collection of James Madison University totaling more than 15,000 volumes.

Computers throughout the facility allow students to work with computer-assisted instruction, web page creation, word processing, digital images, analog and digital video, page layout, data analysis and the creation of multi-media computer presentations. The growing capabilities in instructional technology are evident in this center where interactive video conferencing, video-streaming and other newly emerging technologies expand the potential for learning in multiple environments. Faculty also have access to mobile carts housing laptops, iPads and other mobile device technologies for use in their instructional practice.

For students desiring licensure in Virginia's schools, ETMC provides opportunities to learn and use many forms of instructional technology. ETMC has a range of production facilities including traditional media, audio and video editing areas, and digital technologies that enable students and faculty to produce a wide variety of instructional materials. College of Education students may also check out digital cameras, camcorders, audio recorders, iPads and laptop computers for their instructional practice.

# College of Health and Behavioral Studies

*Dr. Sharon E. Lovell, Dean*

*Dr. Özlem Ersin, Associate Dean*

*Dr. Rhonda M. Zingraff, Associate Dean*

Phone: (540) 568-2705

Location: Health and Behavioral Studies Building, Room 5051

*Dr. Paula J. Maxwell, Associate Dean*

MSC: 4101

Website: <http://chbs.jmu.edu>

## Academic Units

### Department of Communication Sciences and Disorders

Dr. Cynthia O'Donoghue, Head

### Department of Health Professions

Dr. Özlem Ersin, Interim Head

### Department of Health Sciences

Dr. Andy Peachey, Acting Head

### Department of Kinesiology

Dr. Janet Wigglesworth, Head

### School of Nursing

Dr. Julie Sanford, Director

### Department of Psychology

Dr. Kevin J. Apple, Head

### Department of Social Work

Dr. Lisa E. McGuire, Head

## Mission, Vision and Values

### Mission

We engage students, faculty and communities in learning, scholarship and service in health and behavioral studies to inspire responsible contributions to our world.

### Vision

CHBS aspires to excellence in discovery and real-world impact on the health and well-being of individuals and communities that we serve.

### Values

We promote and support departments, programs and initiatives that advance a culture of excellence and uphold the following values:

#### Scholarship & Professional Development

We participate actively in research and continual professional development.

Research refers to systematic examination of phenomena using scientific methods and includes the Scholarship of Teaching and the Scholarship of Learning as well as:

- Basic Research—leads to understanding of fundamental questions.
- Applied Research—relates basic research to find solutions to everyday problems.

- Translational Research—relates basic research to professional applications that enhance human health and well-being in a multi-disciplinary environment.
- Professional Development—includes activities designed to enhance professional knowledge and skills.

### Innovation

We pursue creative approaches/trends that strive toward new and effective solutions, while respecting successful traditions and established best practices.

### Diversity

We appreciate that salient differences exist among and between peoples, programs, disciplines and professions and that such differences include—and influence—values, beliefs, interests and worldviews.

### Engaged Learning

We raise and respond to questions with a spirit of active inquiry and discovery, both individually and collectively; engage in reflective-active approaches to new information for problem-solving; develop lifelong learning skills.

### Integrity

We act in a manner consistent with stated personal, professional and college values.

### Service

We contribute expertise and energy to the needs of various constituencies (university, professional and extra-university).

## Collaboration

We recognize commonalities, respect differences and search cooperatively for possibilities to engage in interprofessional and interdisciplinary work.

## Majors and Minors

Students may select from a variety of majors, minors, programs and concentrations that are available through the departments in the College of Health and Behavioral Studies. Programs offered include the following:

### Majors

- Athletic Training
- Communication Sciences and Disorders
- Dietetics
- Health Sciences
  - Health Assessment and Promotion
  - Health Studies
  - Public Health Education
- Health Services Administration
- Kinesiology
  - Exercise Science
  - Physical and Health Education Teacher Education
- Nursing
- Psychology
- Social Work

## Minors

- Chronic Illness
- Coaching Education
- Communication Sciences and Disorders
- Family Studies
- Gerontology
- Nonprofit Studies
- Sport Communication
- Substance Abuse Education

## Cross Disciplinary Programs, Outreach Programs, Partnerships, Academic Centers and Institutes

The College of Health and Behavioral Studies places a high value on partnerships with the community. These partnerships and our outreach programs are integral to our academic programs and assist us in meeting our responsibility to participate in efforts to enhance the well-being of our community. We value the impact of experiential activities on the enrichment of student learning. Many of the programs within the college are cross disciplinary in nature, reflecting our commitment and supporting the mission of the college. Further details about these cross disciplinary programs are provided in the minors and Academic Institutes and Centers sections of the catalog and on the CHBS website.

# College of Integrated Science and Engineering

*Dr. Robert A. Kolvoord, Dean*

*Dr. Henry Way, Interim Associate Dean*

Phone: (540) 568-8841

Location: 701 Carrier Drive, Harrisonburg, VA 22807

MSC: 4116

Website: <http://cise.jmu.edu>

## Academic Units

### Department of Computer Science

Dr. Sharon J. Simmons, Head

### Department of Engineering

Dr. Kurtis G. Paterson, Head

### Department of Integrated Science and Technology

Dr. Jeffrey D. Tang, Interim Head

## Mission

The College of Integrated Science and Engineering encompasses programs whose common focus is solving problems that impact the world at large through both the application of science and technology and the consideration of the social context in which the problem sits.

Over the past several decades, remarkable developments in science and technology have altered our lives and our society, bringing both great opportunities and challenges. Continued prosperity and societal harmony depend on the integration of scientific knowledge, the creative use of engineering design, technical capabilities in computing and other fields, the application of ethical principles and an understanding and appreciation of cultural commonalities and differences. Consequently, there is a need for individuals who understand the importance of specialization, as well as cross disciplinary connections, and also the integration of knowledge for practical application. These individuals must have the flexibility to be able to operate in an environment of uncertainty and complexity, the drive to seize such opportunities as they arise, and the vision and creativity to create new opportunities as needed. Our faculty is dedicated to producing graduates with a scientific and technical knowledge base and a matching set of interpersonal, organizational and technical skills. To this end, our faculty members not only educate our students, they also inspire and serve as role models.

The college places importance on carrying out its role within the community of Academic Affairs, working collaboratively with other colleges and supporting division-wide programs and priorities.

## Mission Statement

The College of Integrated Science and Engineering, by supporting its constituent academic programs, seeks to build a community of students, faculty and staff who share a common purpose of improving our world through the cultivation of integrated sciences and engineering.

## Goals

The goals of the College of Integrated Science and Engineering are:

- To promote a student-centered focus in teaching, scholarship and service that encompasses excellence, collegiality and professionalism.
- To foster, among both faculty and students, life-long professional development, personal growth and commitment to ethical behavior.
- To contribute to the betterment of society at local, regional, national and global levels with a focus on sustainable solutions.
- To prepare students to enter professions of value to our community, through the study of applied science and engineering within a social context, or to undertake advanced study.
- To support a community of faculty that pursues high-quality, innovative and cross disciplinary instruction, scholarship and service.
- To emphasize innovation.
- To encourage partnerships both within and outside the university.

## Academic Programs

Students may select from a variety of majors, minors, programs and concentrations that are available through the departments in the College of Integrated Science and Engineering. Programs offered include the following:

### Majors

- Biotechnology
- Computer Science
- Engineering
- Geographic Science
- Integrated Science and Technology
- Intelligence Analysis

## Minors

- Computer Science
- Environmental Humanities
- Environmental Information Systems
- Environmental Management
- Environmental Science
- Environmental Studies
- Geographic Science
- Humanitarian Affairs
- Integrated Science and Technology
- Materials Science
- Robotics
- Science, Technology and Society
- Telecommunications
- Urban and Regional Studies

## Cross Disciplinary Programs, Outreach Programs, Partnerships and Academic Centers

The College of Integrated Science and Engineering highly values partnerships with the community. These partnerships and our outreach programs are integral to our academic programs and assist us in fulfilling the responsibility we feel to serve our community. We value the impact of experiential activities on the enrichment of student learning. A listing of CISE centers, outreach programs and partnerships may be found on the CISE website.

## Graduate Programs

The College of Integrated Science and Engineering offers the following graduate degrees:

- Computer Science (M.S.)
  - Information Security
  - Digital Forensics
- Computer Science – Fifth Year Format (M.S.)
  - Information Security
  - Digital Forensics
- Integrated Science and Technology (M.S.) - Not currently accepting applications.
- Integrated Science and Technology: Environmental Management and Sustainability (M.S.) – joint degree program with the University of Malta

# College of Science and Mathematics

*Dr. Cynthia M. Bauerle, Dean*

Phone: (540) 568-3508

*Dr. Anthony Tongen, Associate Dean*

Phone: (540) 568-3508

Location: Bioscience Building, Suite 3001, 951 Carrier Drive

MSC: 4114

Website: <http://www.jmu.edu/csm>

## Academic Units

### Department of Biology

Dr. Joanna B. Mott, Head

### Department of Chemistry and Biochemistry

Dr. Linette M. Watkins, Head

### Department of Geology and Environmental Science

Dr. Stephen A. Leslie, Head

### Department of Mathematics and Statistics

Dr. David C. Carothers, Head

### Department of Physics and Astronomy

Dr. W. Christopher Hughes, Head

## Mission Statement

The College of Science and Mathematics is dedicated to excellence in undergraduate education and research. Our outstanding programs are student-centered and designed to prepare students for responsible positions at all levels in research, industry, education, medicine and government. We emphasize learning by doing science and provide active learning experiences in a range of settings. We also encourage collaborative research between students and faculty, internships and other experiences that facilitate transitions to work or graduate/professional education.

We provide the following:

- Foundational understanding of science and mathematics for the educated citizen.
- The educational basis and technical skills to prepare science and mathematics students for the workforce.
- The theoretical and practical foundations for success in professional and graduate programs.
- An exemplary program in mathematics and science for prospective teachers.

## Programs

The college offers a variety of academic programs, majors, minors, concentrations, cross disciplinary programs and tracks. Most of these are listed below. For an explanation and contact point of each, visit the college website.

- Actuarial/financial mathematics
- American Chemical Society accredited degree
- Applied physics
- Astronomy minor
- Biochemistry concentration
- Biochemistry minor for biology or chemistry majors
- Biology major and minor
- Biophysical chemistry major
- Biotechnology major

- Chemical education concentration
- Chemistry major and minor
- Chemistry/business concentration
- Computational and applied mathematics
- Computational sciences
- Earth science major
- Ecology
- Environmental and engineering geology
- Environmental science minor
- Environmental studies minor
- Forestry M.S. program
- Fundamental physics
- Geology major and minor
- Human science minor- not currently offered
- Materials chemistry concentration
- Materials science minor
- Mathematics major and minor
- Medical technology
- Microbiology
- Molecular biology and physiology
- Physics – individual option
- Physics major and minor
- Plant sciences
- Pre-Dentistry
- Pre-Forensic Studies
- Pre-Medicine
- Pre-Occupational Therapy
- Pre-Optometry
- Pre-Pharmacy
- Pre-Physical Therapy
- Pre-Physician Assistant
- Pre-Veterinary medicine
- Pure mathematics
- Statistics major and minor

Teaching Licensure for Secondary Teaching:

- Biology

- Chemistry
- Earth sciences
- Mathematics
- Physics

Some of these cross disciplinary programs are listed in the cross disciplinary programs section of the catalog. The college also supports the following resource and service centers, collections, events and outreach programs that enhance teaching, scholarly activity and community relations.

## Resource and Service Centers

### Astronomy Park

*Contact: Dr. Sean T. Scully*

Phone: (540) 568-4511

Website: <http://www.jmu.edu/planetarium/star-parties.shtml>

Located on the east side of campus near the Physics and Chemistry building is a permanent area for sky observing on campus. There are permanent mounts for six portable 10-inch computer controlled telescopes and an area for a portable 14-inch telescope. This site provides a convenient area for sky observing for introductory astronomy students. Students are able to easily see the moon, planets, nebulae, galaxies, star clusters as well as the sun using the appropriate solar filters. The department is also equipped with CCD cameras, spectrometers, a photometer and multiple solar filters that provide more advanced students with experience in astrophotography and data collection techniques. The public is invited to attend public star gazes which are held several times each semester.

### The Center for Computational Mathematics and Modeling

*Contact: Dr. James Sochacki*

Phone: (540) 568-6614

This cross disciplinary institute for scientific computing houses state-of-the-art graphics workstations and a 16 PII node beowulf computer system. The beowulf computer system is a parallel computing environment that can be used on large-scale problems. Faculty and students will have access to this "super computer" from the center and from their offices. The center also operates an Immersive 360o Visualization System. The center uses mathematics both to simulate real-world phenomena and to generate visual data.

Faculty members from the sciences, economics and business disciplines interact with mathematicians to model problems that they are researching with undergraduate students.

### Center for Materials Science

*Contact: Dr. Samuel A. Morton, III*

Phone: (540) 568-7623

The educational mission of the Center for Materials Science is to develop and maintain an innovative interdisciplinary and multidisciplinary undergraduate program in materials science that will increase the maturation of students, their research experience and their employment opportunities. The mission includes the integration of undergraduate education with basic and applied research in materials science.

Faculty in the Center for Materials Science have expertise in a wide variety of areas including inorganic and organic synthesis, microfabrication, nanotechnology, thin film growth and surface

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modification, materials characterization, and modeling and simulation of complex systems. The facilities include a class 10000 clean room, electron beam lithography, and many types of microscopy and other analytical techniques. A more complete description of the instrumentation and facilities is available at <http://csm.jmu.edu/materialsscience/facilities.html>

Collaborative work is welcome and can include consultation with faculty, assignment of student projects or simply access to facilities.

### Department of Chemistry & Biochemistry LC/MS Facility

*Contact: Dr. Christine A. Hughey*

Phone: (540) 568-6633

Website: <https://www.jmu.edu/chemistry/LCMS.shtml>

The JMU liquid chromatography/mass spectrometry (LC/MS) undergraduate research facility, housed within the Department of Chemistry & Biochemistry, was established in 2010 with two Major Research Instrumentation (MRI) grants from the National Science Foundation.

The LC/MS instruments housed in the facility include: (1) an Agilent 6460 triple quadrupole (QQQ) mass spectrometer coupled to two Rapid Resolution LC pumps and a diode array detector, (2) an Agilent 6224 time of flight (TOF) mass spectrometer coupled to an Infinity UHPLC pump, and (3) an Agilent 6530 quadrupole time of flight (q-TOF) mass spectrometer coupled to an Infinity UHPLC pump. All three instruments are equipped with an electrospray source. The time of flight instruments afford the high mass accuracy and high resolution necessary for identification of unknowns in complex mixtures. The MS/MS capability of the q-TOF affords additional structural information. The sensitivity of the QQQ makes this instrument ideal for small molecule quantitation. Together, these three instruments provide a robust platform for the qualitative and quantitative analysis of biological and environmental samples.

### JMU Center for Genome and Metagenome Studies

*Contact: Dr. James B. Herrick*

Phone: (540) 568-6653

Website: <http://www.jmu.edu/genomics>

The mission of JMU Center for Genome and Metagenome Studies (CGEMS) is to support innovative research and training in the methods and principles of genomics, metagenomics and bioinformatics in order to provide an exemplary learning experience for undergraduate and graduate students. CGEMS supports innovative, leading-edge research and training in the methods and principles of genomics, metagenomics, transcriptomics and bioinformatics for students at all levels. The center supports and fosters collaboration among researchers and students in a variety of departments and colleges. CGEMS also sponsors seminars and provides outreach to other higher education institutions in Virginia as well as area schools.

### JMU Regional Undergraduate Laser Facility

*Contact: Dr. Oleksandr Kokhan*

Phone: (540) 568-1656

Website: [www.jmu.edu/chemistry/lasers.shtml](http://www.jmu.edu/chemistry/lasers.shtml)

## Medicinal Research Collaborative

Contact: Dr. Kyle Seifert

Phone: (540) 568-2286

Contact: Dr. Kevin Caran

Phone: (540) 568-6632

Website: <http://csma31.csm.jmu.edu/chemistry/faculty/minbio/le/JMUMRC>

The Medicinal Research Collaborative is an assembly of researchers who share ideas and pool resources to advance medicinal research at James Madison University. Members come from a variety of scientific departments and represent a diversity of expertise. Since members of the collaborative often team up on research, the MRC presents a set of highly interdisciplinary projects that aim to advance fundamental science that supports medicine. Key liaisons include researchers at SRI Shenandoah Valley, a non-profit organization with a new research site in Harrisonburg, as well as other members of the JMU community with ties to medicine and intellectual property.

## Electron Microscopy Center

Contact: Dr. Xiaofeng "Harry" Hu

Phone: (540) 568-8115

The Electron Microscopy Center serves faculty, staff and students who wish to use the scanning electron microscopy in scientific investigations. The center also provides demonstrations for public school groups and specialized educational programs.

## JMU Meteorite Collection

Contact: Mr. Shanil Virani

Phone: (540) 568-4071

Website: <http://csma31.csm.jmu.edu/physics/outreach.html#meteorites>

The James Madison University Meteorite Collection is a growing collection of the many sorts of meteorites to strike the Earth, and is located on the second floor of the Physics and Chemistry building. The display is open to the public year-round during university business hours, and after hours by special arrangement.

## Microscopy Facility

Contact: Dr. Kristopher E. Kubow

Phone: (540) 568-4521

Website: <http://www.jmu.edu/microscopy>

The Biology Department's Microscopy Facility is equipped with several light and fluorescence microscopes, including a Nikon C1 Confocal Laser Scanning Microscope, enabling time lapse imaging, 3-D image reconstruction and fluorescence imaging. The facility has a dedicated staff member who can provide training on the equipment and help faculty and students with any microscopy aspects of their research projects.

## Mineral Museum

Contact: Dr. Lance E. Kearns

Phone: (540) 568-6130

Website: <http://sites.jmu.edu/mineralmuseum>

Housed with the Department of Geology, the JMU Mineral Museum contains more than 700 exceptionally beautiful display specimens that provide mineralogy students with outstanding visual examples of some of the finest crystals from around the

world. Each year, numerous educational groups, mineralogical societies and individual collectors visit the collection.

## Office of Statistical Services

Contact: Dr. Samantha "Sam" C. Prins

Phone: (540) 568-5102

Through this office, statistics faculty members and students provide JMU and the local community with assistance in the design and analysis of statistical surveys and experiments. Students obtain practical experience and an appreciation for the impact of statistical methods on today's society.

## John C. Wells Planetarium

Contact: Mr. Shanil Virani

Phone: (540) 568-4071

Website: [www.jmu.edu/planetarium](http://www.jmu.edu/planetarium)

Located in Miller Hall, the planetarium serves as a teaching laboratory for both the undergraduates and the local community alike. The facility is used as a resource for introductory astronomy classes and well as welcoming school groups from the region. Several public planetarium shows are offered every month that vary with the seasons. The planetarium is equipped with a GOTO- Chronos/Digistar-3 hybrid planetarium system that offers full dome video as well as exceptionally clear and accurate simulations of the night sky.

## Science and Mathematics Learning Center

Contact: Dr. Nolan B. McMurray

Phone: (540) 568-4169

Website: [www.jmu.edu/smlc](http://www.jmu.edu/smlc)

CSM has established a Learning Center for Science and Mathematics. The center, which is a part of the JMU Student Success Center, provides extra help with math and science for students in general education and beginning science courses. The center is staffed by five full-time coordinators and carefully selected upper level science and mathematics majors.

## Shenandoah Valley Regional NMR Facility

Contact: Dr. Jun Yin

Phone: (540) 568-3683

Website: [www.jmu.edu/chemistry/nmr.shtml](http://www.jmu.edu/chemistry/nmr.shtml)

The Shenandoah Valley Regional NMR Facility was established with grants from The National Science Foundation (9650132) and The Merck Foundation with matching funds provided by James Madison University, Eastern Mennonite University and Bridgewater College.

The NMR Facility is comprised of three NMR spectrometers: 300,400 and 600. These instruments are housed at JMU and can be accessed remotely by the Regional NMR Consortium. The group is composed of chemists from Bridgewater College, Eastern Mennonite University, James Madison University, Mary Baldwin University and the University of Virginia.

## Science Fair

Contact: Dr. Thomas DeVore

Phone: (540) 568-7938

The Shenandoah Valley Regional Science Fair has been administered by the JMU science faculty for over four decades. The science fair is a competition open to all students in grades 6-12 who live in Virginia's Shenandoah Valley.

# College of Visual and Performing Arts

*Dr. George E. Sparks, Dean*

*Dr. Sonya G. Baker, Associate Dean*

Phone: (540) 568-7131

Location: Shirley Hanson Roberts Center

MSC: 2107

Website: <http://www.jmu.edu/arts/>

## Academic Units

### School of Art, Design and Art History

Dr. Katherine Schwartz, Director

### School of Music

Dr. Jeffrey Bush, Director

### School of Theatre and Dance

Rubén G. Graciani, Director

## Mission Statement

The College of Visual and Performing Arts is founded on the belief that artistic expression reveals the essential nature and diversity of human experience. Embracing traditional practices as well as contemporary approaches and technologies, the College provides a stimulating environment in which students create, perform, interpret, research, teach and think critically about the arts. The College actively supports creative and scholarly endeavors, collaboration between faculty and students, and interdisciplinary exchange. We are committed to making the arts an integral part of the life of the university and advancing their visibility, accessibility and understanding throughout the region and the world.

## Goals

The programs in the college are committed to achieving the following common objectives:

- To prepare students to be articulate, effective and inspiring performers, educators, creators, scholars and professionals in the arts.
- To attain recognition and leadership in the arts at the regional, national and global levels.
- To enhance, develop and sustain undergraduate and graduate programs of distinction.
- To support cultural, aesthetic and intellectual diversity, and to foster interdisciplinary exchange.
- To offer students instruction and learning experiences that incorporate the latest technology, research and practices.
- To engage the surrounding community as an active partner in promoting and experiencing the arts.

## Majors and Minors

CVPA offers majors and minors from the following schools:

- School of Art, Design and Art History
- School of Music
- School of Theatre and Dance

## Resources and Events

### Forbes Center for the Performing Arts

*Executive Director: Ms. Regan Byrne*

Phone: (540) 568-7000

Website: <https://www.jmu.edu/forbescenter/>

Comprised of the Dorothy Thomasson Estes Center for Theatre and Dance and the Shirley Hanson Roberts Center for Music Performance, the Forbes Center houses five state-of-the-art performance venues: the Mainstage Theatre (450 seats), the Concert Hall (600 seats), the Recital Hall (196 seats), the Studio Theatre (200 seats) and the Earlynn J. Miller Dance Theatre (200 seats).

The center is home to the Masterpiece Season, featuring a variety of cultural events for JMU and the entire community. The schools of Art, Design and Art History; Music; and Theatre and Dance all take an active role in this series. The season also includes the Encore and Family Series featuring visiting artists such as Imago Theatre, Liz Lerman Dance Exchange, Bobby McFerrin, Denyce Graves, Victor Ekpuk and Alex Bay.

### Galleries

Phone: (540) 568-6918

Website: [www.jmu.edu/artandarthistory/galleries/galleries-overview.shtml](http://www.jmu.edu/artandarthistory/galleries/galleries-overview.shtml)

### artWorks Gallery

The artWorks Gallery features rotating exhibits of JMU undergraduate and graduate student work. The gallery is managed by students in the School of Art, Design and Art History. The gallery is located a short walk from Duke Hall on the second floor of 131 Grace Street, JMU, Harrisonburg, VA. The artWorks Gallery is a curricular component of the School of Art, Design and Art History.

## Duke Hall Gallery

Duke Hall Gallery is a professional art gallery featuring changing exhibitions of international, national and regional significance.

In addition to providing exhibitions of contemporary art, a hallmark of the gallery's mission is to demonstrate art's multicultural and interdisciplinary dynamic. Duke Hall Gallery is located in Duke Hall, Room 1022, on the corner of Main and Grace Streets. Duke Hall Gallery is sponsored by the College of Visual and Performing Arts and the School of Art, Design and Art History.

## New Image Gallery

New Image Gallery is a professional photography gallery featuring contemporary photography of regional and national significance. New Image Gallery is located on the second floor of 131 Grace Street, JMU, Harrisonburg, VA. New Image Gallery is a curricular component of the School of Art, Design and Art History.

## Programs

### Institute for Visual Studies

*Director: Dr. David Ehrenpreis*

Phone: (540) 568-5656

Website: <http://www.jmu.edu/ivs/>

The Institute for Visual Studies is a center for scholarly, scientific and creative inquiry into the nature and workings of images. An incubator of new ideas, the institute fosters discovery, and the generation of artworks, products and applications by multidisciplinary teams of students and faculty. The Institute for Visual Studies is a collaboration of faculty representing all colleges at the university. It is located in Roop Hall, room 208.

## Madison Art Collection

*Director: Dr. Kathryn Stevens*

Phone: (540) 568-6934

Website: <http://www.jmu.edu/madisonart/>

The Madison Art Collection provides unique opportunities for students, faculty and the surrounding community to learn about a wide range of world cultures through the exploration of its collection of over 35,000 objects. Exhibitions, class projects and special programming allow public access to the areas of collection strength, which include funerary objects from ancient Egypt, ceramics and glassware from classical Greece and Rome, West African masks and textiles, Russian icons, Japanese Edo prints, and Russian icons. The Madison Art Collection also houses a significant collection of European and American objects, such as letters and manuscripts from King George I of England, Florence Nightingale and Victor Hugo. Scholars may apply for access to study Madison Art Collection objects at the Charles Lisanby Center, located in the Festival Conference and Student Center.

The Madison Art Collection has two exhibition venues, both located in the Festival Conference and Student Center. The Lisanby Museum showcases exhibits drawn from the permanent collection and uses technological applications such as smart device applications and QR codes to allow visitors to craft their experience with the objects. Prism Gallery and Prism International exhibit works emphasizing aspects of diversity, including areas of culture, religion, gender and sexuality.

# Honors College

*Dr. Bradley R. Newcomer, Dean*

*Dr. Philip L. Frana, Associate Dean*

Phone: (540) 568-6953

Location: Hillcrest House

Website: <http://www.jmu.edu/honors>

## Mission

The Honors College seeks to meet the educational needs of talented, highly motivated students by offering increased opportunities for an enriched and challenging curriculum. It is administered by the deans of the Honors College and the Honors Faculty Fellows. Under the guidance of recognized teacher-scholars, this program offers students the opportunity to cultivate the habits of critical thinking, independent analysis and creative expression through classes and independent study. The program offers a setting in which students who share a similar enthusiasm for learning are brought together in intellectual fellowship and provides public recognition for superior academic achievement. The college consists of various modes of study.

## Track One Honors Scholars

High-achieving high school seniors apply to enter the Honors College as Track One Honors Scholars. Track One Honors Scholars complete a total of 27 hours in honors, including six credit hours of honors courses in General Education, nine credit hours of electives in courses designated "Honors" or honors options, six credit hours in cross disciplinary honors seminars or colloquia and six credit hours of independent study, consisting of the senior honors project or honors capstone.

Track One Honors Scholars are expected to maintain at least a 3.25 grade point average. Designation as an honors scholar will appear on the student's transcript and diploma after completing the requirements. If the student completes an honors senior capstone within their major field, the designation of graduation with distinction in the major field will also appear on the students transcript and diploma.

## Track Two Honors Scholars

The Track Two Honors Scholars Program is open to first- and second-year students with at least a 3.50 grade point average. Students must also submit an application to the Honors College office. Once admitted into Track Two, students are expected to maintain at least a 3.25 grade point average. Students who complete the course requirements will graduate as Honors Scholars with recognition on the students' transcript and diploma. If the student completes an honors senior capstone within their major field, the designation of graduation with distinction in the major field will also appear on the students transcript and diploma. Candidates for Track Two Honors complete at least 24 credit hours in honors, including a six-credit hour senior honors project or honors capstone, six credit hours in honors seminars and twelve credit hours of electives in honors courses.

## Track One and Track Two Scholars Areas of Emphasis

Track One and Track Two Honors students may choose to fulfill their seminar requirements by selecting and completing a series of courses associated with an Area of Emphasis.

There are five emphasis themes offered:

- Creativity
- Research
- Service
- Leadership
- Global studies

Fulfillment of area of emphasis requirements involves the completion of three consecutive courses. Completion of the Area of Emphasis will appear as a special designation on the transcript.

Introductory courses are taken in the fall semester of the sophomore year. There is one introductory course offered for each Area of Emphasis. The primary goal of these courses is to introduce students to key skills associated with the area each serves while establishing a cohort of students with similar interests.

Experiential courses are taken in the spring semester of the sophomore year. Experiential courses come in two varieties: deepening and broadening. Deepening courses are restricted to students of one particular emphasis area and are intended to provide a more in-depth exploration of the skills/concepts introduced in the first seminar course. Broadening courses are open to students of more than one emphasis area. To maintain continuity throughout each area, students within an emphasis cohort will participate in meetings facilitated by the emphasis coordinator to discuss and reflect back on connections between their first and second semester experiences.

Practicum courses are taken in the fall semester of the junior year. These courses will be student driven and will hopefully manifest as an extension of the second semester experiences.

## Track Three Honors Project

Students in their junior year who are not already in the Honors College but have a cumulative GPA of at least 3.50 are eligible to apply to enter the Honors College to pursue independent research leading to the completion of a six-credit honors project in their major field during their senior year. Students must submit an application to the Honors College office. Once admitted into Track Three, students are expected to maintain at least a 3.25 grade point average and complete their project with a passing grade. A degree with distinction in the major field is awarded to students completing this project while maintaining the required grade point average. Upon approval of the major academic unit and the Honors College, graduation with distinction in the major will appear on the students' transcript and diploma.

# General Education: The Human Community

*Dr. Margaret M. Mulrooney, Associate Vice Provost for University Programs*

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## Mission Statement

In the liberal arts tradition, General Education: The Human Community aspires to create informed global citizens of the 21<sup>st</sup> century. We challenge our community of students and faculty to engage in personal and collective reflection, development and action.

## Philosophy

General Education: The Human Community is the core academic program of James Madison University in which students come to understand how distinct disciplines look at the world from different vantage points. Courses in The Human Community are organized into five clusters, each emphasizing unique tools, rationales and methodologies. Taken together, courses in a student's chosen major and The Human Community complement and complete each other. Both are integral and essential components of a student's full and proper education.

## Goals

Students understand the historical and contemporary distinctions and interconnections among people, institutions and communities that create, preserve, and transmit culture and knowledge in the arts, sciences, mathematics, social sciences and humanities.

Students become skilled in questioning, investigating, analyzing, evaluating and communicating.

Students participate in a variety of aesthetic and civic experiences reflecting human concerns and values that transcend the limits of specialization.

## Structure

The Human Community credit hour requirements are:

<b>Cluster Credit Hours</b>	
Cluster One: Skills for the 21st Century	9
Cluster Two: Arts and Humanities	9
Cluster Three: The Natural World	10
Cluster Four: Social and Cultural Processes	7
Cluster Five: Individuals in the Human Community	6

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# Cluster One: Skills for the 21st Century

*Gretchen Anne Hazard, Coordinator*

Cluster One is the cornerstone of General Education: The Human Community at JMU. Through course work in three areas and a required information literacy test, this cluster requires students to demonstrate:

- Critical thinking skills
- Effective oral presentation skills
- Effective writing skills
- Competency in information literacy

Competence in these areas is fundamental to subsequent study in major and professional programs. Therefore, all students are required to complete Cluster One requirements during their first academic year at JMU. Cluster One courses may be taken in any order. Cluster One areas and courses are not repeatable without permission. Permission to enroll in additional Cluster One courses is given based on course availability. There are no overrides available in Cluster One courses.

## Cluster One Learning Objectives

After completing Cluster One: Skills for the 21st Century, students should be able to use reading, writing, human communication, critical thinking and information literacy skills for inquiring, learning, thinking and communicating in their personal, academic and civic lives.

### Critical Thinking

After completing course work in critical thinking, students should be able to:

- Evaluate claims in terms of clarity, credibility, reliability and accuracy.
- Demonstrate the ability to identify, analyze and generate claims, arguments and positions.
- Identify and evaluate theses and conclusions, stated and unstated assumptions, and supporting evidence and arguments.
- Apply these skills to one's own work and the work of others.

### Human Communication

After completing course work in communication, students should be able to:

- Explain the fundamental processes that significantly influence communication.
- Construct messages consistent with the diversity of communication purpose, audience, context and ethics.
- Respond to messages consistent with the diversity of communication purpose, audience, context and ethics.
- Utilize information literacy skills expected of ethical communicators.

### Writing

After completing course work in writing, students should be able to:

- Demonstrate an awareness of rhetorical knowledge, which may include the ability to analyze and act on understandings of audiences, purposes and contexts in creating and comprehending texts.

- Employ critical thinking, which includes the ability through reading, research and writing, to analyze a situation or text and make thoughtful decisions based on that analysis.
- Employ writing processes.
- Demonstrate an awareness of conventions, the formal and informal guidelines that define what is considered to be correct and appropriate in a variety of texts.
- Compose in multiple environments using traditional and digital communication tools.

### Information Literacy

After completing the Madison Research Essential Skills Test (MREST), JMU's information literacy test, and course work in critical thinking, human communication and writing, students should be able to:

- Recognize that information is available in a variety of forms including, but not limited to, text, images, and visual media.
- Determine when information is needed and find it efficiently using a variety of reference sources.
- Evaluate the quality of the information.
- Use information effectively for a purpose.
- Employ appropriate technologies to create an information-based product.
- Use information ethically and legally.

### Cluster One Structure

Completion of all courses and tests in Cluster One is required of students in their first academic year at JMU.

Cluster One consists of nine credits and a competency test. All students must earn credit for one course in critical thinking, human communication and writing. In addition to the three courses, students are required to demonstrate information literacy competency by passing the Madison Research Essential Skills Test (MREST).

### Critical Thinking

In this area, students study various techniques and approaches to critical thinking such as analyzing and evaluating information, arguments, premises and concepts. Critical thinking fosters inquiry and problem solving abilities. Depending upon the course, the content focuses on the function of language, basic business principles, issues in recent history, mediated communication, informal logical reasoning or problem solving in science and technology. Cluster One offers six classes that meet this requirement.

**Choose one of the following:**

- BUS 160. Business Decision Making in a Modern Society
- HIST 150. Critical Issues in Recent Global History
- ISAT 160. Problem Solving Approaches in Science and Technology
- PHIL 120. Critical Thinking
- PHIL 150. Ethical Reasoning
- SMAD 150. Mediated Communication: Issues and Skills

Students pursuing a Bachelor of Arts (B.A.) degree may not use either PHIL 120 or PHIL 150 to fulfill the B.A. philosophy course requirement.

Students who have received credit for one critical thinking class are not eligible to receive credit for a second critical thinking class without permission.

## Human Communication

In this area, students are introduced to the study of human communication as a process. Emphasis is on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process; applying critical listening skills; and developing skills in oral presentations. Depending upon the course, the content focuses on an overview of the principles and practices of interpersonal, small group and public communication, or constructing informative and persuasive speeches with an emphasis on individual public speaking contexts, or constructing informative and persuasive group presentations. Cluster One requires completion of one of three courses offered in human communication.

### Choose one of the following:

SCOM 121. Fundamental Human Communication: Presentations

SCOM 122. Fundamental Human Communication: Individual Presentations

SCOM 123. Fundamental Human Communication: Group Presentations

Students who have received credit for one SCOM class are not eligible to receive credit for a second SCOM class.

## Writing

In this area, students study the role of the writer, the purpose of documents, and the contexts and audience expectations within which documents are produced. Writing is taught as a process involving invention, collaboration, research and revision. Students read, analyze and create texts in multiple genres using traditional and digital communication tools. Content areas may include public and professional discourse, culture, humanities, and technology.

### Complete the following:

WRTC 103. Critical Reading and Writing

Students may not repeat WRTC 103 for credit.

## Information Literacy

Information literacy is the ability to locate, evaluate and use information effectively to accomplish a purpose. Cluster One requires completion of the Madison Research Essentials Test (MREST). All entering students must pass the MREST by the deadline announced by the university. Students not completing the requirement by the deadline will have a hold placed on their academic record until the MREST is passed.

# Cluster Two: Arts and Humanities

*Dr. Dennis Beck, Coordinator*

Cluster Two shows students what it means to live lives enriched by reflection, imagination and creativity. It does so by offering each individual a cross disciplinary experience within the arts and humanities, those areas of endeavor that humans have long valued for their intrinsic worth and that invite a deeper appreciation of the human experience. The broadly stated goals for Cluster Two are:

- To introduce students to cultural, historical, aesthetic and theoretical expressions of and questions about human experience.
- To expose students to multiple academic disciplines in the arts and humanities and their methods and unique perspectives.
- To inspire a deeper awareness of how the interplay between culture and expression affects both collective and individual identities.
- To foster appreciation of the aesthetic and formal qualities of literary, visual and performing arts.
- To engage students in thinking critically and communicating clearly about enduring questions concerning human life, culture and history.

## Cluster Two Learning Objectives

After completing Cluster Two: Arts and Humanities, students should have attained competency in three major areas.

### Human Questions and Contexts

After completing Group One, students will be able to:

- Use critical and comparative analysis to question their own and others' beliefs about and responses to the world or universe.
- Apply the methods of the discipline(s) studied to material from the humanities.
- Identify, evaluate and produce arguments using appropriate concepts and techniques and formulate logical arguments on the same basis.
- Demonstrate an understanding of broader cultural, historical or conceptual contexts of particular issues, ideas, objects or events – past and present.
- Experience humanities events (such as exhibits, films, performances or public lectures) more discerningly.

### Visual and Performing Arts

After completing Group Two, students will be able to:

- Explain how artistic works and culture are interrelated.
- Recognize that the arts are accessible and relevant to their lives.
- Demonstrate disciplinary literacy (vocabulary, concepts, creative processes) in a major art form.
- Produce an informed response to the form, content and aesthetic qualities of artistic works.
- Experience arts events more discerningly.
- Acknowledge relationships among the arts.

## Literature

After completing Group Three, students will be able to:

- Generate increasingly nuanced questions (interpretations, ideas) about literature and explain why those questions matter.
- Use appropriate vocabulary and tactics to analyze specific literary expressions of culture and the relationship between the reader, the author and text.
- Define ways that texts serve as arguments and identify rhetorical and formal elements that inform these arguments.
- Recognize appropriate contexts (such as genres, political perspectives, textual juxtapositions) and understand that readers may interpret literature from a variety of perspectives.
- Articulate a variety of examples of the ways in which literature gives us access to the human experience that reveals what differentiates it from, and connects it to, the other disciplines that make up the arc of human learning.

## Cluster Two Structure

Students complete nine credits by choosing one course from each of three groups: Human Questions and Contexts; Visual and Performing Arts; and Literature.

### Group One: Human Questions and Contexts

Students will take one course from the list below. AMST 200 takes a cross disciplinary approach to questions about American identity and shows how they reflect a complex interplay of cultural, historical, religious and ideological perspectives. The ANTH and HIST courses introduce students to the great cultures of the world by surveying the common patterns of experience that characterized Western, Middle Eastern, Asian, African, Meso- and South American societies in the past. The HUM courses are cross disciplinary, in-depth explorations of specific topics, cultures, periods or themes. The PHIL and REL courses explore the great inquiries into human existence and the ways different cultures across different time periods constructed their responses to questions concerning humans' existence and their relationship to nature, ultimate reality and the universe. Thus all of the courses in Group One emphasize central questions about the human condition and ways of studying values and beliefs as they are shaped by class, gender, race, historical events, philosophy and religion.

#### Choose one of the following:

- AMST 200. Introduction to American Studies
- ANTH 205. Buried Cities, Lost Tribes: The Rise and Fall of Early Human Societies
- HIST 101. World History to 1500
- HIST 102. World History Since 1500
- HUM 250. Foundations of Western Culture (Topics vary by section. Examples include: Ancient Greece, Rome)
- HUM 251. Modern Perspectives (Topics vary by section. Examples include: The Enlightenment, Romanticism, and Italian Society and Culture after WWII)
- HUM 252. Global Cultures (Topics vary by section. Examples include: East Asia, West Africa, Latin American Cultures, Islamic Civilization)

PHIL 101. Introduction to Philosophy  
REL 101. Religions of the World  
REL 102. God, Meaning, and Morality

## Group Two: Visual and Performing Arts

Students will take one course from the list below. ARTH 205 and ARTH 206 are global art history surveys that introduce students to the visual arts, whose history often has been interconnected with developments in music, dance and theatre/film. These surveys are organized chronologically, but focus distinctly on artistic perception and experience. The global music surveys explore history and the arts through the study of music: its development, aesthetics, forms and styles; and its context within the cultural communities that produced it. ART 200 and MUS 200 are introductions to art or music in general culture; THEA 210 studies theatre as an art form including acting, directing, design, costuming and lighting; MUS 203 explores America's music landscape and examines the interconnections among music, art and literature in historical periods.

### Choose one of the following:

ART 200. Art in General Culture  
ARTH 205. Survey of World Art I: Prehistoric to Renaissance  
ARTH 206. Survey of World Art II: Renaissance to Modern  
MUS 200. Music in General Culture  
MUS 203. Music in America  
MUS 206. Introduction to Global Music  
THEA 210. Introduction to Theatre

## Group Three: Literature

Students will choose a course from the list below. The literature surveys provide students with extensive reading experiences of representative genres and authors and various critical approaches to literary texts, as well as opportunities to explore

the complex ways that the literature both reflects and helps change or create the cultural and intellectual contexts of the times in which they are written. Students are expected to learn strategies for reading and interpreting any literary text so that they come to deepen their appreciation of the aesthetics, rhetorical strategies and meaning of a range of literary texts. Through the humanistic study of literature, students will also obtain a better understanding of themselves and their own culture as well as those of others.

### Choose one of the following:

ENG 221. Literature/Culture/Ideas  
ENG 222. Genre(s)  
ENG 235. Survey of English Literature: From Beowulf to the 18th Century  
ENG 236. Survey of English Literature: 18th Century to Modern  
ENG 239. Studies in World Literature  
ENG 247. Survey of American Literature: From the Beginning to the Civil War  
ENG 248. Survey of American Literature: From the Civil War to the Modern Period  
ENG 260. Survey of African-American Literature  
HUM 200. Great Works (Topics vary by section. Examples include: The American Century, 19th and 20th Century Russian Literature, Western Classics, Utopias, Distopias)

## Literature and Writing Infusion

The courses in Group Three are designated as writing-infused. Students will write a minimum of 5,000 words (approximately 15 pages double-spaced in a standard font) in assignments that may include both informal and formal, ungraded and graded forms. The extensive opportunity to produce and receive feedback on various genres of academic writing will help students sharpen their responses to interesting and thought-provoking texts and promote more engaged and sophisticated reading strategies.

# Cluster Three: The Natural World

*Dr. Scott Paulson, Coordinator*

Scientific investigations into the natural world use analytical methods to evaluate evidence, build and test models based on that evidence, and develop theories. Mathematical studies of form and pattern can create a language that assists in these investigations. Courses in this cluster provide students with the opportunity to develop problem-solving skills in science and mathematics at the college level. Students will be introduced to a substantial body of scientific facts, concepts, models and theories, and they will also gain experience in using basic mathematics to obtain knowledge about the natural world. The cluster is cross disciplinary, thereby demonstrating boundaries and connections among mathematics, the sciences and other aspects of culture.

Typically students begin Cluster Three during their first year and should complete it by the end of their sophomore year. Individual courses satisfy requirements in a number of major and professional programs. Students are encouraged to select appropriate courses in Cluster Three on the basis of their backgrounds, interests and educational objectives.

## Cluster Three Learning Objectives

After completing Cluster Three: The Natural World, students should be able to meet the following objectives:

- Describe the methods of inquiry that lead to mathematical truth and scientific knowledge and be able to distinguish science from pseudoscience.
- Use theories and models as unifying principles that help us understand natural phenomena and make predictions.
- Recognize the interdependence of applied research, basic research and technology, and how they affect society.
- Illustrate the interdependence between developments in science, social and ethical issues.
- Use graphical, symbolic and numerical methods to analyze, organize and interpret natural phenomena.
- Discriminate between association and causation, and identify the types of evidence used to establish causation.
- Formulate hypotheses, identify relevant variables and design experiments to test hypotheses.
- Evaluate the credibility, use and misuse of scientific and mathematical information in scientific developments and public-policy issues.

## Cluster Three Structure

Cluster Three consists of 10 credits distributed across four areas representing four different aspects of scientific knowledge. Students must take one class that fulfills each of the four areas. Quantitative Reasoning consists of mathematics courses, and Physical Principles and Natural Systems consist of science courses. The groups may be taken in any order, except for courses denoted by an asterisk (\*), which have a mathematics and/or science prerequisite or corequisite. In addition, students are required to have at least one lab experience. Certain courses are designed for future teachers, and enrollment in these courses may be limited to IDLS majors; these courses are indicated with a double asterisk (\*\*).

## Quantitative Reasoning

Students build mathematical models of systems and learn to understand, interpret and analyze data that is numerical in nature.

**Choose one of the following:**

ISAT 151. Topics in Applied Calculus in ISAT  
 ISAT 251. Topics in Applied Statistics in ISAT  
 MATH 103. The Nature of Mathematics  
 MATH 105. Quantitative Literacy and Reasoning  
 MATH 107. Fundamentals of Mathematics I\*\*  
 MATH 205. Introductory Calculus I  
 MATH 220. Elementary Statistics  
 MATH 231. Calculus with Functions I  
 MATH 235. Calculus I

## Physical Principles

In this area, students study underlying principles of nature. These principles are applied to build models, often quantitative in nature, that explore and explain a variety of natural phenomena.

**Choose one of the following:**

ASTR 120. The Solar System  
 ASTR 121. Stars, Galaxies and Cosmology  
 CHEM 120. Concepts of Chemistry  
 CHEM 131. General Chemistry I (CHEM 131L required corequisite)  
 ISAT 100. Environmental and Energy Sustainability  
 ISAT 112. Environmental Issues in Science and Technology (includes lab)  
 ISCI 101. Physics, Chemistry and the Human Experience  
 ISCI 172. Physical Science for Teachers\*\*  
 PHYS 121. The Physical Nature of Light and Sound (includes lab)  
 PHYS 140. College Physics I (PHYS 140L required lab corequisite)  
 PHYS 215. Energy and the Environment\*  
 PHYS 240. University Physics I\*

## Natural Systems

Students study the behavior of earth and life systems. Students will investigate interactions within these systems, between the systems and their environment, and with society.

**Choose one of the following:**

ANTH 196. Biological Anthropology  
 BIO 103. Contemporary Biology  
 BIO 114. Organisms (includes lab)  
 BIO 140. Foundations of Biology I  
 BIO 222. Interdisciplinary Bio for Engineering and Physical Sciences  
 BIO 270. Human Physiology (includes lab)\*  
 GEOL 102. Environment: Earth  
 GEOL 115. Earth Systems and Climate Change  
 GEOL 110. Physical Geology (GEOL 110L required lab corequisite)  
 GEOL 200. Evolutionary Systems (includes lab)  
 GEOL 210. Applied Physical Geography\*  
 GEOL 211. Introduction to Oceanography  
 ISAT 113. Biotechnology Issues in Science and Technology  
 ISCI 171. Earth and Planetary Science for Teachers\*\*  
 PSYC 122. The Science of Vision and Audition

## Lab Experience

This area emphasizes the observational and experimental nature of science. Through hands-on experiential learning, students will make observations and use them to test predictions and hypotheses.

**Choose one of the following:**

Physical Principles course with a lab  
 Natural Systems course with a lab  
 ISCI 104. Scientific Perspectives  
 ISCI 173. Life and Environmental Science for Teachers\*\*

# Cluster Four: Social and Cultural Processes

*Dr. Raymond M. Hyser, Coordinator*

Courses in Cluster Four require students to think critically about their own society and its relationship to the larger global community. These courses develop responsible and enlightened global citizenship by examining a wide variety of the processes that shape the human experience. Students will take one course that focuses on the American experience and one course that examines the global experience.

## Cluster Four Learning Objectives

### American Experience

Students completing this part of Cluster Four will be able to identify, conceptualize and evaluate:

- The social and political processes and structures using quantitative and qualitative data.
- The key primary sources relating to American history, political institutions and society.
- The nature and development of the intellectual concepts that structure American political activity.
- The history and operation of American democratic institutions.
- The history and development of American society and culture.
- The history and development of American involvement in world affairs.

### Global Experience

Students completing this part of Cluster Four will be able to identify, conceptualize and evaluate:

- The basic global problems.
- The global political, social, cultural and economic systems that shape societies.
- The issues involved in analyzing societies different from one's own.
- The theoretical models used in studying global problems.
- The strengths and limitations of solutions to global problems across and within cultures.

## Cluster Four Structure

Cluster Four courses are not sequenced so that either part of the cluster may be taken first or they may be taken concurrently. Students may not take POSC 200 and POSC 225 to complete the Cluster Four requirement.

### The American Experience

Each American Experience course provides students with an understanding of the major themes and concepts that structure American life today. HIST 225 does so through a contextual and document-based study of the American historical experience that emphasizes the interaction of people, ideas and social movements. JUST 225 frames questions regarding historic and contemporary events in terms of issues of justice, highlighting how societal structures interact with individual lives and vice versa. POSC 225 focuses on the evolution and contemporary operation of the American political system by examining its fundamental principles and current dynamics.

**Choose one of the following:**

- HIST 225. U.S. History
- JUST 225. Justice and American Society
- POSC 225. U.S. Government

### The Global Experience

Each of the courses in the Global Experience is an investigation into a series of global issues that are of great importance to the human community. Topics discussed will vary from course to course. Issues are examined in a systemic context that allows students to see connections between disciplines. The unifying theme is an analysis of overarching structures at the global level that condition people's behavior and which are shaped by that behavior. From this perspective the study of global issues requires more than studying current events; it involves placing these global issues in a systemic context.

**Choose one of the following:**

- AFST 200. Introduction to Africana Studies
- ANTH 195. Cultural Anthropology
- ECON 200. Introduction to Macroeconomics
- GEOG 200. Geography: The Global Dimension
- POSC 200. Global Politics
- SOCI 110. Social Issues in a Global Context

# Cluster Five: Individuals in the Human Community

*Dr. David Daniel, Interim Cluster Five Coordinator.*

Through studying the many variables that influence human behavior in contemporary society, students gain an understanding of the relationship between the individual and a diverse community and develop a sense of responsibility for self and community. Students explore how individuals develop and function in the social, psychological, emotional, physical and spiritual dimensions.

## Cluster Five Learning Objectives

After completing Cluster Five: Individuals in the Human Community, students will be able to do the following:

### In the Wellness Domain

- Understand the dimensions of wellness, the various factors affecting each dimension and how dimensions are interrelated.
- Understand the relationship between personal behaviors and lifelong health and wellness.
- Assess their own levels of health and wellness and understand how these levels impact their quality of life.
- Identify and implement strategies to improve their wellness.

### In the Sociocultural Domain

- Understand how individual and sociocultural factors interact in the development of the beliefs, behaviors and experiences of oneself and others.
- Discern the extent to which sources of information about the sociocultural domain are reputable and unbiased.
- Evaluate the extent to which the approach to and uses of psychosocial research are ethical and appropriate.

## Cluster Five Structure

In Cluster Five, students learn about themselves as individuals and as members of different communities. The courses within this six credit-hour cluster may be taken concurrently or individually, in any order.

Students are required to complete one course each in the Wellness and Sociocultural Domains.

Students are expected to complete Cluster Five course work during their first two years at the university.

## Wellness Domain

Courses in this area examine the dimensions of health and wellness. An emphasis is placed on the factors that influence health and wellness, particularly individual behaviors.

Students will participate in self-assessments that provide information about their health and wellness behaviors and their overall health status. In addition, students will learn strategies that improve lifetime health and wellness. Courses include a physical wellness component as a part of the course requirements.

**Choose one of the following:**

HTH 100. Personal Wellness

KIN 100. Lifetime Fitness and Wellness

## Sociocultural Domain

Courses in this area focus on sociocultural and psychological aspects of individuals interacting within societal contexts. Students study the formation and functions of social relationships and reflect on personal responsibilities to diverse communities within which people function throughout life. Students explore sociocultural and psychological aspects of personal belief systems, self-identity and assumptions about others.

Courses in this area enable students to develop ethical and scientifically-based critical thinking about human behavior and social interaction.

**Choose one of the following:**

PSYC 101. General Psychology

PSYC 160. Life Span Human Development

SOCI 140. Microsociology: The Individual in Society

WGS 200. Introduction to Women and Gender Studies

# Cross Disciplinary Minors

Students should be aware that most minors have prerequisites, meaning that certain courses must be completed before a student can enroll in other courses. Consult with the minor adviser for additional information and recommendations for scheduling.

## Africana Studies

*Dr. Aderonke A. Adesanya, Coordinator*

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The minor in Africana studies broadens students' world perspectives by enhancing their acquaintance with and understanding of the peoples, the issues of identities and the institutions of Africa as well as the African Diaspora. The Africana program engages cross disciplinary approaches to understand and to encounter Africa and the African Diaspora in a global context. The cross disciplinary character of the program is further enhanced by the fact that courses taken to fulfill program requirements are drawn from several departments. From these course offerings, students will examine and engage with some of Africana studies key contributing disciplines, concepts, methods and topics including the development of new identities.

The minor program in Africana studies is open to all undergraduate students at JMU. Courses taken to complete the Africana studies minor can also be used to satisfy the student's major, as well as General Education requirements.

The Africana studies minor requires:

- Successful completion of 19 credit hours according to the requirements listed below.
- No more than nine hours from a single discipline.

Required Courses	Credit Hours
AFST 200. Introduction to Africana Studies	3
AFST 489. Senior Research Experience <sup>2</sup>	1
Choose five of the following courses, one of which must be at the 400 level.	15

AFST 400. Selected Topics in Africana Studies	
ANTH 280. Peoples and Cultures of Sub-Saharan Africa	
ANTH 391. Study Abroad (must be in Africa or in Diaspora) <sup>1</sup>	
ANTH 395. Special Topics <sup>1</sup>	
ARTH 210/HUM 252. African Experience	
ARTH 310. African Art: The Sahara and Northern Sahel	
ARTH 312. African Art: Sub-Saharan	
ARTH 418. Modern and Contemporary African Art	
ARTH 419. Topics in African Art	
ARTH 424. Arts of Ancient Egypt	
ARTH/AFST 488. African American Art	
ARTH 489. Topics in Art History <sup>1</sup>	
ENG 260. Survey of African American Literature	
ENG 358. Oral Literature <sup>1</sup>	
ENG 361. African American Fiction Writers	
ENG 362. African American Poets	
ENG 408. Advanced Studies in African American Literature	
ENG 412. Special Topics Seminar <sup>1</sup>	
ENG 431. Studies in Caribbean Literature	
ENG 432. Studies in African Literature	
GEOG 335. Geography of Africa	
GEOG 339. Geography of the Caribbean	
HUM 252. Global Cultures: African Culture in the Humanities <sup>1</sup>	

HIST 263. Introduction to African History
HIST 307. The Trans-Atlantic Slave Trade
HIST 341. Selected Topics in World History (when appropriate)
HIST 355. African-American History to 1865
HIST 356. African-American History Since 1865
HIST 361. Class and Ethnicity in Africa
HIST 391. Study Abroad (must be in Africa or in Diaspora) <sup>1</sup>
HIST/ANTH 436. Afro-Latin America
HIST 439. Selected Topics in American History <sup>1</sup>
HIST 470. Modern Africa
HIST 489. Selected Topics in World History <sup>1,2</sup>
MUS 356. History of Jazz in America
POSC 326. Civil Rights
POSC 353. African Politics
POSC 361. Contemporary Problems in International Affairs <sup>1</sup>
REL 330. Religions of Africa and the African Diaspora
REL 336. African-American Religions
SOCI 336. Race and Ethnic Relations
SOCI 354. Social Inequity
SOCI 391. Study Abroad (must be in Africa or in Diaspora) <sup>1</sup>
SWA 101-490. Kiswahili

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<sup>1</sup> Course topic and content must focus on the peoples of Africa and/or the African Diasporas as well as be approved by the program coordinator(s).

<sup>2</sup> Research must have an African and/or African Diaspora focus.

Other appropriate courses not listed above may be considered for the minor. Consult with program coordinator.

In addition to taking these courses, students are encouraged to participate in travel or study programs to Africa, the Caribbean and other relevant areas. Students who want to earn credit hours through participation in an accredited travel/study program are encouraged to do so with prior approval of the coordinator.

## American Studies

*Dr. Laura Henigman, Coordinator*

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The minor in American studies fosters an understanding of the complexity of US, colonial North American and North American indigenous societies through employing a range of disciplinary approaches and topics. Students will enroll in the gateway course AMST 200. Introduction to American Studies, and then they will select from a list of courses drawn from a variety of disciplines including literature, history, the fine arts, philosophy and the social sciences.

The minor program in American studies is open to all undergraduate students at JMU. The requirement is the successful completion of 18 hours. Students must take five additional courses from the list below. No more than two courses may be from the same program. See the program coordinator for additional courses that may be substituted.

Core Requirements	Credit Hours
AMST 200. Introduction to American Studies	3
Choose five:	15
ANTH 265. People and Cultures in Latin America and the Caribbean	
ANTH 312. The Native Americans	

ARTH 380. American Art to 1870  
 or ARTH 482. American Art from 1870  
 ARTH 484. Art of the Americas  
 ENG 342. Early American Literature  
 ENG 343. Antebellum American Literature  
 ENG 344. Late Nineteenth Century American Literature  
 ENG 352. The American Novel to 1914  
 ENG 356. Modern American Novel  
 ENG 357. Contemporary American Literature  
 ENG 360. Introduction to Ethnic American Literature  
 ENG 361. African-American Fiction  
 ENG 362. African-American Poetry  
 ENG 363. Native American Literature  
 HIST 303. Early America  
 HIST 304. Native Peoples of the United States  
 HIST 307. The Trans-Atlantic Slave Trade  
 HIST 310. American Business History  
 HIST 315. History of Sport  
 HIST 320. Women in United States History  
 HIST 322. The New South  
 HIST 323. The Old South  
 HIST 326. The Automobile in 20th Century America  
 HIST 327. Technology in America  
 HIST 330. U.S. Diplomatic History  
 HIST 338. U.S. Urban History  
 HIST 339. Selected Themes in U.S. History  
 HIST 350. Virginia  
 HIST 355 or HIST 356. Afro-American History  
 HIST/REL 362. Introduction to U.S. Religious History  
 MUS 203. Music in America  
 MUS 356. History of Jazz in America  
 PHIL 370. American Philosophy  
 POSC 330. American Political Thought  
 POSC 368. Interest Groups and Public Policy  
 POSC 369. Political Parties and Elections  
 POSC 380. The U.S. Presidency  
 POSC 382. The Role of Religion in American Politics  
 POSC 384. Minority Group Politics  
 POSC 385. The U.S. Congress  
 REL 330. African and African-American Religion  
 REL 332. Born Again Religion  
 REL 334. New Religious Movements  
 REL 336. African-American Religion  
 SCOM 346. Free Speech in America  
 SMAD 372. Media History  
 SOCI 318. Sociology of Immigration  
 SOCI 336. Race and Ethnicity  
 SOCI 341. Sociology of Education  
 SOCI 357. Sociology of Disasters  
 SOCI/ANTH 368. Contemporary American Culture  
 THEA 485. American Theatre

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## Asian Studies

*Dr. Yongguang Hu, Coordinator*

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The purpose of this cross disciplinary program is to broaden the students' perspective by enhancing their understanding and appreciation of Asian culture and institutions. This program combines the offerings of several academic units, such as anthropology, art, design and art history, economics, English, geography, history, international business, foreign languages, political science, and religion and philosophy.

The minimum requirement for a minor in Asian studies is 18 credit hours. These 18 hours can include any of the following courses. Special topics courses not listed can be applied to the minor degree with approval of the program coordinator. A maximum of eight hours of Chinese, Japanese, Korean or Hindi language may be included to satisfy credit hour requirements of the minor.

Courses	Credit Hours
ANTH 197. Archaeology	
ANTH 295. Peoples and Cultures of East Asia	
ARTH 430. Far Eastern Art	
CHIN 101. Elementary Chinese	
CHIN 102. Elementary Chinese	
CHIN 231. Intermediate Chinese	
CHIN 232. Intermediate Chinese	
CHIN 300. Chinese Grammar and Communication	
CHIN 397. Intensive Reading and Writing in Chinese	
CHIN 490. Special Studies in Chinese	
ECON 312. Comparative Economic Systems	
ENG 378. Studies in South Asian Literature	
GEOG 334. Geography of East and Southeast Asia	
GEOG 338. Geography of the Philippine Islands: Problems and Possibilities	
HUM 200. Great Works – Asia	
HUM 252. Cross-Cultural Perspectives – East Asian Humanities	
HUM 252. Cross-Cultural Perspectives – Global South Asia	
HUM 252. Cross Cultural Perspectives – Gandhi, Non-Violence and Global Transformation	
HIST 273. East Asia to 1600	
HIST 274. Modern East Asia	
HIST 311. China to 1600	
HIST 312. Japan since 1600	
HIST 371. India	
HIST 375. History of Modern Southeast Asia	
HIST 377. History of Korea	
HIST 378. China in the Modern World	
HIST 379. Family and Gender in East Asia	
HIST 460. Modern Japan	
IB 298-I. Business Environment in China and Southeast Asia	
IB 298-II. Doing Business in China	
JAPN 101. Elementary Japanese	
JAPN 102. Elementary Japanese	
JAPN 111. Intensive Japanese I	
JAPN 212. Intensive Japanese II	
JAPN 231. Intermediate Japanese	
JAPN 232. Intermediate Japanese	
JAPN 300. Japanese Grammar and Communication	
KOR 101. Elementary Korean	
KOR 102. Elementary Korean	
KOR 231. Intermediate Korean	
KOR 232. Intermediate Korean	
POSC 355. East Asian Politics	
REL 308. Islam in South Asia	
REL 310. Rethinking Order and Chaos: An Introduction to Hinduism	
REL 312. Religions of East Asia	
REL 314. Gandhi, Nonviolence and Global Transformation	
REL 317. Exploring Gandhian Philosophy of Nonviolence	
REL 318. Exploring Contemporary India	
REL/PHIL 385. Buddhist Thought	
REL 410. Dharma/Adharma: Hindu Ethical Reasoning	

## Biochemistry and Molecular Biology

*Dr. Jonathan Monroe, Coordinator*

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*Dr. Gina MacDonald, Coordinator*

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The biochemistry and molecular biology minor is open to students not majoring in biotechnology. The following are prerequisites for entry into the biochemistry and molecular biology minor program (some prerequisites are not shown; see the course descriptions).

Prerequisites	Credit Hours
BIO 140. Foundations of Biology I	
CHEM 241-242. Organic Chemistry	
Choose from the following:	
CHEM 242L. Organic Chemistry Laboratory	
CHEM 287L-288L. Integrated Laboratory	
<b>Required Courses</b>	
BIO 240. Genetics	4
BIO 480. Advanced Molecular Biology	4
CHEM/BIO 361. Biochemistry I	3
CHEM 362. Biochemistry II	3
CHEM 366L. Biochemistry Laboratory	2
Choose one of the following:	4-5
CHEM 331. Physical Chemistry including CHEM 336L.	
CHEM 351. Analytical Chemistry	

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## Book Arts

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The minor in book arts is a cross disciplinary program designed to broaden students' understanding of the value and role of the art of the book in general culture while enhancing written and visual creativity, artistic production, and the ability to think independently. Students enrolled in any degree program may minor in book arts by completing a minimum of 21 credit hours. The student's minor program is subject to the approval of the School of Art, Design and Art History director.

A total of nine credit hours may be double counted between the minor and the major.

Requirements	Credit Hours
Required Courses	15
ART 102. Two Dimensional Design	
ART 104. Drawing I	
ART 276. Introduction to Book Arts	
ENG 415. Advanced Studies in Textuality and History of the Book	
Choose one of the following:	
ENG 391. Introduction to Creative Writing-Nonfiction	
ENG 392. Introduction to Creative Writing-Poetry	
ENG 393. Introduction to Creative Writing-Fiction	
Choose two of the following:	6
ART 230. Weaving and Other Fiber Arts	
ART 260. Introductory Photography: Black and White	

ART 270, 272 or 274. Printmaking

ART 280. Sculpture

GRPH 200. Design Methodology

ART/GRPH 375. Letterpress I

ART/GRPH 376. Intermediate Book Arts

ENG 496. Advanced Topics in Creative Writing

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## British Communication and Media

*Prof. Dietrich Maune, Coordinator*

Phone: (540) 568-3039 Email: maunedx@jmu.edu

Website: <http://www.jmu.edu/cds/regional-and-area-studies/index.shtml>

The cross disciplinary British communication and media minor enables students to expand their knowledge of communication and media in Great Britain, and to enhance their appreciation of the impact culture has on communication and media. Students must participate in the JMU semester or summer in London program to complete this minor.

The minor requires at least 18 credit hours, chosen from courses offered both at JMU and in London. Students may double-count a maximum of six credit hours toward both a major and this minor.

Courses	Credit Hours
Required Courses	6
SCOM 248. Intercultural Communication <sup>1</sup>	
SCOM/SMAD/WRTC 360L. British Media and Society <sup>2</sup> or HUM 251L. Modern Perspectives: British Media and Society <sup>2</sup>	
Elective Courses	12
Select at Least four of the following courses:	
SCOM 347L. Communication, Diversity & Pop Culture in the U.K. <sup>2</sup>	
SMAD 301L/ARTH 389. The Media Arts: Culture By Design <sup>2</sup> or SCOM/WRTC 351L. Visual Rhetoric <sup>2</sup> or ARTH 389. Topics in Art History – The Media Arts: Culture by Design <sup>2</sup>	
ENG/SMAD 463L. Film Adaptations: British Literature and Film <sup>2</sup> or SCOM 395. Film Adaptations: British Literature and Film <sup>2</sup>	
SCOM/SMAD 472L. British Media and Politics <sup>2</sup> or POSC 371L. Topics in Comparative Politics: British Media and Politics <sup>2</sup>	
THEA 449/ENG 412N. The London Theatre <sup>2</sup> or HUM 200L. The London Theatre <sup>2</sup>	
WRTC 314L/SCOM 321L. Writing in The Public Sphere <sup>2</sup>	
IDLS 486. Internship <sup>2</sup>	

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<sup>1</sup> Must be taken in Harrisonburg at JMU. Regularly offered in fall semesters.

<sup>2</sup> Must be taken in London.

Appropriate independent studies, directed projects, and Semester in London Faculty Member in Residence courses may be counted as part of the minor with approval by the minor coordinator. Students studying in London during the summer will need to complete one additional course, approved by the minor coordinator, following the student's return to JMU.

## Chronic Illness

*Chris Fasching-Maphis, Coordinator*

Phone: (540) 568-6314 Email: faschicx@jmu.edu

Website: <http://www.nursing.jmu.edu/chronicillness.html>

The cross disciplinary minor in chronic illness prepares students from any major to understand and respond to the impacts of chronic illness on the individual, family, health care system and society. Knowledge and strategies to address the prevention and the management of chronic illness across its trajectory will

enhance the skills and abilities of students who plan to practice in any profession. The minor is open to all undergraduate students at JMU and requires a minimum of 18 credits with no more than six credits in the student's major counting toward the minor.

<b>Core Requirements</b>	<b>Credit Hours</b>
NSG 390. Impact of Chronic Illness	3
NSG 391. Living Successfully with Chronic Illness	3
Students completing the nursing major must complete the core requirements prior to starting major courses	
Elective requirements (Select 12 credits. Students completing the nursing major should select six credits.)	6-12
EXED 306. Lifespan Issues for Individuals with Disabilities (3 credits)	
GERN/SOCI 280. Social Gerontology (3 credits)	
GERN 305. Programs and Services for the Elderly (3 credits)	
IPE 490. Special Topics (when topic is appropriate)	
KIN 424/NUTR 455. Exercise and Nutrition in Chronic Disease (3 credits)	
NSG 301. History Taking History Telling/Narratives of Chronic Illness (2 credits)	
NSG 310. Helping Persons in Pain (2 credits)	
NSG 313. Issues and Applications of Family Caregiving (1 credit)	
NSG 320. Innovative Diabetes Health Education (1 credit)	
NSG 322. Integrative Health Care (1 credit)	
NSG 323. Cardiovascular Health and Illness (1 credit)	
NSG 326. Care and Consideration for Children with Special Needs (1 credit)	
NSG 328. Life, Death and the "Dash" Between (1 credit)	
NSG 329. Best Practices in Diabetes Care (2 credits)	
NSG 415. Ethical Decision Making in Healthcare (1 credits)	
NSG 490. Special Topics (when topic is appropriate) (credits vary) see chronic illness minor web page	
NSG 490. Study Abroad Experiences (Australia, Spain, Kenya Tanzania, Malta, Costa Rica) (credits vary)	
PSYC 304. Death and Dying: Thanatology (3 credits)	
SOWK 332. Community Mental Health Practice (3 credits)	
SOWK 442. Social Work in Health Care (3 credits)	

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## Classical Studies

*Dr. Stephen Chappell, Coordinator*

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Website: <http://www.jmu.edu/classicalstudies/>

The minor in classical studies introduces students to the literature, culture, philosophy, history and languages of Greco-Roman civilization. The requirement is successful completion of 24 credits chosen from the following courses offered by participating academic units. Students who take Latin or Greek can apply up to 12 credit hours to the minor.

<b>Required Courses</b>	<b>Credit Hours</b>
Choose one of the following:	3
HUM 250. Foundations of Western Culture: The Greek Experience	
HUM 250. Foundations of Western Culture: The Roman Experience	
Choose seven of the following:	21
GRK 101-102. Elementary Greek	
GRK 231-232. Intermediate Greek	
LAT 101-102. Elementary Latin	
LAT 231-232. Intermediate Latin	
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	
ARTH 322. Ancient Art	

ARTH 340. Early Medieval Art	
ARTH 424. Arts of Ancient Egypt	
CLAS 100. Greek and Latin Roots of English Words	
CLAS 265. The Individual and Society in Ancient Greece and Rome	
CLAS 266. Greek and Roman Classics in Translation	
CLAS 337. Human Values: The Classical Tradition	
CLAS 360. Topics in Greek and Roman Culture	
ENG 305. Mythology	
HIST 101. World History to 1500	
HIST 369. Greek History, 3000 BC – AD 267	
HIST 391. Travel Studies Seminar	
HIST 455. World Political and Social Thought to Early Modern Times	
HIST 474. The Byzantine Empire	
HIST 467. The Roman Republic	
HIST 468. The Roman Empire	
HIST 489. Selected Topics in World History (when topic is related to Greece or Rome)	
PHIL 340. Ancient Greek Philosophy	
PHIL 460. Topics in Classical Philosophy	
POSC 310. Political Theory Ancient to Early Modern	
REL 202. Introduction to the New Testament	
REL 240. Jesus and the Moral Life	
REL 344. Christianity in the Roman Empire	
REL 346. Religions in Greece and Rome	
REL 360. History of Western Religious Thought	
REL 460. Topics in Ancient Jewish and Early Christian Literature	

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## Creative Writing

*Laurie Kutchins, Coordinator, Fall 2017*

Email: [kutchill@jmu.edu](mailto:kutchill@jmu.edu)

*Dr. Paul Bogard, Coordinator, Spring 2018*

Phone: 540-568-6860 Email: [bogardpw@jmu.edu](mailto:bogardpw@jmu.edu)

Website: <http://www.jmu.edu/english/undergraduate/minors.html>

The cross disciplinary minor in creative writing is designed to encourage students to develop their writing talents across a number of literary forms and communication contexts.

Course offerings in poetry, fiction, creative nonfiction, scriptwriting, screen and playwriting give students the opportunity to shape the minor to suit a variety of artistic interests and professional objectives. With the choice of at least one course from a group involving advanced topics, narrative and poetic forms, media criticism and film analysis, students will gain informed perspectives on current issues affecting readers, viewers, writers and their creative works. These courses support the core workshop courses and are vital to competence in the field.

The minimum requirement for a minor in creative writing is 18 hours. Two courses may be double-counted between the minor and the major. Students electing this minor may acquire more information from the creative writing adviser of the Department of English, the School of Media Arts and Design or the School of Theatre and Dance.

<b>Required Courses</b>	<b>Credit Hours</b>
Select four or five core courses from two or more departments:	12-15
ENG 391. Introduction to Creative Writing – Nonfiction	
ENG 392. Introduction to Creative Writing – Poetry	
ENG 393. Introduction to Creative Writing – Fiction	
ENG 493. Advanced Creative Nonfiction	
ENG 494. Advanced Poetry Writing	
ENG 495. Advanced Fiction Writing	

- SMAD 250. Scriptwriting
- SMAD 251. Screenplay Writing
- SMAD 311. Feature Writing
- SMAD 340. Advanced Screenplay Writing
- SMAD 498. Senior Seminar (when topic is appropriate)<sup>1</sup>
- THEA 347. Playwriting (cross listed with ENG 347)
- THEA 441. Seminar in Theatre (when topic is appropriate)<sup>1</sup>
- THEA 447. Advanced Playwriting

Select one or two support courses from the following: 3-6

- ENG 390. The Environmental Imagination
- ENG 483. Narrative Form
- ENG 484. Poetic Craft and Creativity
- ENG 496. Advanced Topics in Creative Writing
- SMAD 373. Media Analysis and Criticism
- SMAD 463. Film Adaptations
- THEA 481. Theory and Performance Studies

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<sup>1</sup> Students must check with the professor or creative writing coordinator to see if these courses are appropriate for this minor.

## Criminal Justice

*Dr. Peggy S. Plass, Coordinator*

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The cross disciplinary minor in criminal justice is designed for students who are preparing for careers in law enforcement, corrections, judicial administration or other areas related to the study or management of crime, either directly upon graduation or after further graduate training. The requirement for a minor in criminal justice is 21 credits. Students should allow a minimum of four semesters in which to complete the minor.

Required Courses	Credit Hours
CRJU 215. Introduction to Criminal Justice	3
CRJU 225. Ethics in Criminal Justice	3
Choose at least one course from each of the following units:	
<i>Human Behavior</i>	3
SOCI 214. Social Deviance <sup>1</sup>	
SOCI 327. Juvenile Delinquency <sup>1</sup>	
SOCI/CRJU 325. Criminology	
PSYC 250. Introduction to Abnormal Psychology (Non PSYC majors only) or PSYC 335. Abnormal Psychology (PSYC majors) <sup>1</sup>	
PSYC/JUST 316. Human Development and Crime <sup>1</sup>	
<i>Law and Procedure</i>	3
CRJU 321. Criminalistics	
JUST 327. Criminal Law <sup>1</sup>	
CRJU 328. Criminal Procedure	
CRJU 329. Criminal Investigation and Evidence	
<i>Institutions</i>	3
JUST 330. Corrections <sup>1</sup>	
CRJU 335. Law Enforcement	
CRJU 337. Courts and the Judiciary	
CRJU 340. Administration in Criminal Justice	
Choose two additional courses from those listed above or from the following:	6
CRJU 301. Special Topics in Criminal Justice	
CRJU 401. Internship in Criminal Justice	

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<sup>1</sup> Students majoring in this discipline may double count only one course as credit for the minor and that major

## Disability Studies

*Daisy Breneman, Coordinator*

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*Dr. Susan Ghiaciuc, Coordinator*

Phone: (540) 568-1613 Email: [ghiacisx@jmu.edu](mailto:ghiacisx@jmu.edu)

The minor in disability studies engages students in an examination of the many ways disability is defined and constructed. Students will build knowledge of the political, rhetorical, social, educational, historical, legal, and medical frameworks of disability through both classroom and experiential study in courses drawn from several disciplines. Students will examine the ways systems inhibit and promote full participation of people with disabilities, explore how communities define and reinforce norms, and understand disability as an inherent part of diversity and inclusivity.

The minor in disability studies is open to all undergraduate students at JMU. The introductory course DST 100 can be taken the same semester as core courses. More than one core course can be taken to count toward the overall credit requirement. No more than nine hours may be taken from a single discipline. No more than two courses may be double counted for a student's major/minor.

Required Courses	Credit Hours
DST 100. Introduction to Disability Studies	1
Choose one of the following core courses	3
JUST 385. Disability and Justice	
KIN 429. Special Topics in Adapted Physical Education	
WRTC 430/SCOM 343. Contemporary Rhetorical Theory and Practice: Disability Rhetoric	
SOCI 335. Disability and Society	
SOCI 375. Medical Sociology	
Choose five of the following elective courses	15
ANTH 360. Medical Anthropology	
ANTH 395. Special Topics in Anthropology: Sex and the Social: The Cultural Politics of Reproduction	
DANC 325. Dance in Community	
HIST 306. A History of the Body in the West	
HIST 476. History of Disability in Postwar Europe, 1945-1991	
JUST 221. Social Justice Theories	
SCOM 370. Introduction to Health Communication	
SOCI 214. Social Deviance	
SOCI 385. Madness and Society: The Sociology of Mental Health and Illness	
SRM 242. Sociology and Psychology of Sport and Recreation Management	
SRM 436. Facilities and Events in Sport and Recreation	

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## Entrepreneurship

*Paula Daly, Coordinator*

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The entrepreneurship minor is designed to introduce students from any discipline to the knowledge, skills and mindset necessary for successful new venture creation. The minor is open to students in any major except management, which offers a track in innovation and entrepreneurship.

Students who successfully complete the entrepreneurship minor will develop the knowledge base and skills needed for new venture creation and management. They will be able to:

- Understand entrepreneurship as a possible career path, its role in economic growth and opportunity, and its associated social benefits.

- Recognize/identify entrepreneurial opportunities that fit the individual student. Includes self-analysis in the context of possible entrepreneurial activities and demonstration of the ability to identify and analyze the attractiveness of potential markets.
- Develop a business model and create a business plan. This includes completing a clear and concise written plan that serves as a blueprint for creation of the proposed venture.
- Apply relevant financial and business principles to assess the need for start-up capital, conduct break even analysis, and identify cash flow needed for future growth.
- Identify and evaluate various sources of funding.
- Articulate an effective pitch to gain support from investors, suppliers, customers, or potential employees.
- Interact and collaborate with various stakeholders to develop and evaluate ideas, and grow those ideas to fruition.

## Admission

To be considered for admission into the entrepreneurship minor students will need to submit an application packet by April 1 to the entrepreneurship minor coordinator in the Management Department. The application includes:

- Statement of interest
- One-minute "elevator pitch" video
- Resume
- Letter of recommendation
- Proof of good academic standing

JMU students submit applications for admission into the minor during the spring of their sophomore year. Enrollment in the initial course requirement occurs during the fall of their junior year. Transfer students who have four semesters of course work remaining after any given spring semester are eligible to apply.

Transfer students admitted to JMU for fall semester who are interested in applying for the ENTP minor will have two weeks after their notification of admission to submit their application to the minor coordinator. Selected students will be notified of their acceptance to the minor cohort two weeks prior to the start of fall semester classes.

Admitted students will begin as a cohort the following fall semester. Admitted students must be able to take the four required minor courses as a cohort, on a predetermined one per semester schedule for four consecutive semesters starting with the first semester of their junior year.

Required Courses	Credit Hours
MGT 310. Business Fundamentals for Entrepreneurs (non-COB majors) or COB 300A. Integrated Business Functions (required for non-MGT COB majors)	3
MGT 320. Management of Innovation and Technology <sup>1</sup>	3
MGT 471. Entrepreneurship and Small Business Management	3
MGT 472. New Venture Creation	3
Electives (choose two)	6
ACTG 244. Accounting for Non-Business Majors	
ENGR 498. Advanced Topics in Engineering: Innovation <sup>2</sup>	
ENGR 498. Advanced Topics in Engineering: Realization <sup>2</sup>	
ENGR 498. Advanced Topics in Engineering: Innovation Exchange <sup>2</sup>	
ENGR 498. Advanced Topics in Engineering: Social Entrepreneurship <sup>2</sup>	
MGT 340. International Management	
MGT 365. Fundamentals of Human Resource Management	
MKTG 380. Principles of Marketing (for non-CoB majors only)	
NPS 300. Introduction to Nonprofits	

NPS 320. Nonprofit Management  
WRTC 340. Writing as Leading

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<sup>1</sup> Engineering students may substitute ENGR 221 for MGT 320.

<sup>2</sup> All ENGR courses are contingent on availability.

Students may request permission to count two three-credit electives from their major as their ENTP electives. These courses must be related to innovation and/or entrepreneurship, and must be approved by the minor coordinator.

All electives must be approved by the adviser, and students should check with an adviser for the most updated list of suggested electives, as the list can change.

## Environmental Humanities

*Dr. Katey Castellano, Coordinator*

Phone: (540) 568-3753 Email: castelkm@jmu.edu

Website: <https://www.jmu.edu/environment/humanities.shtm>

This minor allows students to articulate broad historical and cultural views of the complex interactions among humans and the natural and material environment. Students will analyze and produce expressive, creative work that illustrates the complexity of human interaction with the environment.

Students select 18 hours as distributed below. No more than three courses can come from a single academic unit in the total hours selected. Students may double-count two courses in the minor with their major. At the discretion of the minor coordinator, science courses may be substituted into the minor.

### Humanities and the Environment Credit Hours

Choose four courses, no more than two from the same 12

discipline:

ARCD 330. Materials and Methods I	
ARCD 332. Materials and Methods II	
ENG 221. Literature/Culture/Ideas (for minor credit when topic is "Environmental Literature")	
ENG 371. Literature and the Environment	
ENG 372. Eco-Criticism and Environmental Ethics	
ENG 390. The Environmental Imagination	
ENVT 300. Topics in Environmental Humanities	
ENVT 301. Internship in Environmental Humanities	
ENVT 401. Studio or Independent Study in Environmental Humanities	
GEOG 325. Environmental Ethics	
HIST 304. Native Peoples of the United States <sup>1</sup>	
HIST 315. Sport History	
HIST 427. Environmental History	
HIST 434. Recent America	
INDU 392. Special Topics: Design and Sustainability	
SCOM/WGS 302. Third Wave Ecofeminism	
SCOM 354/WRTC 326. Environmental Communication and Advocacy	
WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology	
Approved Special Topics Courses	
Approved Internship Programs	
Approved Study Abroad Programs	
Humanities/Social Science Elective Choose one:	3
ANTH 300. Anthropology of Food	
ANTH 373. Anthropological Perspectives on Environment & Development	
ANTH 430. Primate Conservation Biology	
ARTH 380. American Art to 1870 (for landscape, painting, nationalism)	

ARTH 464. Romanticism and Enlightenment  
 ENG 325. Romantic Literature  
 ENG 363. Native American Literature  
 ENG 496. Food Writing (Cavanagh's section)  
 HIST 326. The Automobile in 20th Century America  
 HIST 327. Technology in America  
 HIST 405. Travel and Exploration  
 HIST 443. Technology and Culture  
 HIST 453. Patterns of Global History  
 HIST 469. International Aid and Development  
 HUMN 300. Introduction to Natural Disasters  
 ISAT 421. Environmental Policy and Regulation  
 PPA 484. Environmental Regulatory Policy and Politics  
 SOCI 311. Sociology of the Environment  
 SOCI 354. Social Inequality  
 SOCI 358. Sociology of Consumption  
 WRTC 342. Writing Place  
 WRTC 358. Writing about Science and Technology  
 Science Elective<sup>2</sup> Choose one:  
 ENVT 200. Environmental Systems Theory  
 GEOG 322. Agricultural Systems and Global Food Production  
 GEOG 341. Wilderness Techniques  
 GEOL 102. Environment Earth  
 GEOL 115. Earth Systems and Climate Change  
 GEOL 211. Introduction to Oceanography  
 HTH 352. Environmental Health  
 ISAT 100. Environmental and Energy Sustainability  
 ISAT 112. Environmental Issues in Science and Technology  
 NUTR 380. Global Nutrition

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1 These four history courses are offered on a rotating basis. One will be offered each year. Each one contains substantial environmental material.

2 General Education courses may double-count for the minor.

## Environmental Information Systems

*Dr. Steven P. Frysinger, Coordinator*

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Website: <http://www.jmu.edu/EnvironmentallInfoSys>

The cross disciplinary minor in environmental information systems is designed for undergraduates interested in using computer and information management technology to solve environmental problems and improve environmental stewardship. Some examples of environmental information systems are database systems to track and report hazardous materials in factories, decision support systems to facilitate risk analysis and management, GIS-based natural resource inventory systems and automated business management systems to support and document environmental compliance.

The environmental information systems minor requires a minimum of 25 credit hours<sup>2</sup>. Core courses are intended to ensure knowledge of the foundation disciplines. Electives should be chosen in consideration of the student's particular interests within the general field of environmental information systems. At least one elective course must be outside of the student's major. Students are advised to check prerequisites of listed courses.

Required Courses	Credit Hours
Core Courses	16-17
CS 139 or CS 149. Algorithm Development <sup>1</sup>	
ISAT 340. Software Development <sup>1</sup>	
ISAT 320. Fundamentals of Environmental Science and Technology <sup>1,2</sup>	

ISAT 321. Fundamentals of Environmental Science and Technology II	
ISAT 426. Environmental Information Systems Elective Courses	8-9 <sup>2</sup>
CS 159. Advanced Computer Programming <sup>1</sup>	
CS 474. Database Design and Application <sup>1</sup>	
GEOG 215. Cartography and GIS	
GEOG 366. Introduction to Geographic Information Science	
GEOG 385. Principles of Remote Sensing	
GEOG 466. GIS and Geographic Databases	
ISAT 341. Modeling and Simulation	
ISAT 420. Environmental Analysis and Modeling	

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1 Or equivalent by permission of director.

2 Students who have successfully completed ISAT 320 prior to fall 2016 will receive 3 credits for ISAT 320; if that is the case, the environmental information systems minor requires a minimum of 24 credit hours.

Note: CS 149, ISAT 252 or CIS 221 substitute for CS 139; CIS 331 substitutes for CS 159; CS 474 substitutes for ISAT 340; CIS 330 substitutes for CS 474.

## Environmental Management

*Dr. Steven P. Frysinger, Coordinator*

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The cross disciplinary environmental management minor prepares students to apply the principles of environmental science and engineering to contemporary environmental problems in natural resource, industrial and public policy contexts. The minor is particularly suitable for students interested in professional careers in industrial environmental management, natural resources management, and environmental policy and planning.

The environmental management minor strives to develop graduates who can apply science and technology to a broad range of practical environmental problems in professional settings. Students are expected to be literate and competent in the sciences and mathematics underlying environmental problem solving.

The environmental management minor requires a total of 29 credits<sup>1</sup>, including prerequisite courses. Prerequisite courses may be fulfilled as part of the student's major. At least one elective course must be outside of the student's major.

Prerequisites	Credit Hours
BIO 124. Ecology and Evolution	4
or BIO 250. Ecology and Evolution	
Three hours from one of the following:	3
ISAT 251. Topics in Statistics for ISAT	
MATH 220. Elementary Statistics	
MATH 285. Data Analysis	
MATH 307. Principles of Probability and Statistics	
MATH 318. Introduction to Probability and Statistics	
Required Courses	Credit Hours
ISAT 320. Fundamentals of Environmental Science and Technology I <sup>1</sup>	4
ISAT 321. Fundamentals of Environmental Science and Technology II	3
CHEM 241. Organic Chemistry I	3
ENVT 400. Capstone Seminar	3
Concentration (See descriptions below)	9

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1 Students who have successfully completed ISAT 320 prior to fall 2016 will receive 3 credits for ISAT 320; if that is the case, the environmental management minor requires a total of 28 credits, including prerequisite courses.

## Concentrations

Students completing the environmental management minor must concentrate in one of three areas: natural resources, industrial systems or environmental policy. Students should be aware that some of the listed courses may have additional prerequisites.

### Natural Resources

ISAT 424. Natural Resource Management

Choose two of the following courses:

BIO 402. Forest Ecology

BIO 456. Landscape Ecology

BIO 457. Biological Applications of Geographic Information Systems

BIO 459. Freshwater Ecology

BIO 465. Environmental Toxicology

CHEM 354. Environmental Chemistry Field Camp

CHEM/GEOL 355. Geochemistry of Natural Waters

GEOG 340. Biogeography

GEOG 341. Wilderness Techniques

GEOG 342. Management and Protection of Natural Resources

GEOG 343. Wildlife Management

GEOL 340. Soils and Land Use

ISAT 420. Environmental Analysis and Modeling

ISAT 425. Environmental Hydrology

ISAT 429. Sustainability: An Ecological Process

### Industrial Systems

ISAT 422. Industrial Environmental Management

Choose two of following courses:

HTH 352. Environmental Health

HTH 450. Epidemiology

ISAT 423. Environmental Remediation

ISAT 427. Industrial Hygiene

ISAT 428. Industrial Ecology

### Environmental Policy

ISAT 421. Environmental Policy and Regulation

ISAT 422. Industrial Environmental Management

or ISAT 424. Natural Resource Management

Choose one of the following courses:

BIO 465. Environmental Toxicology

ECON 305. Environmental Economics

ECON 340. Economics of Natural Resources

GEOG 325. Environmental Ethics

GEOG/ISAT 429. Sustainability, An Ecological Process

HIST 427. US Environmental History

ISAT 411. Energy Economics and Policy

ISAT 420. Environmental Analysis and Modeling

ISAT 423. Environmental Remediation

ISAT 471. Transportation: Energy, Environment, and Society

ISAT 472. Transportation: Air Quality Monitoring and Regulation

PPA 484. Environmental Regulatory Politics and Policy

SCOM 354. Communication, Environment and Environmentalism

SOCI 311. Sociology of the Environment

Other courses may apply by permission of the coordinator.

## Environmental Science

*Dr. Bruce A. Wiggins, Coordinator*

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Website: <http://www.jmu.edu/environment/science.shtml>

The environmental science minor is a cross disciplinary program that can be elected by any student. Students pursuing programs ranging from the physical, natural or social sciences to education, journalism or business could benefit from this broadly-based environmental curriculum. The program draws from courses that focus on the application of scientific concepts and principles to the understanding of environmental problems

and their solutions. The minor draws upon the expertise of faculty in the areas of biology, chemistry, geography, physics and integrated science and technology.

The environmental science minor:

- Provides a scientific background to those students interested in environmental law, environmental economics and environmental sustainability.
- Broadens the student's understanding of how sciences are linked to environmental questions.
- Complements any major by focusing on courses related to environmental issues.

The minimum requirement for a minor in environmental science is 24 credit hours taken from the four groups outlined below. Students wishing to complete more than one of the environmental minors (environmental management, environmental science and environmental studies) may receive dual credit for the capstone course (ENVT 400), but may not receive dual credit for any other courses that might be shared by the minors. Pre-approved study abroad and/or internship experiences may be substituted for one or more of the courses listed below.

No more than two courses from a single subject area can count toward the completion of the environmental science minor. International studies and special topics courses with appropriate content may be counted (prior approval by the environmental science minor coordinator required).

<b>Courses</b>	<b>Credit Hours</b>
<i>Group 1. Introduction to Environmental Science<sup>1</sup></i>	3-4
BIO 124. Ecology and Evolution	
BIO 250. Ecology and Evolution	
GEOG 210. Physical Geography	
GEOL 102. Environment: Earth	
GEOL 110. Physical Geology	
GEOL 115. Earth Systems and Climate Change	
ISAT 100. Environmental and Energy Sustainability	
ISAT 112. Environmental Issues in Science and Technology	
<i>Group 2. Advanced Environmental Science courses</i>	15
BIO 354. Global Climate and Life	
BIO/GEOL 400. Geology and Ecology of the Bahamas	
BIO/GEOL 402. Forest Ecology	
BIO 452. Population Ecology	
BIO 453. Microbial Ecology and Evolution	
BIO 454. Introduction to Biometrics	
BIO 456. Landscape Ecology	
BIO 457. Biological Applications of GIS	
BIO 459. Freshwater Ecology	
BIO 465. Environmental Toxicology	
BIO 466. Toxicology Seminar	
CHEM 353. Environmental Chemistry	
CHEM 354. Environmental Chemistry Field Camp	
CHEM 450. Nuclear and Radiation Chemistry	
ENGR 411. Fundamentals of Sustainable Engineering and Design	
ENGR 472. Biological Treatment Processes and Reactor Design	
ENGR 474. Physical Chemical Treatment Processes	
ENGR 478. Water Resources Engineering	
ENVT 200. Environmental Systems Theory	
GEOG 215. Geospatial Tools I – Cartography and GIS	
GEOG 216. Geospatial Tools II – Remote Sensing and GPS	
GEOG 290. Human Interaction with the Physical Environment	
GEOG 340. Biogeography	
GEOG 365. Cartography and Geospatial Visualization	
GEOG 366. Introduction to Geographic Information Science	
GEOG 385. Principles of Remote Sensing	
GEOL 211. Introduction to Oceanography	

GEOL/GEOG 310. Environmental Impact  
 GEOL 320. Meteorology  
 GEOL 340. Environmental Soil Science  
 GEOL/CHEM 355. Geochemistry of Natural Waters  
 GEOL 377. Earth Surface Processes  
 GEOL 406. Paleoclimatology and Paleoceanography  
 GEOL 410. Engineering Geology  
 GEOL 460. Hydrogeology  
 ISAT 311. Role of Energy in Modern Society  
 ISAT 320. Fundamentals of Environmental Science & Technology I  
 ISAT 321. Fundamentals of Environmental Science & Technology II  
 ISAT 420. Environmental Analysis and Modeling  
 ISAT 423. Environmental Remediation  
 ISAT 425. Environmental Hydrology  
 ISAT 427. Industrial Hygiene  
 ISAT 428. Industrial Ecology  
 MATH 321. Analysis of Variance and Experimental Design  
 MATH 322. Applied Linear Regression  
 MATH 324. Applied Nonparametric Statistics  
 MATH 328. Time Series Analysis  
 MATH/BIO 345E. Biometry  
 MATH 421. Applied Multivariate Statistics  
 PHYS 215. Energy and the Environment

*Group 3. Environmental Studies courses* 3

One of the following courses:

ANTH 373. Anthropological Perspectives on Environment  
 ECON 305. Environmental Economics  
 ECON 340. Economics of Natural Resources  
 ENG 371. Literature and the Environment  
 ENG 390. The Environmental Imagination  
 GEOG 325. Environmental Ethics  
 HIST 427. U.S. Environmental History  
 ISAT 311. Role of Energy in Modern Society  
 ISAT 421. Environmental Policy and Regulation  
 ISAT 473. Local Agriculture and Farm Internships  
 SCOM 354/WRTC 326. Environmental Communication and Advocacy  
 SOCI 311. Sociology of the Environment  
 WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology

*Group 4. Capstone course* 3

ENVT 400. Capstone Seminar<sup>2</sup>

24-25

1 Can be double-counted with General Education.

2 All students must complete the capstone course ENVT 400. Students must have completed 15 hours of their environment minor in order to enroll in the capstone.

## Environmental Studies

*Dr. Rob Alexander, Coordinator*

Phone: (540) 568-3771 Email: alexanrw@jmu.edu

Website: <http://www.jmu.edu/environment/studies.shtml>

The environmental studies minor provides a cross disciplinary education engaging socio-cultural, scientific and technical issues raised by the oft-conflicting needs and desires of globally interacting societies. Designed to complement any major, the goals of the environmental studies minor include:

- To help undergraduates develop an awareness of the cultural, political and scientific aspects of the world's environmental problems.
- To better prepare students for further study at the graduate or professional school level and careers in the expanding field of environmental professions.

The minimum requirement for a minor in environmental studies is 24 credit hours taken from the four categories outlined.

No more than three courses from a single subject (e.g., GEOG, GEOL, ANTH, ENG, etc.) may count toward completion of the minor. Students wishing to complete more than one of the environment minors (environmental management, environmental science and environmental studies) may receive dual credit for the capstone course (ENVT 400), but may not receive dual credit for any other courses that might be shared by the minors. Note that additional courses may be substituted for area requirements at the coordinator's discretion to allow for special topics and new course inclusion.

**Courses** **Credit Hours**

Introduction to Environmental Literacy <sup>1</sup>	3
ANTH 196. Biological Anthropology	
BIO 103. Contemporary Biology	
ENG 221. Literature, Nature, Environment (this section only)	
ENVT 200. Environmental Systems Theory	
GEOG 102. Environment: Earth	
GEOG 115. Earth Systems and Climate Change	
ISAT 112. Environmental Issues in Science and Tech	
GEOG 210. Physical Geography	
Socio-Cultural Approaches to Environmental Studies <sup>2</sup>	15
ANTH 373. Anthropological Perspectives on Environment and Development	
ECON 305. Environmental Economics	
ECON 340. Economics of Natural Resources	
ENG 371. Literature and the Environment	
ENG 372. Eco-Criticism and Environmental Ethics	
ENG 390. The Environmental Imagination	
GEOG 290. Human Interactions with the Physical Environment	
GEOG 300. Population Geography	
GEOG/GEOG 310 A-D. Environmental Impact	
GEOG 311. Endangered Environments	
GEOG 320. Human Dimensions of Global Change	
GEOG 322. Agricultural Systems	
GEOG 325. Environmental Ethics	
GEOG 341. Wilderness Techniques	
GEOG 342. Management and Protection of Natural Resources	
GEOG 343. Wildlife Management	
GEOG 345. Geography of Poverty	
GEOG/ISAT 429. Sustainability: An Ecological Process	
GEOG 430. Geography of Crop Plants	
HIST 427. U.S. Environmental History	
ISAT 421. Environmental Policy and Regulation	
PPA 484. Environmental Regulatory Policy and Politics	
SCOM/WGS 302. Third Wave Ecofeminism	
SCOM 354/WRTC 326. Environmental Communication and Advocacy	
SOCI 311. Sociology of the Environment	
SOCI 357. Sociology of Disasters	
WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology	
Approved special topics courses	
Approved internship programs	
Approved study abroad courses	
Environmental Science Literacy <sup>3</sup>	3
BIO 451. Ecological Systems	
BIO 452. Population Ecology	
BIO 456. Landscape Ecology	
BIO 457. Environmental Toxicology	
BIO 459. Freshwater Ecology	
GEOG 327. Climatology	
GEOG 340. Biogeography	
GEOG 211. Introduction to Oceanography	
GEOG 310. Management of Marine Resources	
GEOG 340. Soils and Land Use	

ISAT 320. Fundamentals in Environmental Science	
<i>Senior Seminar Capstone Course</i>	3
ENVT 400. Capstone Seminar	

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1 Minimum of 3 credit hours; can be double-counted with General Education credits.

2 Minimum of 15 credit hours; only two courses with the same course subject may be taken.

3 Minimum of 3 credit hours.

## Family Studies

*Zanetta S. Ford-Byrd, Minor Adviser*

Phone: (540) 568-6980 Email: fordzs@jmu.edu

Website: <http://www.jmu.edu/socwork/familystudies.html>

The minor in family studies is designed for undergraduates seeking enhancement of their major, desiring to increase understanding of self and relationships, and seeking to make a positive contribution to society. A substantial knowledge of family-related issues, family processes, policies, laws, services and the interrelationship of families and societies will enhance majors in many fields including anthropology, early and middle education, health sciences, management, nursing, psychology, social work, and sociology. The minor encourages students to make connections between their major field and family studies.

The family studies minor requires a minimum of 18 credit hours with no more than six credit hours in the student's major. Note that some courses have prerequisites that must be completed before enrollment. Some courses may be restricted to students enrolled in particular majors.

One introductory course is required: either FAM 133 or SOCI 276. One course must be selected from each of these areas: Families in society, family and intimate relationships, and human development in the family. An additional course must be selected from any of the three areas or from family studies electives. A capstone course, FAM 400, is also required. At least four courses in the minor, including the introductory course, must be completed prior to enrolling in FAM 400.

Required Courses	Credit Hours
Introductory course (choose one of the following):	3
FAM 133. The Contemporary Family	
SOCI 276. Sociology of Families	
Families in Society (choose one of the following):	3
ECON 306. Economics of Women and the Family	
GERN/SOCI 280. Social Gerontology	
HIST 320. Women in U.S. History	
HIST 379. Family and Gender in East Asia	
HIST 466. The Family, 1400-1800	
NSG 390. Impact of Chronic Illness <sup>4</sup>	
SOCI 303. Sociology of Death and Dying <sup>1</sup>	
SOCI/WGS 337. Sociology of Gender	
SOWK 338. Issues and Policies in Family Services	
SOWK 342. Child Welfare Services	
Family and Intimate Relationships (choose three credits from):	3
HTH 372. Human Sexuality	
NSG 313. Issues and Application of Family Caregiving (service-learning) (1-2 credits)	
NSG 326. Care and Consideration for Children with Special Needs (service-learning) (1-2 credits)	
PSYC 275. Psychology of Human Intimacy	
PSYC 450. Psychology of Child Abuse and Neglect <sup>1</sup>	
SCOM 440. Family Communication <sup>2</sup>	
SOWK 340. Violence in Families <sup>1</sup>	3

Human Development in the Family (choose three credits from):

EXED 306. Lifespan Issues for Individuals with Disabilities<sup>3</sup>

FAM 300. Child Development<sup>1</sup>

FAM 335. Parent-Child Relationships Across the Lifespan

PSYC 304. Death and Dying: Thanatology<sup>1</sup>

PSYC 365. Developmental Psychology<sup>1</sup>

PSYC 475. Psychology of Adulthood

SOWK 387. Working with Teenagers

Capstone

FAM 400. Issues and Applications

Additional family studies course

(choose three credits from one of the three topic areas above or one of the following):

FAM 375. Grant Writing for Agencies

FAM 386. Youth Empowerment Strategies

FAM 487. Special Topics in Family Issues

FAM 490. Special Studies in Family Issues

IPE 220. Adult Health and Development Program

FAM Elective

3

3

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1 Some courses in the minor have substantive overlap in focus and content. To ensure students gain a broad exposure to family functions and dynamics, some restrictions apply for overlapping courses. For the family studies minor, students may take either:

SOCI 303. Sociology of Death and Dying or PSYC 304. Death and Dying: Thanatology; PSYC 450. Psychology of Child Abuse and Neglect or SOWK 340. Violence in Families; PSYC 365. Developmental Psychology or FAM 300. Child Development

2 SCOM majors and minors only.

3 Special education non-teaching and chronic illness concentration students only.

4 Access may be limited.

## Film Studies

*Kevin J. Reynolds, Coordinator*

Phone: (540) 568-8183 Email: reynolkj@jmu.edu

The minor in film studies is designed for students who wish to extend their critical understanding of visual communication and narrative form by studying how movies tell stories, convey information and influence audiences. Because the program is cross disciplinary, it examines films as both art and entertainment, bringing together the literary traditions of English and the communication perspectives of media arts and design. Together, the aim is to explore cinema's pictorial "language," investigate its commercial consequences and evaluate its impact across cultures as a medium for enacting the human story.

Six credit hours may be double-counted between the minor and major. Information is available from the film studies adviser of the School of Media Arts and Design or the Department of English.

Required Courses	Credit Hours
ENG/SMAD 380. Introduction to Film	3
Select no fewer than five courses from the following:	15
ENG 381. History of Film to 1960	
ENG 382. History of Film Since 1960	
ENG 383. Film Genre	
ENG 384. Film Authorship	
ENG 385. Special Topics in Film Study	
SMAD 371. Narrative Media Studies	
SMAD 460. Film and Society	
SMAD 461. Film as Art	
SMAD 462. Documentary in Film and Television	
SMAD 463. Film Adaptations	
SMAD 464. Contemporary American Film	
SMAD 498. Senior Seminar (when topic is film)	

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## Gerontology

*Dr. B. J. Bryson, Minor Adviser*

Phone: (540) 568-6980 Email: byrsonbj@jmu.edu

Website: <http://www.jmu.edu/socwork/gerontology.htm>

The cross disciplinary minor in gerontology is designed for any undergraduate major desiring a concentration of study in gerontology for personal understanding or career preparation.

Required Courses	Credit Hours
GERN/SOCI 280. Social Gerontology	3
GERN 305. Programs and Services for the Elderly <sup>1</sup>	3
GERN 400. Skills and Techniques <sup>1</sup>	3
GERN 495. Field Experience/Seminar <sup>1</sup>	3
Major elective (a course supporting the student's major or related field of study with 50 percent of the course content in gerontology)	3
Elective (must be a course in which the content is at least 50 percent in gerontology)	3
	<b>18</b>

<sup>1</sup> Course has one or more prerequisites.

## Historical Archaeology

*Dr. Dennis B. Blanton, Minor Adviser*

Phone: (540) 568-6171

*Dr. Gabrielle M. Lanier, Minor Adviser*

Phone: (540) 568-3615

Website: <http://www.jmu.edu/cds/regional-and-area-studies/index.shtml>

The minor is designed for students interested in the sub-field of historical archaeology, a discipline that integrates the research interests and methods of archaeology and history. The minor is designed to complement existing majors in anthropology and history, and it may also be of interest to students in art history and public administration. While guided by the theoretical underpinnings of history and anthropology, the minor in historical archaeology is field- and research-oriented. Students enrolling in the program should anticipate courses that require significant effort outside of the classroom.

Two courses (six credits) may be double-counted between the minor and the student's major.

Required Courses	Credit Hours
ANTH/HIST 331. Historical Archaeology	3
ANTH 494. Field Techniques in Archaeology	4
HIST/ARTH 396. Introduction to Public History	3
Capstone research course <sup>1</sup>	3
ANTH/HIST 496. Research Thesis	
Choose three of the following:	<b>9</b>
Of these, one course must be chosen from the history/anthropology options and one must be from the geology or geography options. <sup>2</sup>	
ANTH 410. Spatial Analysis for Anthropologists	
ANTH 455. Archaeology: Methods of Analysis and Interpretation	
HIST/ARTH 394. Introduction to Museum Work	
HIST/ANTH/ARTH 492. Material Culture	
HIST/ARTH 493. Historic Preservation	
GEOL 340. Environmental Soil Science	
GEOG 366. Introduction to Geographic Information	
GEOL 442. Field Geophysics	

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<sup>1</sup> The personalized capstone course can take place over one or two semesters and will require the student to work closely with a faculty adviser. The project will require the student to define a research topic, establish a theoretical and

methodological base for the project, gather data, interpret the results and prepare an appropriate statement of findings.

<sup>2</sup> Access to geology and geography courses is competitive and will require some computer experience.

## Humanitarian Affairs

*Dr. Tara Parsons, Coordinator*

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Website: <http://www.jmu.edu/humanitarian>

The cross disciplinary humanitarian affairs minor provides students with a global perspective on the major humanitarian crises facing the human community today. Student will investigate the impacts of natural disasters, disease, hunger and famine, poverty, conflict, and national and international policies on the welfare of human communities around the world. They will also explore solutions to various humanitarian crises and evaluate the problems of practicing humanitarianism in the world today. Students will become acquainted with the organizations that address these crises and the challenges they face. Finally, students will acquire knowledge and skills that prepare them for careers in governmental and non-governmental organizations that address humanitarian issues. The minor in humanitarian studies is open to all undergraduate students at JMU.

Core Requirements	Credit Hours
HUMN 201. Introduction to Humanitarian Affairs	3
Choose five of the following, with no more than two from any single discipline:	<b>15</b>
HUMN/GEOG 301. Introduction to Natural Disasters	
HUMN 302. Legal Issues in Humanitarian Affairs	
HUMN 350. Topics in Humanitarian Assistance	
HUMN/GEOG 360. GIS for Humanitarian Assistance	
HUMN 490. Humanitarian Affairs Field Experience <sup>1</sup>	
ANTH/SOCI 313. Processes of Social and Cultural Change	
ANTH 366. Anthropology of War	
ANTH 373. Anthropological Perspectives on Environment and Development	
BIO 354. Global Climate Change and Life: Ecological and Biological Impacts of Climate Variability	
BIO 420. Medical Parasitology	
ECON 270. International Economics	
ENGR 360. Water in Africa, Technology, Education and Reciprocity	
GEOG 215. Geospatial Tools I – Cartography and GIS	
GEOG 280. Human Geography: The Cultural Landscape	
GEOG 300. Population Geography	
GEOG 322. Agricultural Systems and Global Food Production	
GEOG 323. Geography of Human Genetics and Infectious Disease	
GEOG 335. Geography of Africa	
GEOG 339. Geography of the Caribbean	
GEOG 345. Geography of Poverty	
GEOG 375. Political Geography	
ISAT 459. Awareness and Understanding of Chemical, Biological, and Radiological Weapons of Mass Destruction	
IA 460. All Hazards Response and Management Systems	
JUST 235. Justice in the Global Community	
JUST 341. Gender and Justice	
JUST 345. Restorative Justice	
JUST 346. Intervention, Reconciliation and Justice in World Affairs	
JUST 357. Environmental Justice	
JUST/POSC 372. Ethics and International Politics	
JUST 373. Rebuilding Post Conflict Societies	
JUST/POSC 392. Peace Studies	
NPS 300. Introduction to Nonprofits	
NUTR 380. Global Nutrition	

POSC 200. Global Politics  
 POSC/JUST 331. Human Rights in Theory and Practice  
 POSC 340. Third World Development  
 POSC 347. Comparative Public Policy  
 POSC 348. The Politics of Cultural Pluralism  
 POSC 395. International Law  
 POSC 396. International Organizations  
 POSC 397. Politics of International Economic Relations  
 PSYC 460. Community Psychology in Developing Societies  
 SCOM 331. Communication and Conflict  
 SCOM 332. Mediation  
 SCOM/JUST 333. Negotiations  
 SCOM 334. Alternative Dispute Resolution  
 SCOM 371. Talking Through Tough Cases: Ethical Principles and Practices in Communication Studies  
 SOWK 288. Social Welfare  
 SOWK/SOCI 348. Introduction to Developing Societies  
 SOWK 375. Grant Writing for Agencies  
 WRTC 314. Writing in the Public Sphere  
 WRTC 484. Writing for Nonprofits  
 WRTC 486. Writing in the Community

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1 When used for credit in the humanitarian affairs minor, the international experience must be approved and supervised by the minor coordinator or designated faculty member.

## Interdisciplinary Social Science

*Dr. Alison D. Sandman, Coordinator*

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 Website: <http://www.jmu.edu/history/iss.shtml>

The interdisciplinary social science minor offers a program of integrated study that exposes students to diverse methodologies, philosophies and controversies that define the social sciences. It is a required minor for secondary education students who wish to teach social studies. The ISS minor incorporates economics, geography, history and political science and is offered in two forms for secondary education students. Secondary education students will major in either history or political science and then complete the ISS minor that corresponds to the major. Through this minor and the completion of the B.A. degree in history or political science, students will gain the content knowledge necessary for success in secondary education in social studies. Students not selecting the secondary education licensure program may declare either form of the ISS minor.

## Minor Requirements

### History Major with ISS Minor

Requirements for the history major are on the Department of History page.

Degree Requirements	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
Major requirements <sup>3</sup>	33-34
Minor requirements (listed below)	26
Electives	2-16
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232), or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

3 HIST 457 is a required capstone for the ISS minor and must be completed as part of the history major requirements.

## Political Science Major with ISS Minor

Requirements for the political science major are on the Department of Political Science page.

Degree Requirements	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
Major requirements <sup>3</sup>	33
Minor requirements (listed below)	22
Electives	7-21
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232), or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

3 POSC 457 is a required capstone for the ISS minor and must be completed as part of the political science major requirements.

## ISS Minor Requirements

To be licensed to teach secondary school social studies, the student must satisfactorily complete requirements for a baccalaureate degree in either history or political science and complete the ISS minor that is paired with that major.

ISS for History Majors	Credit Hours
HIST 225. U.S. History <sup>1</sup>	4
POSC 225. U.S. Government <sup>1</sup>	4
POSC 302. State and Local Government	3
POSC 335. Comparative Politics for Teachers	3
Choose one:	3
ECON 200. Macroeconomics1	
ECON 201. Microeconomics	
Choose one:	3
GEOG 200. The Global Dimension <sup>1</sup>	
GEOG 280. Human Geography: The Cultural Landscape	
Choose one:	3
GEOG 300 or 400 level	
ISS 330. Maps, Money and World Trade	
Choose one:	3
POSC 362. Political Behavior	
POSC 369. Political Parties and Elections	
POSC 380. The U.S. Presidency	
POSC 385. The U.S. Congress	
POSC 386. The U.S. Judiciary	
	26

1 May double count for General Education credit.

ISS for Political Science Majors	Credit Hours
HIST 225. U.S. History (Must be completed for General Education credit)	4
HIST 350. Virginia History	3
Choose one:	3
ECON 200. Macroeconomics <sup>1</sup>	
ECON 201. Microeconomics	
Choose one:	3
GEOG 200. The Global Dimension	
GEOG 280. Human Geography: The Cultural Landscape (should double count)	
Choose one:	3
GEOG 300 or 400 level	
ISS 330. Maps, Money and World Trade	
Choose one Regional Elective:	3
HIST 201. Europe to 1815	

HIST 202. Europe since 1815	
HIST 263. Africa	
HIST 269. Middle and Near East, 500–1500	
HIST 270. Modern Middle East	
HIST 273. Asia to 1600	
HIST 274. Modern Asia	
Choose one Transnational Elective:	3
HIST 307. Trans-Atlantic Slave Trade	
HIST 405. Travel and Exploration	
HIST 453. Patterns of Global History	
HIST 456. The Global Economy and Nationalism	

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1 May double count for General Education credit.

## Latin and Caribbean Studies

*Tomás Regalado-López, Coordinator*

Phone: (540) 568-6946 Email: [regalatlx@jmu.edu](mailto:regalatlx@jmu.edu)

Website: <http://www.jmu.edu/lacs>

This cross disciplinary minor helps students to acquire a deeper understanding of Latin America, the Caribbean and Latinos in the U.S. All minors must attain proficiency in Spanish, Portuguese or French at or above the intermediate level (SPAN/PORT/FR 232 or equivalent). In addition to the language requirement, the minor consists of 18 approved credit hours. Students must select courses in at least three different disciplines. Participants in the minor are encouraged to explore the possibility of studying in a Latin American or Caribbean country for a semester or summer session. See the website for changes in required courses.

Courses	Credit Hours
Complete two courses from among the following:	6
ANTH 265. Peoples and Cultures of Latin America and the Caribbean	
GEOG 337. Geography of Latin America	
HUM 252. Cross Cultural Perspectives: Latin American Cultures <sup>1</sup>	
POSC 350. Latin American Politics	
SPAN 308. Latin American Civilization	
Complete four additional courses from among the following:	12
ANTH 265. Peoples and Cultures of Latin America and the Caribbean	
ANTH 325. Aztec, Maya and Their Predecessors	
ANTH 364. U.S./Latin American Borders	
ANTH 391. Study Abroad <sup>2</sup>	
ANTH 395. Special Topics in Anthropology <sup>2</sup>	
ANTH/HIST 436. Afro–Latin America	
ANTH 490. Special Studies in Anthropology <sup>2</sup>	
ARTH 484. Art of the Americas	
ECON 270. International Economics	
ECON 312. Comparative Economic Systems	
ECON 365. Economic Development	
ECON 372. International Finance and Payments	
ECON 490. Special Studies in Economics <sup>2</sup>	
ENG 434. Latin American Literature in Translation	
ENG 439. Major Authors of Literature in Spanish in Translation	
GEOG 337. Geography of Latin America	
GEOG 490. Senior Project II <sup>2</sup>	
HUM 252. Cross Cultural Perspectives: Latin American Cultures	
HIST 302. Latin American Urban History	
HIST 341. Selected Themes in World History <sup>2</sup>	
HIST 391. Travel Studies Seminar <sup>2</sup>	
HIST 395. History Seminar <sup>2</sup>	
HIST 399. Special Studies in History <sup>2</sup>	
HIST 437. Latin America and Latin Americans through Film: Focus on the Twentieth Century	
HIST 444. Revolution and Social Change in Latin America	

HIST 445. Latin America and the United States
HIST 447. South America
HIST 448. Gender in Colonial Latin America
HIST 489. Selected Topics in World History <sup>2</sup>
POSC 350. Latin American Politics
POSC 371. Topics in Comparative Politics <sup>2</sup>
POSC 397. The Politics of International Economic Relations
REL 380. Contemporary Theologies
REL 450. Religion and Society
SOCI 391. Study Abroad <sup>2</sup>
SOCI 490. Special Studies in Sociology <sup>2</sup>
SPAN 300. Spanish Grammar and Communication
SPAN 308. Latin American Civilization
SPAN 320. Spanish Oral and Written Communication
SPAN 330. Business Spanish
SPAN 385. Latin American Drama and Short Stories
SPAN 395. Latin American Poetry of the 20th Century
SPAN 408. Aspects of Latin American Civilization
SPAN 415. The Spanish–American Novel
SPAN 446. Special Topics in Spanish Literature
SPAN 465. Cinema and Literature
SPAN 490. Special Topics in Spanish

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1 HUM 252 is typically offered in several sections each semester; many of these sections do not focus on Latin America. Students must take the version focused on Latin America for HUM 252 to count as part of the Latin American studies minor. HUM 252 counts as a history course unless taught by faculty from another discipline.

2 Special topics or special studies course. It may count for the minor, but only if it deals with Latin America or the Caribbean. Contact the coordinator for approval.

## Logic and Reasoning

*Dr. Tracy A. Lupher, Coordinator*

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*Dr. Thomas R. Adajian, Coordinator*

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Website: <http://www.jmu.edu/cds/regional-and-area-studies/index.shtml>

Logic and reasoning are central to human inquiry. The minor brings together several disciplines which take logic and reasoning as part of their subject matter, emphasize the core logical elements that are common across disciplines and show how to apply these common logical concepts and tools in different domains. The requirement for a minor in logic and reasoning is 18-19 credits: 12-13 credit hours from a set of core courses and six credit hours from electives.

Required Courses	Credit Hours
PHIL 250. Introduction to Symbolic Logic	3
PHIL 310. Intermediate Symbolic Logic	3
Choose one of the following:	6-7
MATH 235. Calculus I and MATH 245. Discrete Mathematics	
MATH/CS 227 and MATH/CS 228	
Elective Courses	
Choose at least two of the following:	6
CS 444. Artificial Intelligence (prerequisite CS 240)	
MATH 424. Statistical Decision Theory (prerequisite MATH 318)	
PHIL 315. Logic and Legal Reasoning	
PHIL 320. Inductive Logic	
PHIL 396. Philosophy of Physics (prerequisite PHIL 101)	
PHIL 397. Philosophy of Space and Time	
PHIL 398. Philosophy of Quantum Theory	
PHIL 410. Philosophy and Science	

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## Medical Humanities

*Dr. Michael J. Klein, Coordinator*

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Website: <http://www.jmu.edu/medical-humanities>

The cross disciplinary minor in medical humanities provides students with a humanistic and social study of illness, health and the body. Typically, we approach the human body from a medical, diagnostic model. But physicians have long recognized that this approach to health and well-being is not sufficient for understanding our somatic life. Drawing upon concepts found in the disciplines contributing to the minor, courses in the curriculum share the common focus of examining how individuals and institutions articulate and disseminate conceptions of the body, including constituent issues such as race, ethnicity, sexuality and gender.

Students select a minimum of 18 credit hours taken from a list of approved courses. No more than two courses from a single subject (e.g. ANTH, ENG, SCOM, SOCI) can count toward the minor.

Required Courses	Credit Hours
Choose six courses from the following	18
ANTH/SOCI 352. Birth, Death, Sex: Exploring Demography	
ANTH 360. Medical Anthropology	
ANTH 376. Anthropology of Reproduction	
ENG/WGS 368. Women's Literature	
ENG 423. Advanced Studies in Gender and Sexuality in Literature	
GEOG 323. The Geography of Human Genetics, Infectious Diseases and Diet	
HTH 372. Human Sexuality	
HIST 306. A History of the Body in the West	
IPE 415. Ethical Decision-Making in Healthcare (1 credit)	
ISAT 456. Ethical, Legal and Social Implications of Biotechnology	
ISAT/WGS 485. Gender Studies in Science	
JUST 315. Mental Illness and the Criminal Justice System	
PHIL 262. Problems in Applied Ethics	
PSYC 308. Health Psychology	
REL 280. Religion and Science	
SCOM 471. Culture and Health Communication	
SOCI 336. Race and Ethnicity	
SOCI/WGS 337. Sociology of Gender	
SOCI 375. Medical Sociology	
SOCI 385. Madness and Society: Sociology of Mental Health and Illness	
WRTC 458. Scientific and Medical Communication	
WRTC 488. Writing in the Health Sciences	

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## Medieval and Renaissance Studies

*Dr. Peter J. Eubanks, Coordinator*

Phone: (540) 568-3511

Website: <http://www.jmu.edu/medren>

This minor focuses on the period from the fall of Rome (5th century C.E.) to 1700. The minor allows students to take courses in art history, English, history, music, philosophy, political science, religion and some languages, including medieval languages such as Old English and Middle English in the original or in translation, and elementary and intermediate courses in Arabic, Greek and Latin. Other languages may also be counted for credit with the

approval of the instructor. Introductory (i.e., 100 and 200 level) modern language courses are not permitted for credit.

The minor requires 18 credits total from the list below, with the following restrictions. The 18 credit hours must include courses from at least three distinct disciplines. Note that all foreign language courses (ARAB, FR, GER, ITAL and LAT) fall into the single discipline of foreign languages and literatures. At least four of the six required classes must be taken from the intermediate or advanced categories. It is recommended that students take one introductory course before taking the 300 or 400 level classes.

Other courses with significant Medieval and/or Renaissance content may be counted toward the minor with the approval of the coordinator. In addition, students interested in pursuing a three-credit hour focused individual research project should contact individual faculty members with whom they might wish to work to determine the feasibility of this option in their particular cases. Only one such independent study will count toward the minor.

Approval of the minor coordinator will also be required in the following two cases. First, courses with an asterisk will count toward the minor only if their content is focused on the Medieval and/or Renaissance periods. Second, because the content of HUM 200, HUM 250 and HUM 252 may vary, the minor coordinator will determine the appropriate disciplinary category for these courses.

Required Courses	Credit Hours
<b>Introductory</b>	
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
HIST 101. World History to 1500	3
HUM 200. Great Works*	3
HUM 250. Foundation of Western Culture*	3
HUM 252. Cross-Cultural Perspectives*	3
HIST 201. Europe to 1815	3
HIST 269. Middle and Near East 500-1500	3
<b>Intermediate</b>	
ANTH 333. Celts, Vikings and Tribal Europe	3
ARTH 313. Masterpieces of Italian Renaissance Art	3
ARTH 320. Studies in Fresco Preservation	3
ENG 302. Special Topics in Literature and Language*	3
ENG 311. Medieval Literature and Culture	3
ENG 313. Sixteenth-Century British Literature	3
ENG 315. Seventeenth-Century British Literature	3
ENG 316. Early Modern Drama	3
ENG 317. Shakespeare's Tragedies and Romances	3
ENG 318. Shakespeare's Comedies and Histories	3
HIST 383. Early England	3
MUAP 380. Collegium Musicum	3
PHIL 342. Medieval Philosophy	3
POSC 310. Political Theory: Ancient to Early Modern	3
REL 300. Selected Topics in Religion*	3
REL 305. Islamic Religious Tradition	3
REL 360. History of Western Religious Thought	3
<b>Advanced</b>	
ARTH 340. Early Medieval Art	3
ARTH 442. Art of Later Middle Ages	3
ARTH 446. Italian Renaissance Art	3
ARTH 448. Studies in Leonardo and Michelangelo	3
ARTH 449. Topics in Renaissance Art	3
ENG 410. Advance Studies in Author*	3
ENG 412. Special Topics Seminar*	3
FR 446. Studies in French Literature*	3
GER 436. Studies in German Literature*	3
HIST 463. Tudor-Stuart England	3
HIST 464. Renaissance and Reformation	3
HIST 466. The Family, 1400-1800	3

HIST 473. The Islamic World	3	HIST 270. The Modern Middle East <sup>3</sup>	3
HIST 477. Medieval Europe	3	HIST 372. Afghanistan in Regional and Global Systems <sup>7</sup>	3
HIST 489. Selected Topics in World History*	3	HIST 473. Early Modern Islamic Empires <sup>7</sup>	3
ITAL/ENG 437. Studies in Italian Literature*	3	HIST 485. Colonialism in the Middle East and South Asia <sup>7</sup>	3
MUS 373. Music History: Antiquity through 1700 <sup>1</sup>	2	Department of Philosophy and Religion	
PHIL 460. Topics in Classical Philosophy*	3	REL 201. Introduction to Hebrew Bible/Old Testament <sup>5</sup>	3

\*Courses with an asterisk will count toward the minor only if their content is focused on the Medieval and/or Renaissance periods.

<sup>1</sup> MUS 373 is intended for music majors and thus is not appropriate for students who lack expertise in reading music.

## Middle Eastern Communities and Migrations

*Dr. Shah Mahmoud Hanifi, Coordinator*

Phone: (540) 568-1743 Email: hanifism@jmu.edu

Website: <http://www.jmu.edu/mecm>

This minor concentrates on social and political issues involving Muslim, Christian and Jewish populations in their own right and in relation to one another in the territory between the Nile and Indus rivers during the modern period. The program is also designed to accommodate consideration of other communities including Hindu and other South Asians, Anatolian and Central Asian Turks, and Mediterranean peoples in the larger area stretching from North Africa to Southeast Asia as well as Middle Eastern diaspora communities in Europe and the Americas from the ancient period to the present.

The cross disciplinary orientation of the program emphasizes comparison and a synthesis of local, regional, trans-national and global perspectives. The program provides an intellectual foundation that can be usefully applied and built upon in graduate school, the private sector or government service.

Students are required to take 18 credits comprised of six credits of core course work and 12 credits of electives.

Core Courses	Credit Hours
Choose two:	6
HUM 252. Islamic Civilization <sup>2</sup>	
HIST 269. Premodern Middle East <sup>2</sup>	
HIST 270. The Modern Middle East <sup>3</sup>	
Choose any of the following to fulfill the remaining credits	12
<i>Regular Offerings</i>	
Department of Foreign Languages, Literatures and Cultures <sup>1</sup>	
ARAB 101. First Semester Arabic <sup>2</sup>	4
ARAB 102. Second Semester Arabic <sup>3</sup>	4
ARAB 111. Intensive Arabic <sup>4</sup>	6
ARAB 212. Intensive Arabic II <sup>4</sup>	6
ARAB 231. Third Semester Arabic <sup>2</sup>	4
ARAB 232. Fourth Semester Arabic <sup>3</sup>	4
FL 490. Special Studies in Foreign Languages <sup>5</sup>	1-4
HUM 252. Turkey: Meeting of East and West	3
PERS 101. First Semester Persian <sup>2</sup>	4
PERS 102. Second Semester Persian <sup>3</sup>	4
PERS 231. Third Semester Persian <sup>2</sup>	4
PERS 232. Fourth Semester Persian <sup>3</sup>	4
School of Art, Design and Art History	
ARTH 332. Islamic Art and Architecture <sup>7</sup>	3
ARTH 424. Arts of Ancient Egypt <sup>7</sup>	3
ARTH 439. Medieval Jerusalem <sup>2</sup>	3
ARTH 446. Renaissance Art and the East <sup>7</sup>	3
Department of Anthropology and Sociology	
SOCI 342. Muslim Movements in the Middle East	3
Department of History	
HIST 269. Premodern Middle East <sup>2</sup>	3

REL 201. Introduction to Hebrew Bible/Old Testament <sup>5</sup>	3
REL 202. Introduction to the New Testament <sup>5</sup>	3
REL 305. Islamic Religious Tradition <sup>6</sup>	3
REL 320. Judaism <sup>6</sup>	3
REL 350. Islamic Law <sup>7</sup>	3
Department of Political Science	
POSC 354. Politics of the Modern Middle East <sup>2</sup>	3

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### Additional Courses

The following three-credit courses are offered at varying intervals and can count toward the MECM minor if they are structured to include substantial content relating to the foci and goals of the program. Contact the program coordinator to apply one of these courses to the MECM minor.

Additional Courses	Credit Hours
Department of Anthropology and Sociology	
ANTH 313. Processes of Social and Cultural Change	3
ANTH 373. Anthropological Perspectives on Environment and Development	3
SOCI 311. Sociology of the Environment	3
SOCI 321. Politics and Society	3
SOCI 348. Introduction to Developing Societies	3
SOCI 360. Social Movements	3
School of Art, Design and Art History	
ARTH 419. Topics in African Art	3
Department of English	
ENG 430. Studies in Comparative Literature	3
Department of Foreign Languages, Literatures and Cultures	
ARAB 330. Business Arabic	3
ARAB 339. Special Topics in Arabic Literature (Islamic World 600–1500)	
ARAB 340. Intermediate Arabic Conversation	3
ARAB 400. Arabic Advanced Conversation	3
ARAB 447. Special Topics in Arabic Civilization and Culture	3
ARAB 448. Special Topics in Arabic Linguistics: Adv. Arabic Grammar	3
Department of Political Science	
POSC 340. Political Development in the Third World	3
POSC 361. Topics in International Relations	3
POSC 371. Topics in Comparative Politics	3
Department of Philosophy and Religion	
REL 300. Selected Topics in Religion <sup>8</sup>	3
REL 309. Jihad in Islamic Traditions <sup>7</sup>	3

1 No more than nine credits of foreign language course work can be used toward minor requirements.

2 Offered every fall semester.

3 Offered every spring semester.

4 Offered May–June summer term only.

5 Offered every third semester.

6 Offered fall or spring semester.

7 Offered every two years.

8 Offered every fall and spring.

### Additional Information

The College of Arts and Letters departments offer a number of courses listed generically, usually at the 300- and 400-level (including disciplinary capstone and methodology courses, often numbered 395) that can also count toward the MECM minor under certain circumstances.

## Modern European Studies

*Dr. John A. Scherpereel, Coordinator*

Phone: (540) 568-3933 Email: scherpja@jmu.edu

Website: <http://www.jmu.edu/mes/minor.shtml>

The minor in modern European studies provides a cross disciplinary understanding of social dynamics in Europe from the Enlightenment (18th century) through the present. Modern European studies minors will be prepared for careers in public, private, non-profit, and educational institutions and will be able to apply critical insights on European culture, thought, history and society in their professions. All minors must attain proficiency in French, German, Italian, Spanish or another European Union language at or above the intermediate level (FL 232 or above).

Students must complete 18 credit hours in addition to the language requirement. These 18 credit hours must include six core credits and 12 elective credits. Six elective credits must cover culture and thought, and six elective credits must cover history and society. The minor's 18 credits must be distributed across at least three disciplines and must include at least one history course.

<b>Core</b>	<b>Credit Hours</b>
Choose two from the following:	6
HIST 202. Europe Since 1815	
HIST 382. Europe in the 20th Century	
POSC 344. Politics of the European Union	
POSC 345. Politics of Western Europe	
POSC 346. Politics of Central and Eastern Europe	
<i>Culture and Thought Electives</i>	
Choose two from the following:	6
ARTH 313. Masterpieces of Italian Renaissance Art	
ARTH 314. Masterpieces of Spanish Art	
ARTH 315. Masterpieces of British Architecture	
ARTH 316 or ARTH 316L. Masterpieces of British Art	
ARTH 372. Modern Art from 1900–1945	
ARTH 460. Nineteenth Century Art	
ARTH 466. Art and Nationalism <sup>1</sup>	
ARTH 469. Topics in Nineteenth Century Art	
ARTH 472. Modern Art Since 1945	
ENG 325. Romantic Literature	
ENG 327. The Gothic: Change and Continuity	
ENG 329. Victorian Literature	
ENG 330. The 19th–Century English Novel	
ENG 340. Modern British and Irish Literature	
ENG 341. Contemporary British and Irish Literature	
ENG 375. Irish and Anglo–Irish Literature	
ENG 412L/THEA 449L/HUM 200L. The London Theatre (London only)	
FR 308. Contemporary French Civilization	
FR 405. Nineteenth–Century French Literature	
FR 425. 20th Century French Literature	
FR 446. Special Topics in Linguistics, Literature or Civilization <sup>2</sup>	
FR 465. French Cinema, 1930–1980	
FR 466. Contemporary French Cinema	
GER 266. Contemporary German Literature in Translation	
GER 307. History of German Civilization	
GER 308. Contemporary German Civilization	
GER 405. The Age of German Classicism	
GER 426. Modern German Literature	
GER 465. German Cinema	
ITAL/HIST 308. Contemporary Italian Civilization	
ITAL 425. Modern Italian Literature	
ITAL 446. Special Topics in Italian Literature <sup>2</sup>	
ITAL 465. Italian Cinema	
ITAL 490F. Wine and Culture in Italy	

PHIL 344. Existentialism  
 PHIL 375. Nineteenth–Century Philosophy and Theology  
 PHIL 390. Special Topics in Philosophy<sup>2</sup>  
 PHIL 465. Topics in Modern Philosophy<sup>2</sup>  
 PHIL 468. Phenomenology  
 PHIL 470. Topics in Contemporary Continental Philosophy  
 PHIL 475. Philosophy Seminar<sup>2</sup>  
 POSC 316. Contemporary Political Theory  
 POSC 321. Political Theory and Ideology  
 REL/PHIL 375. The 19th Century: Age of Ideology  
 SMAD 463L. Film Adaptations  
 SPAN 307. Spanish Civilization  
 SPAN 335 or SPAN 335S. Introduction to Spanish Literature  
 SPAN 390. Spanish Poetry of the 20th Century  
 SPAN 405. Spanish Novels of the 19th and 20th Centuries  
 SPAN 406. Spanish Drama of the 19th and 20th Centuries  
 SPAN 461. Postwar Literature in Spain  
 SPAN 465 or SPAN 465S. Spanish Cinema and Literature

### *History and Society Electives*

Choose two of the following:

GEOG 332. Geography of Europe  
 HIST 202. Europe Since 1815<sup>3</sup>  
 HIST 301. European Military History  
 HIST 308. Contemporary Italian Civilization  
 HIST 321. European Women's History  
 HIST 341. Selected Themes in World History<sup>2</sup>  
 HIST 382. Europe in the 20th Century<sup>3</sup>  
 HIST 384. England and the Empire—Commonwealth  
 HIST 388. Germany Since 1871  
 HIST 462. The Rise and Fall of Nazi Germany, 1918–1945  
 HIST 478. Eastern Europe  
 HIST 484. 19th–Century European Civilization, 1815–1914  
 HIST 486. Europe Since 1914  
 HIST 487. World War II  
 HIST 488. The Holocaust in Global Context  
 HIST 489. Selected Topics in World History<sup>2</sup>  
 IB 298I. Special Topics in International Business (Salamanca only)  
 SMAD/SCOM/WRTC 360L. British Media and Society  
 POSC 344. Politics of the European Union<sup>3</sup>  
 POSC 345. Politics of Western Europe<sup>3</sup>  
 POSC 346. Politics of Central and Eastern Europe<sup>3</sup>  
 POSC 371. Topics in Comparative Politics<sup>2,3</sup>  
 POSC 371F. Comparative Politics: Italian Politics and Society  
 POSC 371S. Comparative Politics: Spain/US  
 POSC/SCOM/SMAD 472L. Media and Politics (London only)

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1 This course is taught every other fall on campus and is occasionally offered as part of JMU's short–term Study Abroad Summer Program in Berlin.

2 This course may only be used in the minor when its topic is relevant to the minor. Questions should be directed to the minor coordinator.

3 This course may not be double–counted toward the minor.

## Music and Human Services

*Dr. David Stringham, Coordinator*

Phone: (540) 568-5279 Email: stringda@jmu.edu

This minor will prepare students for vocational and avocational opportunities to use music performance, education, entrepreneurship and community engagement skills to serve diverse populations in human service settings. Students with interest and musical backgrounds are welcome.

Requirements for the minor are 18 credits; 15 credit hours from a set of core courses and three credits from electives.

<b>Degree Requirements</b>	<b>Credit Hours</b>
MUS 206. Introduction to Global Music	3

MUS 429. Introduction to Intentional Music	1
MUS 430. Music in Human Services: Experiences and Practicum	2
MUED 431. Psychology of Music	3
MUED 485. Teaching Music to Students with Special Needs	3
PSYC 250. Introduction to Abnormal Psychology <sup>1</sup>	3
Choose three credits from the following:	3
EXED 200. Nature and Issues of Disabilities (3 credits)	
EXED 300. Educational Technology for Students with Disabilities (1 credit)	
EXED 306. Lifespan Issues for Individuals with Disabilities (3 credits)	
EXED 440. Classroom Management and Professional Collaboration (3 credits)	
EXED 443. Assistive Technology Use for Individuals with Disabilities (3 credits)	
DANC 325. Dance in Community (2 credits)	
MUS 150. Introduction to Technological Applications in Music (1 credit)	

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<sup>1</sup> Access limited; additional sections offered during the summer.

## Non-Profit Studies

*Dr. Karen A. Ford, Minor Adviser*

Phone: (540) 568-6980 Email: fordka@jmu.edu

Website: <http://www.jmu.edu/socwork/nonprofit.html>

The nonprofit studies minor prepares students from a variety of disciplines to understand the unique role of nonprofit organizations in American society. Emphasis is placed on history, theory, legal issues and management topics. The minor includes a capstone seminar and a field experience in a nonprofit agency with the focus to be determined in conjunction with the adviser.

Required Courses	Credit Hours
NPS 300. Introduction to Nonprofits <sup>1</sup>	3
NPS 320. Nonprofit Management <sup>1</sup>	3
NPS 400. Internship/Practicum in Nonprofit Studies <sup>1</sup>	4-6
NPS 450. Nonprofit Studies Capstone Seminar <sup>1</sup>	3
Major elective (discipline specific) <sup>2</sup>	3
Elective <sup>2</sup>	3

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<sup>1</sup> Course has one or more prerequisites.

<sup>2</sup> A course to be determined in consultation with the nonprofit studies adviser.

## Political Communication

*Dr. Valerie A. Sulfaro, Coordinator*

Phone: (540) 568-3997 Email: sulfarva@jmu.edu

Website: [http://www.jmu.edu/commstudies/pc\\_minor.shtml](http://www.jmu.edu/commstudies/pc_minor.shtml)

The program in political communication is designed for those students wishing to supplement their major programs with an emphasis on communication skills, knowledge and abilities specifically relevant to participation in political environments. Students must complete a core set of courses, an internship in the field of political communication and a selection of electives.

All political communication minors are required to take a PCOM internship in the Department of Political Science or the Department of Communication Studies. Before enrolling for a PCOM internship, students should have attained junior status, completed the PCOM core requirements and taken at least one upper level PCOM course. Some academic units may have additional prerequisites for their internship course. All SCOM majors with a minor in PCOM are required to take SCOM 495 for their PCOM internship requirement (and to have met the prerequisites for this course). POSC, INTA and PPA majors minoring in PCOM must complete POSC 493 to fulfill the internship

requirement. All other majors may take either POSC 493 or SCOM 318 as a means of satisfying their internship. Before pursuing any internship, students must consult with the PCOM coordinator to ensure that the internship is suitable for the minor.

For majors in SCOM who minor in PCOM, a maximum of six credits of course work from the minor can be counted toward the requirements for the major. For SMAD majors, only three credits from the minor may be counted toward the major.

There is no limit on double counting between the POSC major and the PCOM minor. All students must complete 25-26 credit hours for the minor.

Required Courses	Credit Hours
POSC 225. U.S. Government	4
POSC/SCOM/SMAD 472. Media and Politics <sup>1</sup>	3
SCOM 353. American Political Culture and Communication	3
Choose one of the following:	3-4
POSC, PPA and INTA majors:	
POSC 493. Internship (4 credits)	
SCOM majors:	
SCOM 495. Internship (3 credits)	
Non-POSC and Non-SCOM majors:	
POSC 493. Internship (4 credits) or	
SCOM 318. Practicum in Communication Studies (4 credits)	
Choose one of the following: <sup>2</sup>	3
POSC 365. American Political Campaigning	
POSC 369. Parties and Elections	
Choose one of the following: <sup>3</sup>	3
SCOM 352. Communication and Social Movements	
SCOM 453. Political Campaign Communication	
Choose two of the following:	6
POSC 300. Film and Politics	
POSC 362. Political Behavior	
POSC 368. Interest Groups and Public Policy	
POSC 382. The Role of Religion in American Politics	
POSC 383. Women and Politics	
POSC 384. Minority Group Politics	
POSC 385. The U.S. Congress	
SCOM 342. Argument and Advocacy	
SCOM 346. Free Speech in America	
SCOM 354. Communication, Environment and Environmentalism	
SCOM/WRTC/WGS 420. Feminist Rhetoric	
SCOM 431. Legal Communication	

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<sup>1</sup> POSC 472 will not count toward this requirement.

<sup>2</sup> If both POSC 365 and POSC 369 are taken, one may be counted as an elective.

<sup>3</sup> If both SCOM 352 and SCOM 453 are taken, one may be counted as an elective.

## Pre-Professional Minors

Pre-professional health (PPH) minors are programs that outline recommended courses, activities and competencies for students who are preparing for careers in health professions that require masters or doctoral education. See the "Pre-Professional Health Advising" section for details.

## Robotics

*Dr. Nathan Sprague, Coordinator*

Phone: (540) 568-3312 Email: spragunr@jmu.edu

Website: <http://www.jmu.edu/cs/minors/robotics-minor>

The cross disciplinary minor in robotics is intended to offer STEM majors and students with an interest in science and technology

a fundamental understanding of scientific and technical issues involved in the design, construction and application of robots.

## Educational Goals

- Students will have a basic understanding of robot control systems, sensors, motion, circuits and the overall design of robots.
- Students will be able to design and develop autonomous robots and robot control software.
- Students will develop an understanding of how advances in robotics technology can be used in diverse real-life applications.
- Students will learn to work on a cross disciplinary team developing a technical product.

Required Courses	Credit Hours
Basic Preparation <sup>1</sup>	
Choose one of the following:	3-4
CS 139. Programming Fundamentals	
CS 149. Programming Fundamentals (Accelerated)	
ISAT 252. Programming and Problem Solving	
Choose one of the following:	4
MATH 232 or 235. Calculus I	
ISAT 151. Topics in Applied Calculus in ISAT	
Choose one of the following: <sup>2</sup>	4
ISCI 101 and 104. Physics, Chemistry and the Human Experience	
PHYS 240 + Lab. University Physics I (with any Physics Lab)	
ISAT 152. Topics in Applied Physics in ISAT	
Core Course	
Choose one of the following:	3
CS 354. Introduction to Autonomous Robotics	
PHYS 386. Robots: Structure and Theory	
Electives <sup>3</sup>	
Choose at least six credits from the following:	6-8
CS/ISAT 344. Intelligent Systems	
CS 444. Artificial Intelligence	
ISAT 331. Automation in Manufacturing	
MATH 238. Linear Algebra with Differential Equations	
MATH 248. Numerical Methods	
MATH 341. Nonlinear Dynamics and Chaos	
PHYS 371. Introduction to Digital Electronics	
PHYS 372. Microcontrollers and Their Applications	
Robotics Project Course	
CISE 481. Robotics Project Summary <sup>4</sup>	1

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1 A basic preparation course may be waived by the minor adviser if a student has completed a comparable course or experience.

2 Students who have completed the physical principles area of Cluster Three with a course not listed below should meet with the minor adviser.

3 At least one elective must be from a different department from the core course.

4 CISE 481 is intended to summarize a capstone robotics project experience. In order to register for CISE 481 students must have completed or be enrolled in an approved capstone, special topics, or independent study course that involves a robotics project. At the discretion of the robotics minor adviser, students may also qualify for CISE 481 by completing an internship, research experience or professional project that entails robotics design and/or development. Consult the minor adviser for more information.

## Russian Studies

*Dr. Stephany G. Plecker, Coordinator*

Phone: (540) 568-3578 Email: pleckesg@jmu.edu

Website: <http://www.jmu.edu/russianstudies>

This minor offers students a broad, cross disciplinary perspective on Russian culture, history, political institutions, economy and geography. It deepens the students' understanding and

knowledge of the Russian and non-Russian peoples of the former Soviet Union, and prepares them for careers in teaching, government and international business.

The Russian Studies minor requires 18 credits with a minimum of six credits of Russian language. Students should take courses in at least three different disciplines.

Courses	Credit Hours
ECON 312. Comparative Economic Systems	
HIST 385. The Russian Empire to 1881	
HIST 386. Russia and the Soviet Union 1881–1991	
HIST 474. Stalinism in Theory, Practice and Memory	
HIST 475. Modern Russia	
POSC 337. Russia and Post-Soviet Politics	
HUM 200. Great Works (Russian Literature in Translation)	
RUS 300. Russian Grammar and Communication	
RUS 308. Introduction to Russian Civilization	
RUS 315. Russian Phonetics	
RUS 320. Russian Oral and Written Communication	
RUS 400. Advanced Russian Conversation	
RUS 405. Russian Literature of the 19th Century	
RUS 406. Russian Literature of the 20th Century	
RUS 438. Studies in Russian Literature	
Students may include one course from the following:	
ECON 490. Special Studies in Economics	
FL 490. Special Studies in Foreign Languages (Russian)	
GEOG 490. Senior Project II	
HIST 399. Special Studies in History	
POSC 490. Senior Tutorial in Political Science	

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Special topics courses can be applied to the minor with approval of the program coordinator. Students may also earn credit by studying in a program in Russia or any of the former Soviet states.

## Science, Technology and Society

*Dr. Kevin L. Borg, Coordinator*

Phone: (540) 568-5761 Email: borgkl@jmu.edu

Science, technology and society (STS) is an internationally recognized field of cross disciplinary study that integrates philosophical, social scientific and humanistic studies to better understand the natural and human-built world. The minor offers students the opportunity to critically examine science, technology and medicine as methods for reasoning about and acting upon the natural world as expressions of human cultures, past and present.

Students learn to scrutinize the ideas, reasoning, values, practices and artifacts embedded in the world they inhabit today. They explore how choices made within various historical, social, economic and political contexts sometimes influence the development of science, technology and medicine. They also see how the adoption and diffusion of ideas, artifacts and techniques can then influence individuals, society, politics and culture. Courses in this minor draw students together from diverse majors across the campus and encourage open inquiry into the role of science and technology in society.

The minor in STS is open to all undergraduate students at JMU. Courses taken to complete the STS minor can also be used to satisfy the student's major and General Education requirements.

The STS minor requires 18 credit hours with at least one course each from the history, sociology and ISAT courses listed.

Required Courses	Credit Hours
Choose one:	3
ISAT 131. Technology, Science, and Society	
HIST 327. Technology in America	
SOCI 315. Science, Technology, and Society	
Elective courses	
Choose five from at least four different programs/majors:	15
ANTH 340. The Invention of Race	
ANTH 360. Medical Anthropology	
ANTH 373. Anthropological Perspectives on Environment and Development	
ARTH 303. History of Design	
ARTH 376. Modern Architecture	
CS 330. Societal and Ethical Issues in Computing	
GEOG 322. Agricultural Systems	
GEOG 325. Environmental Ethics	
GEOG 344. Economic Geography and Development Issues	
GEOG/ISAT 429. Sustainability: An Ecological Perspective	
HIST 305. History of Science and Christianity	
HIST 306. A History of the Body in the West	
HIST 326. The Automobile in 20th Century America	
HIST 327. Technology in America	
HIST 404. Science and Society in Early Modern Europe	
HIST 405. Travel and Exploration	
HIST 427. U.S. Environmental History	
HIST 443. Modern American Technology and Culture	
ISAT 231. Political Economy of Technology and Science	
ISAT 311. Role of Energy in Modern Society	
ISAT 411. Energy Economics and Policy	
ISAT 421. Environmental Policy and Regulation	
ISAT 456. Ethical, Legal and Social Implications of Biotechnology	
ISAT 464. Telecommunications in the Public Interest	
ISAT 471. Transportation: Energy, Environment and Society	
ISAT 477. Complex Systems and How They Fail	
PHIL 396. Philosophy of Physics	
PHIL 397. Philosophy of Space and Time	
PHIL 398. Philosophy of Quantum Theory	
PHIL 410. Philosophy of Science	
SOCI 311. Sociology of the Environment	
SOCI 366. Sociology of Knowledge	
SOCI 375. Medical Sociology	
WGS/ISAT 485. Gender Studies in Science	
WRTC 358. Writing About Science and Technology	
WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology	
WRTC 458. Scientific and Medical Communication	

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Special topics courses not listed can be applied to the minor with prior approval of the program coordinator.

## Sport Communication

*Dr. Isaac Woo, Coordinator*

Phone: (540) 568-3815      Email: woocw@jmu.edu

This minor consists of course work offered in communication studies, media arts and design, and kinesiology for students with an interest in sports media and communication.

Due to enrollment limitation in required courses, admission to JMU does not guarantee admission to the sport communication minor. Students interested in this program must apply for a limited number of spaces while first completing KIN 242 and SCOM 260. The School of Communication Studies reviews applications for admission to the sport communication minor. Students should complete the application (available from the school website) and

submit it by email to scom@jmu.edu. Students will receive an email acknowledging receipt of their application, which should be kept. Applications are due by November 15 (fall semester) and April 15 (spring semester). Students who have applied by these deadlines will be notified of the admission decision at the end of the semester in which they complete KIN 242 and SCOM 260. Admission is granted to the most qualified students as determined by their performance in these courses.

Students who are not admitted may file one additional application before the next regular academic year. Students reapplying must apply in two consecutive years of enrollment at the university. If a student reapplies after retaking KIN 242 and/or SCOM 260 (whether repeat or repeat/forgive), the school will look only at the highest grades earned when evaluating their second application.

Because of the curriculum sequence, it typically takes four consecutive semesters to complete the minor. Rising seniors typically cannot complete the minor by graduation. Some required courses are offered only one semester a year.

Once admitted, a student cannot retroactively apply more than nine hours of SCOM courses, including SCOM 260, to this minor.

This minor is open to any student at the university including SCOM majors, however, SCOM majors are limited to double counting no more than six credits to both their major and minor.

Required Courses	Credit Hours
KIN 242. Introduction to Sport Communication	3
KIN/SCOM/SMAD 243. Sport Communication Techniques – Broadcast	3
KIN/SCOM/SMAD 244. Sport Communication Techniques – Written	3
SCOM 260. Introduction to Public Relations	3
SCOM 318. Practicum in Sport Communication	3
SCOM 365. Sports Public Relations	3
SCOM 464. Communication, Culture and Sports	3
Choose one of the following:	2-3
KIN 304. History and Philosophy of Physical Education and Sport	
KIN 329. Psychological and Social Aspects of Sports	
SCOM/WGS 348. Communication and Gender	
SCOM 342. Argument and Advocacy	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM 350. Organizational Communication	
SCOM 370. Introduction to Health Communication	
SCOM 371. Talking Through Tough Cases: Ethical Principles and Practices	
Approved Special Topics Class in KIN or SCOM	

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## Substance Abuse Education

*Katherine Ott Walter, Adviser*

Phone: (540) 568-8972      Email: ottwalmk@jmu.edu

This cross disciplinary substance abuse prevention minor provides the student with the foundational knowledge and skills necessary to assist communities in designing evidenced-based prevention/education programs to encourage healthy attitudes and behaviors towards alcohol, tobacco and other drugs. Course work in this minor will help prepare the student for the Certified Prevention Professionals-ATOD exam, which they can take after one year of prevention-related paid work experience and additional prevention-specific training. Students must complete 18 credit hours from the categories outlined below. Students

must take one of the Alcohol, Tobacco and Other Drugs (ATOD) specific courses. The remaining 15 credits must be selected from the additional courses listed below, preferably one from each category. No more than three courses may be taken from a single subject area (PSYC, HTH, SOWK, etc.), and no more than three courses can count for both the student's major/additional minor and the substance abuse education minor.

Required Courses	Credit Hours
Alcohol, Tobacco and Other Drugs (ATOD) (Must select one of the following courses: HTH 378. The Use and Effects of Drugs SOWK/FAM/GERN 487. Special Topics in Social Work <sup>1</sup> JUST 347. Drugs, Politics and Society PSYC 285. Drugs and Behavior	3
Select five courses from the list of courses below (No more than three courses may be taken from a single subject area, i.e., PSYC, HTH, SOWK, etc.): Prevention, Education and Service Delivery HTH 351. Health Behavior Change JUST 221. Social Justice Theories JUST 301. Special Topics in Justice Studies <sup>1</sup> JUST 345. Restorative Justice PSYC 250. Introduction to Abnormal Psychology PSYC 308. Health Psychology PSYC 335. Abnormal Psychology SOWK 317. Skills for Generalist Social Work SOWK 386. Youth Empowerment Strategies SOWK 387. Working with Teenagers SOWK 487. Special Topics in Social Work <sup>1</sup>	15
Communication SCOM 370. Introduction to Health Communication SCOM 470. Health Communication Campaigns WRTC 484. Writing for Nonprofits WRTC 486. Writing in the Community WRTC 488. Writing in the Health Sciences	
Community Organizing FAM/GERN/NPS/SOW 375. Grant Writing for Agencies NPS 300. Introduction to Nonprofit Studies Public Policy and Environmental Change POSC 368. Interest Groups and Public Policy PPA 359. Policy Analysis PPA 462. Social Welfare and Local Policy WRTC/SCOM 326. Environmental Communication and Advocacy SOWK 335. Social Policy (SOWK majors only) HTH 420. Global Perspectives in Alcohol and Drug Policies <sup>2</sup>	
Planning and Evaluation HTH 458. Program Planning and Evaluation	

1 When topics are minor related, to be approved by the coordinator.

2 Offered in summer only.

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## Telecommunications

*Dr. Mohamed Aboutabl, Adviser*

Phone: (540) 568-7589 Email: aboutams@jmu.edu

Website: <http://www.jmu.edu/cs/minors/telecom-minor/index.shtml>

The cross disciplinary minor in telecommunications is designed to augment the student's major program with a package of courses that will prepare the graduate to obtain a position as a telecommunication/network professional and fill a societal need in one of the fastest growing areas of technology.

The program is developed as a minor principally for three major programs: computer science, integrated science and technology (for students not in the telecommunications concentration), and computer information systems. However, the program is open to any undergraduate with some computer background and an interest in telecommunications.

The telecommunications minor will instill knowledge of:

- Telecommunication terminologies, standards, policies and procedures.
- Basics of data transmission, digital signal processes and signaling hierarchies.
- Architectures, communications protocols and components of LANs, WANs and internetworks.
- The TCP/IP and ATM protocol suites.
- Switching, routing and traffic management in inter-networked environments.
- Voice, video and data transmission over IP and ATM.
- Application development for the internet.
- Distributed object systems programming and management.

Students are encouraged to check prerequisites. At most, four courses can be used to satisfy both the telecommunications minor and a student's major requirements.

Required Courses	Credit Hours
Choose one of the following: CIS 320. Telecommunications and Information Processing ISAT 360. Introduction to Networking and Security	3
ISAT 460. TCP/IP Networks	3
ISAT/CS 461. Internetworking	3
ISAT/CS 464. Telecom in Public Interest	3
Choose one of the following: CS 139. Algorithm Development CIS 221. Principles of Programming ISAT 252. Programing and Problem Solving	3-4
Choose one of the following: CS 458. Cyber Defense ISAT/CS 462. Network Applications Development ISAT/CS 463. Network Analysis and Design ISAT 465. Wireless Networking, Security and Forensics	3

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## Urban and Regional Studies

*Dr. Henry A. Way, Coordinator*

Phone: (540) 568-8186 Email: wayha@jmu.edu

The minor in urban and regional studies prepares students for careers or graduate training in government. While satisfying the B.A. or B.S. requirements of their chosen major, students may complement that major with a 24 credit hour minor in urban and regional studies drawn from the following courses.

Required Courses	Credit Hours
SOCI 265. Sociology of the Community	3
GEOG 376. Urban Geography	3
POSC 360. Urban Politics	3
ECON 475. Regional Economics	3
Choose from the following <sup>1</sup> : ECON 326. Public Finance ECON 340. Economics of Natural Resources FIN 210. Principles of Real Estate GEOG 315. Field Studies GEOL 310A–D/GEOL 310. Environmental Impact (2–3 credits)	12

GEOL 340. Soil and Land Use  
 POSC 302. State and Local Government  
 POSC 495. Internship in Political Science (4 credits)  
 SOCI 352. Birth, Death, Sex: Exploring Demography  
 SOCI 361. Bureaucracy and Society

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1 Must be in a discipline other than the student's major.

## Women's and Gender Studies

*Dr. Mary Thompson, Coordinator*

Phone: (540) 568-3758 Email: thompsmx@jmu.edu

Website: <http://www.jmu.edu/womenstudies>

This is an 18-credit hour cross disciplinary program that explores the scholarship related to gender and equity issues affecting women. In particular, women's and gender studies is concerned with gender as it intersects with multiple categories such as race/ethnicity, sexuality, economic class and age. This concern is framed by recognition of increased globalization and technological growth impacting social institutions and gendered identities. Students in women's and gender studies will develop academic frameworks for understanding gender, diversity and social justice; they will acquire knowledge and skills that prepare them for careers in advocacy and communications. This minor includes one required course, WGS 200.

Required Course	Credit Hours
WGS 200. Introduction to Women's and Gender Studies	3
Choose five of the following:	15
ANTH 360. Medical Anthropology	
ANTH 370. Topics in the Anthropology of Gender	
ENG 327. The Gothic	
ENG/WGS 368. Women's Literature	
ENG/WGS 369. Feminist Literary Theory	
ENG/WGS 370. Queer Literature	
ENG 423. Advanced Studies in Gender and Sexuality in Literature	
ENG/WGS 466. Studies in Women's Literature	
HIST 320. Women in United States History	
HIST 321. European Women's History	
HIST 326. The Automobile in 20 <sup>th</sup> Century American <sup>1</sup>	
HIST 327. Technology in America <sup>1</sup>	
HIST 448. Gender in Colonial Latin America	
HIST 449. Women and Fascism	
HIST 466. The Family, 1400-1800	
ISAT/WGS 485. Gender Issues in Science	
JUST/WGS 341. Gender and Justice	
MSCI/WGS 355. American Women at War	
PHIL/WGS 350. The Philosophy of Feminism	
POSC/WGS 383. Women and Politics in Comparative Perspective	
PSYC 310. The Psychology of Women and Gender	
REL 306. Women and Gender in Islam	
REL 315. Women and Religion	
SCOM/WGS 302. Third Wave Ecofeminism	
SCOM/WGS 348. Communication and Gender	
SOCI 336. Race and Ethnicity <sup>1</sup>	
SOCI 337. Sociology of Gender	
SOCI/WGS 347. Queer Theories of Gender and Inequality	
SOCI 354. Social Inequality	
SCOM/WRTC/WGS 420. Feminist Rhetorics	
SPAN 455. Women in Hispanic Literatures	
WGS 300. Special Topics in Women's and Gender Studies	

WGS 325. Gender and Violence  
 WGS/ANTH. Anthropology of Reproduction  
 WGS 400. Issues and Research in Women's and Gender Studies  
 WGS 490. Independent Studies in Women's and Gender Studies  
 WGS 492. Internship in Women's and Gender Studies  
 WGS 495. Special Topics in Women's and Gender Studies

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1 Final project must take gender as its topic

2 If research project addresses issue of gender.

3 May be repeated as topic varies

## World Literature

*Dr. Debali Mookerjee-Leonard, Coordinator*

Phone: (540) 568-3751 Email: mookerdx@jmu.edu

The undergraduate minor in world literature provides students with a chance to study literature from Africa, Australasia, Latin America, Middle East, Central Asia, East Asia, South Asia, and a special interest area (Native America, African America, Asian America, Caribbean, and sections of Continental Europe). By offering a broad yet substantial introduction to literatures produced beyond their traditional Anglo-American experience, the minor provides students with a bridge to new cultures and languages. Through a careful examination of literary traditions produced elsewhere, students will be encouraged to develop a clear understanding of the relationship between culture and literature as well as the capacity to think outside the parameters of their own cultural background.

Courses that contribute to this minor address both the cultural contexts from which the given works emerge and to which they respond, as well as the actual formal literary qualities of the works. By exploring various literary traditions, students will better understand how literature both reflects and interrogates culture. Students interested in the shape of tomorrow's world will benefit from this exposure to a global perspective on human cultures. This is also good foundation for students aiming to study, especially comparative literature, at the graduate level.

The program is sponsored jointly by the Department of English and the Department of Foreign Languages, Literatures and Cultures (FLLC). The minimum requirement for a minor in World Literature is 21 credits with a least 9 credit hours drawn from each department. No prior foreign language training is assumed or required. English is the medium of instruction for courses offered by the Department of English. While English is also the medium of instruction (and translations are used) for many FLLC courses, FLLC also offers literature courses taught in other European languages. Students will be able to submit work for these courses in English with the permission of the instructor.

When designing their plan of study, students should note that the gateway course and one 200-level course in foreign languages and literatures can count toward general education or major requirements, but no other courses in the minor program can. Students must take course work from the FLLC component in two or more language-literatures (e.g., French and Spanish or German and Russian). The program coordinator and the head of each of the sponsoring departments will have a list of world literature courses at the time of registration.

Students should consult the program coordinator about new courses and appropriateness of topics of special studies/special topics courses. Some of these courses may include several sections per term (e.g., HUM 200. Great Works) and only those sections indicated in the schedule of classes will satisfy the world literature requirement.

**Required Courses** **Credit Hours**

ENG 239. Studies in World Literature

Language Requirement: Intermediate level of a language other than mother tongue.

Choose courses out of at least three of the following areas:

Students should consult the coordinator for a list of courses available in each area.

Africa

Australasia

Latin America

Middle East

Central Asia

East Asia

South Asia

Special Interest Area (European Literature, African

American Literature, Native American

Literature, Caribbean Literature)<sup>1</sup>

<sup>1</sup> Students should consult the coordinator for a list of courses available in each area.

# Air Force Reserve Officers Training Corps

*Col. Patrick H. Donley, Ph.D., Department Head*

Phone: (434) 924-6831

Location: AFROTC Detachment 890

University of Virginia

P.O. Box 400188

Charlottesville, VA 22904-4188

Website: <http://www.virginia.edu/afrotc>

Email: [afrotc@virginia.edu](mailto:afrotc@virginia.edu)

Fax: (434) 982-2842

## Professor

Col. P. Donley, Ph.D.

## Associate Professors

D. Brown, C. Delawder, C. Ulman

## Mission Statement

The Air Force ROTC program is designed to recruit, educate and commission officer candidates through college campus programs based on Air Force requirements. Units are located at 145 college and university campuses throughout the United States and Puerto Rico. Students from schools near Air Force ROTC host institutions can attend classes through 1025 separate crosstown enrollment programs or consortium agreements.

## Goals

The Air Force Reserve Officers' Training Corps (AFROTC) at James Madison University is established under a cross-town agreement with the University of Virginia. JMU students will take AFROTC classes at the University of Virginia for JMU credit. AFROTC provides a program of leadership development that prepares college men and women for service as commissioned officers in the United States Air Force. After graduation, they assume active duty positions in both flying and non-flying specialties. To accomplish this, the Department of Air Science recruits, selects, retains and commissions officer candidates as second lieutenants in the United States Air Force. AFROTC:

- Provides ethics and values education, stressing the Air Force core values of integrity first, service before self and excellence in all we do.
- Prepares cadets to be commissioned as second lieutenants through a curriculum that develops leadership and management skills and provides opportunities to use these skills in a variety of practical applications.
- Provides an understanding of how to lead and influence small organizations, with a strong emphasis on personal integrity, honor and individual responsibility. The techniques of effective leadership and quality management are stressed to achieve mission accomplishment.
- Enhances the cadets' understanding of the role of the military in society and provides an in-depth orientation to history and tradition of the Air Force and how the Air Force serves the nation. This goal is reinforced by summer hands-on leadership training and career orientation opportunities at Air Force bases around the country.

- Provides programs and experiences that increase self-confidence, self-discipline, accountability, physical stamina, poise, and other traits essential to the development of a leader of character who is prepared to serve the nation in and out of uniform.

The curriculum and leader development programs of the Department of Air Science are mentally and physically challenging. Cadets learn basic military skills and participate in physical conditioning program starting in the first year. The program moves progressively from followership to leadership experiences and culminates with the fourth-year class cadets planning, organizing and administering all leadership training for the cadet wing. On-campus instruction is conducted both in the classroom by Air Force officers and in the field environment by both officer and cadet leaders. A demanding summer field training encampment prior to the junior year prepares the cadet for acceptance into the commissioning track.

Air Force ROTC offers four-, three- and two-year tracks. Four- and three-year track cadets must complete four credits of AFROTC academics prior to a four-week summer encampment. The three-year track cadets must complete both first and second year academic courses during their first year in ROTC. Students who have Junior ROTC, other-service ROTC, national guard, reserve or active duty military experience may request credit and advanced placement.

Unless the student earns an AFROTC scholarship, there is no service obligation inside the first two years of the four year program. However, all students who enter into the Professional Officer Course (the last two years) enter into a contractual obligation with the Air Force to serve on active duty upon commissioning.

After graduation and commissioning as second lieutenants in the Air Force, graduates serve in any number of career fields for a four-year active duty service commitment. Interested and qualified students may compete to become Air Force pilots, combat systems officers (CSO), air battle managers (ABM) or remotely piloted aircraft pilots (RPA). Successful pilot candidates serve a 10 year active duty service commitment, and CSO, ABM or RPA candidates incur a six year active duty service commitment after completion of career field training.

## Co-curricular Activities and Organizations

- Arnold Air Society
- Drill Team

## Special Admission and Retention Requirements

The Professional Officer Course is normally taken during the junior and senior years. Qualified students pursuing a commission as a second lieutenant are contracted and paid a subsistence allowance of \$300-\$500 per month. Cadets must maintain at least a 2.5 GPA, meet DoD medical fitness standards and meet Air Force physical fitness and weight control standards.

## Degree Requirements

The air science curriculum is divided into two phases:

<b>Phase One: General Military Courses</b>	<b>Credit Hours</b>
AIRS 100. Leadership Laboratory (every semester)	0
AIRS 110. The Foundations of the United States Air Force (fall, first year)	1
AIRS 120. The Foundations of the United States Air Force (spring, first year)	1
AIRS 210. The Evolution of Air and Space Power (fall, second year)	1
AIRS 220. The Evolution of Air and Space Power (spring, second year)	1
	<hr/>
	4

<b>Phase Two: Professional Officer Courses</b>	<b>Credit Hours</b>
AIRS 100. Leadership Laboratory (every semester)	0
AIRS 310. Concepts of Air Force Leadership and Management (fall, third year)	3
AIRS 320. Concepts of Air Force Leadership and Management (spring, third year)	3
AIRS 410. National Security Affairs/Preparation for Active Duty (fall, fourth year)	3
AIRS 420. National Security Affairs/Preparation for Active Duty (spring, fourth year)	3

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The Leadership Laboratory (LLab) course taken during the first year is a weekly laboratory that touches on the topics of Air Force customs and courtesies, health and physical fitness, and drill and ceremonies. The second year LLab course provides students with the opportunity to demonstrate fundamental management skills and prepares them for Field Training. The third year LLab course provides the opportunity to develop fundamental management skills while planning and conducting cadet activities. Finally, the fourth year LLab course provides the opportunity to use leadership skills in planning and conducting cadet activities. It prepares students for commissioning and entry into the active-duty Air Force.

## AFROTC Scholarships

Merit-based financial scholarships may be offered to highly academically competitive and qualified students already enrolled in the program. Awardees may be offered an AFROTC scholarship for full or partial college tuition, incidental fees and textbook allowances and a monthly subsistence allowance of \$300-\$500 depending on academic year. Scholarship students incur a military obligation after their first year.

# Center for Materials Science

*Dr. Samuel Morton, Director*

Phone: (540) 568-2723

Location: 901 Carrier Drive, MSC 4502

Email: mortonsa@jmu.edu

Website: <http://csm.jmu.edu/materialsscience>

## Mission Statement

The educational mission of the Center for Materials Science is to develop and maintain an innovative cross disciplinary and multidisciplinary undergraduate program in materials science that will increase the maturation of students, their research experience and their employment opportunities. The mission includes the integration of undergraduate education with basic and applied research in materials science.

## Goals

- To develop an undergraduate cross disciplinary curriculum in materials science.
- To integrate undergraduate education with basic and applied research.
- To increase funding for applied and basic research in materials science. (Faculty and students focus on problems of interest to industry and government in materials processing, materials characterization, materials applications and thermal sciences including thermal structural interactions and infrared analysis.)

## Minor Requirements

The minor in materials science includes four major components:

- Choice of an entry-level introductory course in materials science.
- Lecture or laboratory course that emphasizes more specialized areas in materials science.
- Materials science electives that can include all specialized courses.
- Research or an additional materials science lecture or laboratory experience.

Courses for the minor are offered through the departments of chemistry, geology and environmental studies, integrated science and technology, mathematics, and physics.

Courses	Credit Hours
Choose one of the following:	3
MATS/PHYS/CHEM 375. An Introduction to Materials Science	
MATS/GEOL 395. Geologic Perspectives in Materials Science	
MATS/ISAT 430. Materials Science in Manufacturing	
Choose one of the following:	3
MATS/PHYS 381. Materials Characterization	
MATS/ISAT 432. Selection and Use of Engineering Materials and Manufacturing Processes	
MATS/ISAT 436. Micro-Nanofabrication and Applications	
Materials Science Electives	9
Research or additional materials science laboratory course	3

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## Concentration Requirements

The concentration in materials science consists of 12 credits hours of course work approved by the student's adviser and by the director of the center. Appropriate courses may be chosen

from materials science offerings in the areas of chemistry, geology and environmental studies, integrated science and technology, mathematics, and physics. This concentration must be pursued in conjunction with a designated major in chemistry, geology and environmental studies, integrated science and technology, biology, mathematics, and physics.

Courses	Credit Hours
Choose one of the following:	3
MATS/PHYS/CHEM 375. An Introduction to Materials Science	
MATS/GEOL 395. Geologic Perspectives in Materials Science	
MATS/ISAT 430. Materials Science in Manufacturing	
Materials Science Electives	6
Research or Materials Science Laboratory Course	3

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## Research in Materials Science

Register for Research in Materials Science under one of the following:

- CHEM 497. Undergraduate Research (in materials science, 2-4 credits)
- GEOL 497. Problems in Geology (in materials science, 1-3 credits)
- ISAT 491, 492, 493. Thesis (in materials science, 6 credits)
- PHYS 498R. Undergraduate Physics Research (in materials science, (2-4 credits)
- MATS 498R. Undergraduate Materials Science Research (1-3 credits, repeatable to 6 credits)

## Materials Science Elective Courses

Courses	Credit Hours
GEOL 300. Introduction to Petrology	3
MATS/PHYS 337. Solid State Physics	3
MATS/PHYS 381. Materials Characterization (Lecture/Lab)	3
MATS 382. Microfabrication Laboratory (Lecture/Lab)	3
PHYS 380. Thermodynamics and Statistical Mechanics	3
or CHEM 331. Physical Chemistry I	3
MATS/ISAT 431. Manufacturing Processes	3
MATS/ISAT 432. Selection and Use of Engineering Materials and Manufacturing Processes	3
MATS/ISAT 436. Micro-Nanofabrication and Applications	3
CHEM 445. Polymer Chemistry	3
MATS/GEOL 396. X-RAY Characterization of Solid Materials	3
Special topics in materials science registered under:	
CHEM 480. Selected Topics in Chemistry (materials science)	1-3
GEOL 398. Topics in Geology (materials science)	1-4
ISAT 480. Selected Topics in ISAT (i.e., light metals)	1-4
MATH 483. Selected Topics in Applied Mathematics (materials science)	3
MATS 498R. Undergraduate Materials Science Research	3
PHYS 497. Topics in Physics (materials science)	1-4

## Academic Advising

Faculty members in the Center for Materials Science are dedicated advisers who will assist students in developing a minor that will enhance their academic experience with the goal of improving their employment and post-graduate opportunities.

# Environmental Programs

Website: <http://www.jmu.edu/environment>

At JMU, environmental study is embedded in a variety of disciplines. Students from throughout the university have the opportunity to study environmental issues by majoring in an environmental program or choosing a minor that complements any major.

## Majors and Concentrations

Students wishing to major in a field that addresses the environment can choose from the following:

### Biology (B.S.)

The biology major offers a concentration in ecology and environmental biology.

### Earth Science (B.A.)

The B.A. in Earth science degree is designed to integrate all the Earth sciences in a systems approach to understanding the Earth.

### Economics (B.A., B.S. and B.B.A)

Students can pursue a concentration in environmental and natural resource economics within the economics major.

### Engineering (B.S.)

The JMU engineering program empowers and motivates students to engineer systems for sustainable societies.

### Geographic Science (B.S.)

The geographic science major, housed in the Department of Integrated Science and Technology, offers a concentration in environmental conservation, sustainability and development.

### Geology (B.S.)

Within the geology major, students can select a concentration in environmental and engineering geology.

### Integrated Science and Technology (B.S.)

The ISAT major offers a concentration in environment.

## Minors

Any of the environment minors may be taken in conjunction with any STEM (Science, Technology, Engineering and Mathematics) area major. They also may be taken in conjunction with a major from any other JMU academic area in order to explore environmental issues from differing perspectives. The minor coordinators can assist a student in selecting a combination of major and minor study that best responds to a student's particular environmental interests and career goals.

Students should be aware that most minors have prerequisites, meaning that certain courses must be completed before a student can enroll in other courses. Consult with the minor adviser for additional information and recommendations for scheduling.

### Environmental Humanities

This cross disciplinary minor allows students to articulate broad historical and cultural views of the complex interactions among humans and the natural and material environment. Students will

analyze and produce expressive, creative work that illustrates the complexity of human interaction with the environment.

### Environmental Information Systems

The cross disciplinary minor in environmental information systems is designed for undergraduates interested in using computer and information management technology to solve environmental problems and improve environmental stewardship.

### Environmental Management

The cross disciplinary environmental management minor prepares students to apply the principles of environmental science and engineering to contemporary environmental problems in natural resource, industrial and public policy contexts. The minor is particularly suitable for students interested in professional careers in business, natural resources management, and environmental policy and planning.

### Environmental Science

The cross disciplinary environmental science minor draws from courses that focus on the application of scientific concepts and principles to the understanding of environmental problems and their solutions. This is a multidisciplinary program that can be elected by any student. For example, students pursuing programs ranging from the physical, natural or social sciences, to education, journalism or business, all benefit from this broadly based environmental curriculum.

### Environmental Studies

The cross disciplinary environmental studies minor provides a cross disciplinary education engaging socio-cultural, scientific and technical issues raised by the oft-conflicting needs and desires of globally interacting societies.

## Centers

### Center for Materials Science

<http://csm.jmu.edu/materialsscience>

The Center for Materials Science at James Madison University was established in 1996 as a resource to integrate undergraduate education with basic and applied research in materials science. The center is a cross disciplinary initiative of the College of Integrated Science and Engineering, the College of Science and Mathematics, and the School of Engineering. Faculty in five different departments participate in the center. The center provides students the opportunity to develop broad cross disciplinary skills and knowledge in the science of materials.

### Center for Health and Environmental Communication

*Dr. Peter Bsumek, [bsumekpk@jmu.edu](mailto:bsumekpk@jmu.edu)*

*Dr. Sharlene Thompson, [thompssr@jmu.edu](mailto:thompssr@jmu.edu)*

<http://www.jmu.edu/chec/>

The Center for Health and Environmental Communication (CHEC) is housed in the School of Communication Studies. The CHEC utilizes the expertise of the school's faculty and students to facilitate original academic research, coordinate community

outreach and advocacy projects, and serve as a community resource on matters related to understanding and improving public and private communication in the health and environmental contexts.

The CHEC recognizes that how we communicate is as important as what we communicate. Central to its mission is facilitating constructive and productive communication between experts and non-experts, between clients and providers, between communities, and between community members and decision makers.

## JMU Farm

*Faculty Sponsor: Dr. Carole Nash*

Phone: (540) 568-6805      Email: [nashcl@jmu.edu](mailto:nashcl@jmu.edu)

The JMU farm, located in Port Republic, consists of 12 hectares (30 acres) of second growth forest, 300 meters (1000 feet) of frontage on the North River (just upstream of the formation of the Shenandoah River) and an historic brick house. This facility is intended to:

- provide an ideal space in which to disseminate environmental information to school students and community groups.

- support on-going JMU student projects involving air quality, surface and ground water quality, and alternative energy systems.
- provide an inviting off-campus venue for workshops, meetings and symposia.

The facility can be reserved for JMU-related events by contacting the Office of Academic Resources at (540) 568-3744.

## Research and Outreach Programs

### Collaboration for Environment, Health and Safety

<http://www.jmu.edu/cehs>

### Institute for Energy and Environmental Research

<http://www.jmu.edu/ieer/index.shtml>

### Office of Environmental Stewardship and Sustainability

<http://www.jmu.edu/stewardship>

# Institute for Innovation in Health and Human Services

*Dr. Rhonda M. Zingraff, Director*

Phone: (540) 568-2705

Location: Health and Behavioral Studies Building, Room 5051B

Email: [zingrarm@jmu.edu](mailto:zingrarm@jmu.edu)

Website: <http://www.iihhs.jmu.edu>

## Mission

The Institute engages students in career preparation by promoting scholarship, providing interprofessional learning experiences, and connecting our campus with communities through innovative programs that advance quality of life.

The following centers, programs and activities connect our campus with communities while advancing scholarship and achieving exceptional learning experiences.

### Alvin V. Baird Attention and Learning Disabilities Center

Director: Dr. Trevor Stokes, [stokestf@jmu.edu](mailto:stokestf@jmu.edu)

The mission of the Alvin V. Baird Attention and Learning Disabilities Center is to develop and promote evidence-based interventions for children and adolescents with attention and learning challenges, while educating families, teachers, students and professionals about best practices for their assessment and treatment. Attention and learning factors are present across a range of developmental and psychological disorders, which are the focus of activities at the Baird Center. These include: attention deficit hyperactivity disorders, autism and pervasive developmental disorders, disruptive behavior disorders, mood disorders and psychological factors related to medical conditions.

### Blue Ridge Area Health Education Center

Director: Deb Stranges, [strangda@jmu.edu](mailto:strangda@jmu.edu)

The Blue Ridge Area Health Education Center (AHEC) at JMU strives to improve the health of communities through education, collaboration and cooperation. It focuses on the health care needs of vulnerable populations. The AHEC fosters partnerships that utilize academic and community resources and directs these resources to health and human service gaps that exist within communities. The AHEC program has been a traditional link between academic health and human services programs and communities, utilizing student, faculty and other academic resources to the benefit of the communities.

### Campus Suicide Prevention Center of Virginia

Director: Dr. Jane Wiggins, [wigginjr@jmu.edu](mailto:wigginjr@jmu.edu)

The goal of the Campus Suicide Prevention Center of Virginia is to reduce risk for suicide on Virginia's college and university campuses. Specifically, this program supports the individuals and teams on each campus as they work to build the infrastructure necessary to promote mental health for all students, identify and

support those with mental health concerns, and effectively respond to individuals who are at risk for suicide.

## Caregivers Community Network

In partnership with the Valley Program for Aging Services (VPAS), Community Network (CCN) provides services, companionship and support for those who care for frail older family members. CCN also provides services for those with memory loss or Alzheimer's disease. CCN can help to give caregivers a break and provide valuable time for attention to family concerns. Services are evidence-based and customized for each individual.

## CASA for Children

Executive Director: Juan Pablo Molina, [molinajp@jmu.edu](mailto:molinajp@jmu.edu)

Court Appointed Special Advocates (CASA) for Children recruits, trains and supports volunteers to work with children who have undergone abuse and neglect in our communities. CASA volunteers offer judges the information they need to ensure that each child's rights and needs are addressed while in foster care. These volunteers advocate for children until they have a permanent home and the opportunity to thrive. Outcomes include improved family relationships, improved school accomplishments and brighter horizons for adulthood roles.

## Claude Moore Precious Time Pediatric Respite Care Program

Faculty Director: Melissa Leisen, [leisenmc@jmu.edu](mailto:leisenmc@jmu.edu)

Program Director: Eric Schmucker, [schmuced@jmu.edu](mailto:schmuced@jmu.edu)

The Claude Moore Foundation awarded this program grant funds to provide respite care to families who have special needs children. This respite program relies on students from nursing, social work, psychology, and other health and human service majors to provide caregivers with supportive assistance in meeting the demands of their family responsibilities.

## Community Health Interpreter Service

Program Coordinator: Natalia Alvarez, [alvarenj@jmu.edu](mailto:alvarenj@jmu.edu)

Director: Deb Stranges, [strangda@jmu.edu](mailto:strangda@jmu.edu)

Linguistic and cultural barriers seriously compromise the quality of health care received by hundreds of Shenandoah Valley residents. To address this challenge, the Community Health Interpreter Service provides training to bilingual persons to serve as interpreters for persons with limited English proficiency during health care encounters. The program schedules interpreters upon request from area health care providers.

## Counseling and Psychological Services

*Director: Dr. Tim Schulte, schulttj@jmu.edu*

Counseling and Psychological Services (CAPS) is a teaching, research and service mental health clinic. CAPS offers affordable outpatient mental health services to the Harrisonburg and Rockingham County community while providing students in the Department of Graduate Psychology experience in assessment and treatment of psychological problems. CAPS is equipped to provide individual, couple, and family therapy as well as to conduct intellectual and psychological assessments across the lifespan.

## Crossroads to Brain Injury Recovery

*Director: Tamara Wagester-Subrick, wagesttx@jmu.edu*

Crossroads to Brain Injury Recovery, a partnership program, implements a multi-year region-wide grant to provide case management and supportive services to families and individuals recovering from brain injuries. It assists with access to services for re-learning daily living skills and with strategies for returning to school or work.

## Futuro-Latino Drug Free Communities

*Coalition Coordinator: Boris Ozuna, ozunauba@jmu.edu*

*Director: Deb Stranges, strangda@jmu.edu*

Through a broad coalition of community, faith and school leaders as well as public officials, Futuro- Latino works to reduce and prevent alcohol and substance use among Latino youth throughout Harrisonburg and Rockingham County. The coalition evaluates local data to identify when and where potential underage drinking and drug use may occur and pursues a variety of environmental strategies to reduce availability and accessibility. The program supports development of youth leaders through national conferences as well as local leadership opportunities.

## Healthcare for the Homeless Suitcase Clinic

*Program Coordinator: Pat Kennedy, kennedpa@jmu.edu*

The Healthcare for the Homeless Suitcase Clinic provides health care at the point of contact in local shelters and human service agencies. Specifically, it provides on-site primary care services to homeless clients enrolled in local shelters while simultaneously providing case management services as needed. Staffed by a nurse practitioner and nurse case manager, this new model of healthcare delivery to homeless populations exemplifies a model of service that aims to break the cycle of homelessness by providing healthcare delivery with positive long term results.

## Health Education Design Group

*Director: Pat Kennedy, kennedpa@jmu.edu*

The Health Education Design Group (HEDG) produces educational media in partnership with Virginia agencies and JMU programs. HEDG brings together expert research and a skilled media production team to develop creative video and online educational and training materials for health-related projects. It also works with agencies to plan and coordinate conferences and other live training sessions.

## Healthy Families Page County (HFPC) & Healthy Families Shenandoah County (HFSC)

*Program Director: Emily Akerson, akersoek@jmu.edu*

*Program Manager: Yvonne Frazier, frazieyh@jmu.edu*

Healthy Families programs are based on a national program model and the two that operate in IIHHS provide education, resources and support for the most vulnerable first-time parents in Page and Shenandoah Counties through voluntary home visiting services.

## Interprofessional Autism Services Clinic

*Director: Dr. Trevor Stokes, stokestf@jmu.edu*

The Interprofessional Autism Clinic provides in-depth assessment and multi-disciplinary intervention for children ages 3-5 years old with Autism or suspected Autism. The clinic is staffed with a licensed occupational therapist, a licensed speech and language pathologist, and a licensed clinical psychologist, in addition to graduate and undergraduate students enrolled in each of these academic programs. The clinic merges intervention methods from these disciplines and approaches can be individualized to meet each child's unique needs.

## Interprofessional Services for Learning Assessment

*Director: Dr. Tim Schulte, schulttj@jmu.edu*

The ISLA program offers diagnostic evaluation, consultation and support services for adults enrolled in a college or university. Evaluation teams consisting of professionals from clinical psychology, communication sciences, clinical neuropsychology, special education and nursing identify areas of need and design positive ways to promote meaningful learning and educational experiences.

## Occupational Therapy Clinical Education Services

*Director: Elizabeth Richardson, richaree@jmu.edu*

A pediatric occupational therapy practice established to address a significant gap in locally available occupational therapy services, this clinic offers teaching, research, practice and service opportunities, and expands the interprofessional education and practice capacities of the university.

## Office on Children and Youth

*Director: Kim Hartzler-Weakley, hartzlkm@jmu.edu*

The Office on Children and Youth (OCY), a partnership program, promotes positive youth development through collaborations with youth-serving organizations. It serves as a central point of contact for services for children and youth in the Shenandoah Valley to support, coordinate and examine the needs of our children and youth. OCY analyzes trends in risk behaviors and produces data which enables the community to develop priority areas for youth programs.

## Promotores de Salud Program

*Program Coordinator: Carmen*

*Moreno, morenocx@jmu.edu*

*Director: Deb Stranges, strangda@jmu.edu*

Promotores de Salud, a Hispanic lay health promoter program, trains Hispanic women and men to be lay health resource persons in their community. Promotores focus on specific health issues within the Hispanic community, providing family, friends, neighbors and co-workers with effective and culturally-appropriate health information. The program provides a cultural bridge between Hispanic residents and health and human services providers, reducing health disparities and fostering healthy living for all in our community.

## The Reading Road Show, Gus Bus Program

*Program Coordinator: Jolynne Bartley, bartl2jx@jmu.edu*

*Director: Michael Maurice, mauricma@jmu.edu*

This initiative is a mobile literacy program serving low-income neighborhoods and day care centers in Harrisonburg, Rockingham County and Page County with a customized vehicle that provides a book exchange program, story time, nutritional support and resource referral information for families in need.

## Shenandoah Valley Child Development Clinic

*Program Director: Kim Hartzler-Weakley,*

*hartzlkm@jmu.edu*

*Clinic Director: Ginger Griffin, griffigl@jmu.edu*

The Shenandoah Valley Child Development Clinic (CDC) provides individualized, cross disciplinary evaluations that may include medical, social work, nursing, educational, psychological, speech/language and audiology components depending upon the specialized needs of the child/adolescent.

Children/adolescents evaluated may have developmental, educational, emotional or behavioral concerns. The CDC provides care coordination services and assists families in decisions that address their developmental, educational, emotional or behavioral concerns. Services are provided on a sliding fee scale and Medicaid/FAMIS are accepted. Training opportunities are available in the CDC for students from a variety of disciplines.

## Shenandoah Valley Migrant Education Program & Future Forward

*Lead Advocate: Kathleen Stoehr, chris2kd@jmu.edu*

*Director: Michael Maurice, mauricma@jmu.edu*

The Migrant Education Program provides free, supplemental education services to children and youth aged 3-21 of migrant and highly mobile agricultural workers. Services include tutoring/mentoring, school readiness initiatives, dropout prevention activities, educational interpretations (Spanish/English) and facilitation of families' stabilization in the community. The SVMEP serves as a point of contact for the Hispanic Services Council, a networking organization of agencies interested in the Latino population.

## Speech-Language-Hearing Applied Laboratory

*Director: Susan Ingram, ingramsb@jmu.edu*

The JMU Speech-Language-Hearing Applied Laboratory, formerly referred to as the JMU Speech and Hearing Center, provides communication evaluation and treatment services to individuals with known or suspected speech and/or hearing impairments.

This center assists residents of the Shenandoah Valley ranging in age from infants to senior citizens. Hearing testing and aid advising is available for those with concerns regarding hearing. Evaluation and treatment of communication impairments, including speech, sound disorders, language impairments, voice disorders and stuttering problems, are additional services offered in the applied laboratory.

Graduate students supervised by faculty who are licensed audiologists or speech-language pathologists serve as clinicians in this lab.

## Teen Pregnancy Prevention Initiative

*Program Coordinator: Kati Derrick, derrickc@jmu.edu*

*Director: Michael Maurice, mauricma@jmu.edu*

The Teen Pregnancy Prevention (TPP) program is designed to help teenagers make healthy choices and avoid risky behaviors with special emphasis on teen sexual activity and drug and alcohol use. TPP presents the best practices in school- and community-based prevention services.

## The Health Place

*Director: Emily Akerson, akersoek@jmu.edu*

The Health Place, a satellite of the Institute for Innovation in Health and Human Services, promotes collaborative and interprofessional health and human services that are affordable, accessible, responsive to and advance the health needs of Page County residents.

## Training/Technical Assistance Centers

*Co-Directors: Cheryl Henderson, hendercl@jmu.edu*

*John McNaught, mcnaugjt@jmu.edu*

The mission of Virginia's Training/Technical Assistance Centers (T/TAC) is to improve educational opportunities and contribute to the success of children and youth with disabilities (birth through 22 years). The centers provide quality training and technical assistance in response to local, regional and state needs. T/TAC services increase the capacity of schools, school personnel, service providers and families to meet the needs of children and youth. The Region 5 T/TAC serves as the fiscal agent for the Northwestern T/TAC Consortium, which includes the Region 4 T/TAC located at George Mason University.

## Valley AIDS Network

*Executive Director: Paloma Saucedo, saucedpx@jmu.edu*

The Valley AIDS Network (VAN) provides case management, medical and dental assistance, transportation support, client advocacy, housing assistance, and nutritional support services to people living with HIV/AIDS in this region. Through information, education, outreach and referral, VAN aims to prevent the spread of the HIV virus in the Central Shenandoah Valley.

# Mahatma Gandhi Center for Global Nonviolence

*Dr. Terry Beitzel, Director*

Phone: (540) 568-5846

Location: Moody 107A, MSC 1205

Email: [GandhiCenter@jmu.edu](mailto:GandhiCenter@jmu.edu); [beitzedt@jmu.edu](mailto:beitzedt@jmu.edu)

Website: <http://www.jmu.edu/gandhicenter>

## Mission

Our mission is to promote nonviolence and justice through education, scholarship and service.

## Leadership

The Gandhi Center is led by advisory committees composed of faculty and community members who work closely with the director in articulating and implementing our vision. The Gandhi Center has sponsored two outstanding Nobel Laureate visits and encourages a range of center activities through its example and enthusiasm. The director reports to the head of the Department of Justice Studies.

## Teaching

Students can take courses for university credit through academic units in association with the Gandhi Center. The Gandhi Center brings students and faculty together for discussion, learning and outreach. Faculty and community members provide regular workshops and seminars designed to advance the study and understanding of nonviolent solutions to human conflict. Faculty affiliated with the Gandhi Center are invited to make use of the center's special topics course and to assist in sponsoring student-led volunteer projects. Our teaching and outreach reaches across disciplines, engaging students and faculty from across campus in the peace-making projects of the center. The center works closely with groups across campus with similar goals and assists in sponsoring lectures from visiting scholars who promote the goals of global justice.

## Research

The Gandhi Center supports research across disciplines with particular emphasis on scholarship that bridges theory and practical application: theories and critiques of nonviolence; transnational and cross-cultural dimensions of nonviolence nonviolent praxis through everyday modes of living; alternative visions of nonviolent approaches to human relations and world affairs; and alternative moral and political theories. Additionally, nonviolent solutions to conflict from a variety of religious, social and cultural traditions are consulted as partners and heirs to the Gandhian traditions, as we seek the widest possible portfolio for understanding and ameliorating human conflict. We recognize the leadership and contributions of great men, women and groups of every nation and region in our mission. The center has hosted both student and international conferences and the Indian government has provided a scholar to serve as the Gandhi Chair. The center is an active participant in the international Peace and Justice Studies Association.

## Student Associates and Interns

Recognizing that the work of our students is the lifeblood of the Gandhi Center, we facilitate and support a number of student-led and implemented programs. These have included a number of events and programs: gandhiFEST, The Global Nonviolence Peace Camp for Children; an international art contest, "Drawing Peace," "Journaling for Peace," "The Gandhi Center Refugee Integration Partnership" and Alternative Weekend/Break building projects in the community. Service and the promotion of nonviolence are central for each volunteer and intern at the center. Students are asked to serve as associates at the center for at least one semester prior to applying for an internship. Internships may be taken for academic credit, at the discretion of the director. The program began in 2006.

## The Gandhi Award/Service Award

The Mahatma Gandhi Global Nonviolence Award is bestowed upon individuals with global recognition who believe humans everywhere are to be peacemakers, support nonviolence, love their enemies, seek justice, share their possessions with those in need and express and demonstrate these beliefs in their words, life and actions. The inaugural award was given in 2007 to the Most Reverend Desmond Tutu, Archbishop Emeritus of Cape Town, South Africa and 1984 Nobel Peace Laureate. The second award was given in 2009 jointly to former U.S. President and 2002 Nobel Peace Laureate Jimmy Carter and former first lady Rosalynn Carter.

The Service Award is presented to a local community member who advanced nonviolence and social justice. In 2013 Dr. Vida Huber and Dr. Howard Zehr were the inaugural recipients. PAX received the award in 2015.

## The Gandhi Statue

The government of India has presented a larger than life-size bronze statue of Mahatma Gandhi as a gift to the university in recognition of the work of the Gandhi Center. The statue was dedicated and unveiled on October 2, 2008, the International Day of Nonviolence and the birth anniversary of the Mahatma, by His Excellency Ronen Sen, Ambassador of India to the United States of America. The statue, which is located on the ground floor of JMU's Rose Library, is the first of Mahatma Gandhi in the Commonwealth of Virginia.

# Nelson Institute for International and Public Affairs

*Dr. Peggy S. Plass, Director*

Phone: (540) 568-7151

Location: Moody Hall, Room 213, MSC 1205

Email: [plassms@jmu.edu](mailto:plassms@jmu.edu)

Website: <http://www.jmu.edu/nelsoninstitute>

## Mission

Nelson Institute for International and Public Affairs is a concrete manifestation of James Madison University's commitment to meet both the educational requirements of its students in a changing world and its own need to respond to the "real world" challenges faced by society today.

## Goals

The institute advances several university priorities:

- Offering quality academic programs.
- Being innovative in developing programs.
- Developing optimal student competencies in written and oral communication, critical thinking, information systems, and quantitative literacy.

## Activities

The Nelson Institute Seminars provide justice studies majors and other interested JMU students the opportunity to engage in directed, practical, problem-solving exercises in the field of justice studies in small group ("task force") settings under the supervision of a faculty member.

The seminars provide a space where students are charged with finding a solution to a contemporary policy problem. They offer a unique opportunity for students to engage in policy-oriented research that integrates classroom instruction, out-of-class group learning activities, and civic engagement and service learning opportunities. The institute also provides students with the opportunity to present their findings to a regional or national audience.

As a complement to the seminars, the Nelson Institute brings guest speakers to JMU who are experts in the subject of the seminar to enhance the learning experience. Funding is made available to help students present their research at regional and national conferences as well as to travel to talk with government, NGO and private sector officials about the policy problem they are working on. Students present their results at a variety of venues including the College of Arts and Letters' student conference, Mad Rush, the conference organized by the Department of Foreign Languages and Literatures and Cultures, and regional conferences such as the Virginia Social Science Association meeting.

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# School of Accounting

*Dr. Michael Riordan, Director*

Phone: (540) 568-3027

Location: Zane Showker Hall, Room 334

Email: [riordamp@jmu.edu](mailto:riordamp@jmu.edu)

Website: <http://www.jmu.edu/cob/accounting>

## Professors

C. Bailey, C. Baril, L. Betancourt, P. Copley, D. Fordham, A. Gabbin, N. Nichols, M. Riordan, B. Roof

## Associate Professors

J. Briggs, S. Cereola, D. Hayes, J. Irving, R. Richardson

## Assistant Professors

M. Cipriano, A. Duxbury, I. Scott

## Lecturers

M. Brown, E. Browning, S. Ferguson, K. Foreman, L. Manktelow, E. Shifflett

## Mission

The School of Accounting is committed to preparing students to be active and engaged citizens who are able to apply accounting and business knowledge for the betterment of individuals and organizations. We value an environment of educational excellence in which:

- Students develop both technical and interpersonal skills necessary for successful professional accounting careers;
- Faculty create and disseminate meaningful intellectual contributions and actively participate in the academic and professional communities; and
- Stakeholders, including alumni, recruiters and others, desire long-term and mutually beneficial relationships with the school.

## Mission

The mission of the undergraduate accounting program is to prepare students for entry into high-quality graduate programs and for positions in business that do not require postgraduate education. Since the B.B.A. degree is part of the College of Business, it reflects the distinctive competencies of the college. In addition, the program delivers foundation accounting courses to all students in the College of Business and to students in a variety of programs across the university.

The school also offers a Master of Science in accounting. Its mission is to prepare students for success in the accounting profession by strengthening the students' technical expertise, enhancing their understanding of professional responsibility and improving their business skills necessary to compete in today's complex and ever changing business environment.

## Goals

The accounting faculty has identified strategic and tactical goals in three major areas: learning objectives for students, intellectual contributions for faculty and service to our profession and the community.

## Learning Environment Objectives

We engage in the scholarship of teaching to prepare students for professional accounting careers in public accounting, industry or the public sector. We provide a learning environment that encourages a commitment to lifelong learning and develops a diverse set of skills in students, including technical

competence, information technology proficiency, critical thinking, teamwork and communication.

## Intellectual Contributions Objectives

We engage in the scholarship of discovery, application of knowledge and instructional development to advance knowledge in the field of accounting, to improve business practice, to encourage and support innovative teaching methods and curricula and to foster the intellectual and professional growth of our faculty.

## Service Objectives

We serve our school, college, university, accounting profession and business, and academic communities through active participation and leadership in academic, professional and business organizations.

## Career Opportunities

The programs of study offered by the accounting program provide an educational experience intended to prepare students for a variety of careers in the accounting, financial, auditing, consulting and information systems fields. Some of the job titles held by graduates of our program include the following:

- Audit Partner
- Business Analyst
- Business Consultant
- Chief Financial Officer
- Comptroller
- Computer Systems Consultant
- Controller
- Cost Accountant
- Cost Analyst
- Division Controller
- Forensic Accountant
- Fraud Examiner
- Information Systems Coordinator
- Internal Auditor
- Systems Consultant
- Tax Adviser
- Tax Partner

Our graduates find employment with all of the "Big Four" international public accounting firms, dozens of national, regional and local public accounting firms, government agencies and major international companies. Many of our graduates work

for business consulting firms. The field of accounting has one of the highest demands for new graduates of any area in today's market, and accounting graduates enjoy some of the highest starting salaries in the College of Business.

## Co-curricular Activities and Organizations

Beta Alpha Psi is the honors organization for accounting, finance, quantitative finance and computer information system majors.

## Programs of Study

The School of Accounting offers both an undergraduate and graduate program. The undergraduate degree consists of the four-year major in accounting, leading to the Bachelor of Business Administration (B.B.A.) degree. During their junior year, students may choose to meet with their adviser to discuss enrolling in the five-year Professional Program in Accounting, which leads to the award of the B.B.A. and the Master of Science in Accounting (M.S.A.) degree at the end of five years. For more information on the M.S.A. degree, please refer to the Graduate Catalog.

Students who choose to complete the four-year undergraduate program will have the requisite accounting, business and general education to pursue a variety of career opportunities in accounting and business.

Students are advised that 150 hours of college education are required to be licensed as a Certified Public Accountant in most states. The five-year professional program is therefore recommended for those electing a career in public accounting. The professional program allows the student to concentrate in the areas of taxation or auditing; it also provides a well-rounded background in accounting and other related business disciplines. A student must be admitted to the M.S.A. program in order to enroll in graduate courses. Admission to the M.S.A. program is competitive. M.S.A. program admission requirements are included in the graduate catalog. Students may apply following their junior year and early application for admission is encouraged.

## Special Admission Requirements

To register for ACTG 302, ACTG 303, ACTG 343 or ACTG 377, a student must have:

- been accepted to COB 300.
- completed COB 241 and COB 242 with a "B" or better in each.

In some years, the School of Accounting may require students to pass a COB 241 assessment exam. Students must pass the exam with a score of 80 percent or higher. Students will be contacted directly by the School of Accounting if they are required to take the exam. Students who do not meet the 80 percent threshold will meet with the director of the School of Accounting to outline steps for improving their proficiency in financial accounting. Students may take the exam twice.

## Accounting Major Progression Standards

Students are required to earn a "C-" or better in all upper level prerequisite accounting courses before continuing to the next course in the sequence. Students receiving a "D+" or lower in any upper level accounting course must repeat the course and earn a "C-" or better in order to be awarded a B.B.A. degree with a major in accounting.

Any student having a total of three "W's," "WF's," "D+'s," "D's" or "F's" in required 300 or 400-level accounting courses will be dropped from the major and not permitted to register for additional accounting courses.

Any student having a total of two "W's," "WF's," "D+'s," "D's" or "F's" in any (single) required 300 or 400-level accounting major course will be dropped from the major and not permitted to register for additional accounting courses.

## Degree and Major Requirements

The Bachelor of Business Administration degree in accounting requires a minimum of 120 credit hours of undergraduate course work. Fifty percent of this work, or 60 credit hours, must be taken outside of the College of Business.

### Bachelor of Business Administration in Accounting

Degree Requirements	Credit Hours
B.B.A. core courses	44-45
Accounting major requirements	24
Free elective <sup>2</sup>	3
General Education courses	41
Non-business electives (varies, consult adviser)	7-8
	120

<sup>1</sup> Up to seven hours of core requirements in economics and calculus may also be taken for General Education credit. Students who take the General Education packages and courses recommended by the College of Business will have only 38 credit hours of additional B.B.A. core requirements.

<sup>2</sup> Any course offered by the university.

<sup>3</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Core Courses	Credit Hours
ACTG 302. Introduction to the Profession: Role of Accountants	1
ACTG 303. Basic Spreadsheet Skills for Analysis and Reporting of Accounting Information	1
ACTG 304. Advanced Spreadsheet Skills for Analysis and Reporting of Accounting Information	1
ACTG 313. Accounting Information Systems	3
ACTG 343. Corporate Financial Reporting I	3
ACTG 344. Corporate Financial Reporting II	3
ACTG 377. Federal Income Tax Accounting	3
ACTG 410. Auditing	3
ACTG 475. Accounting Decision Making and Control	3
BLAW 495. Business Law I	3

## Non-Business Electives

In counting the 60 credit hours of non-business courses, B.B.A. students may include all hours taken in General Education (usually 41), up to a total of nine hours in economics (ECON courses must be counted as economics) and three hours of COB 191. Business Statistics. The remaining hours, to bring the total to 60, must be taken from outside the College of Business. Students should carefully select these non-business electives to help them gain additional knowledge and expertise for their careers and personal lives.

Students are responsible for their own progress toward graduation. Students must work closely with their advisers and the College of Business Academic Services Center to ensure scheduling of courses consistent with their personal degree completion target, and then study diligently to successfully complete the scheduled course work on time.

## Recommended Schedule for Majors

### First Two Years

Students planning to major in accounting must be accepted into the College of Business. Admission requirements to the College of Business require completion of 10 lower-level B.B.A. core courses. It is expected that the lower-level B.B.A. core curriculum will be completed during the first two years of study along with General Education and non-business elective courses. Students will work with an adviser to develop their schedule of courses for the first two years.

### Third and Fourth Years

Students accepted into the College of Business will begin major courses in their junior year. Students will develop an individualized schedule of course work for their junior and senior years during ACTG 302. Introduction to the Profession taken in the fall of their junior year.

### Third Year

First Semester	Credit Hours
COB 300A. Integrative Business: Management	3
COB 300B. Integrative Business: Finance	3
COB 300C. Integrative Business: Operations	3
COB 300D. Integrative Business: Marketing	3
ACTG 302. Introduction to the Profession: Role of Accountants	1
ACTG 343. Corporate Financial Reporting I	3

16

Second Semester	Credit Hours
ACTG 303. Basic Spreadsheet Skills for Analysis and Reporting of Accounting Information	1
ACTG 344. Corporate Financial Reporting II	3
ACTG 313. Accounting Information Systems	3
General Education or non-business electives	9
	16

### Fourth Year<sup>1</sup>

Any 300 level accounting course not completed in the third year  
 ACTG 304. Advanced Spreadsheet Skills for Analysis and Reporting of Accounting Information  
 ACTG 377. Federal Income Tax Accounting  
 ACTG 410. Auditing  
 ACTG 475. Accounting for Decision Making and Control  
 BLAW 495. Business Law I  
 COB 487. Strategic Management  
 Any remaining General Education or non-business electives required for graduation; consult your adviser.

## Certifications

Many graduates desire to gain certifications in their selected area of specialization. The Certified Public Accountant (CPA) is the best known of these certifications. To obtain a CPA license in Virginia, candidates must meet a 150-hour education requirement, including 30 credits in accounting and 24 in business. Forty-eight states require students to meet the 150-hour educational requirement. The masters in accounting program is highly recommended for those electing a career in public accounting.

In addition to the CPA exam, graduates of our program sit for the Certified Management Accountant (CMA) exam, the Certified Internal Auditor (CIA) exam, the Certified Information Systems Auditor (CISA) exam and others.

## Transfer Credit

In general, all upper-division accounting course work (300-499) must be completed at JMU. Transfer credit for upper-division courses is awarded only in unusual circumstances. In no case will transfer credit be awarded for more than one upper-division course, and in no case will transfer credit be awarded for either of the corporate financial reporting courses (ACTG 343 or ACTG 344). Contact the accounting adviser for more information on transfer credit.

# Adult Degree Program

*Pamela G. Hamilton, Director*

Phone: (540) 568- 4253

Location: Ice House, 127 W. Bruce Street, Room 332

Email: [adp@jmu.edu](mailto:adp@jmu.edu)

Website: <http://www.jmu.edu/adultdegree>

## Mission

The Adult Degree Program addresses the needs of working adults through an innovative, individualized program of study. ADP students tailor a program of study unique to them that focuses on their prior learning experiences and future professional and educational goals.

## Admission

Applicants must have a minimum of 30 transferable credit hours with a grade of "C" or better for each credit hour of college work. Applicants should be 22 or older.

With very limited exceptions, students in the Individualized Study major (the Adult Degree Program's academic major) cannot transfer to another major on campus.

## Degrees Offered

ADP students have the opportunity to earn a Bachelor of Individualized Study (B.I.S.), a Bachelor of Arts (B.A.) in individualized study or a Bachelor of Science (B.S.) in individualized study. The General Education core requirements differ by degree.

## Program Requirements

- Completion of IS 200. Individualized Study Major Program Development is required.
- A minimum of 120 credit hours will be required for graduation. The specific program agreement will be designed in consultation with a faculty adviser.
- A program agreement for meeting the requirements of the degree must be submitted to the Adult Degree Program office for approval while enrolled in the IS 200 course.
- To earn a B.I.S. degree, the student must complete a minimum of 41 General Education credit hours.
- To earn a B.A. degree, a student must earn the above 41 credit hour requirements, plus an additional three hours of philosophy and six hours of foreign language at the intermediate (200) level for a total of 50 General Education credit hours.
- To earn a B.S. degree, a student must earn the above 41 credit hours, plus an additional three hours to meet the quantitative requirement and an additional three hours to meet the scientific literacy requirement for a total of 47 General Education credit hours.
- A student's concentration, or field of study, consists of a minimum of 30 credits, at least 24 of which must be upper-division credit (300- and 400-level courses). The concentration shall include classes from two or more academic disciplines and represent a coherent body of knowledge, which may require course work beyond the 30 minimum credit hours.

- No more than 30 credit hours of course work can be selected from courses taught by the College of Business. This 30 credit hour limit includes COB courses transferred from other colleges and nontraditional credit earned in the COB.
- The concentration must be completed with a GPA of 2.0 or better.
- A minimum of 15 credit hours in the concentration must be JMU credits.
- IS 498. Individualized Study Project, is a capstone course that is directly related to the student's concentration or field of study. The project is coordinated by a content area faculty member and must be completed with a minimum grade of "C." A final oral report must be presented on the project.
- ADP requires all students to take the Honor Code test.
- Each graduate must have earned a minimum of 30 credit hours at JMU (a maximum of eight non-traditional credits may be applied to the JMU hours requirement).
- At least 60 credit hours must be earned from four-year institutions.
- ADP students are expected to participate in assessment activities. Assessment information is used to assist faculty in modifying curricula.
- There is no residency requirement; however, program agreements that extend beyond six years may need to be amended if university policies change that affect the original program agreements.

## Program of Study

As an individualized study major, each ADP student puts together an individual program plan that includes the following: General Education Requirements – minimum of 41 credits. A listing of acceptable courses to fulfill these requirements for ADP is available from the ADP website.

- Social and Behavioral Science (6 credits)
- Humanities (6 credits)
- Natural Science (6 credits)
- Written Communications (6 credits)
- Oral Communications (3 credits)
- Mathematics (3 credits)
- US History (4 credits)
- General Education Electives (7 Credits)
- Additional Requirements for:
  - Bachelors of Science in Individualized Study: Natural Science (3 credits) and Mathematics (3 credits)
  - Bachelors of Arts in Individualized Study: Philosophy (3 credits) and Language (6 credits at the 200-level or higher)

Individualized Study Major Concentration – This is the focus area of student’s individualized study degree. The concentration is cross disciplinary and is comprised of classes from two or more academic programs chosen to meet the student’s educational and/or professional goals:

- Minimum of 30 credits.
- 24 credits must be completed in 300- or 400-level courses
- IS 498. BIS Senior Project – capstone research project, included in the 24 upper-level course requirements
- Electives – All other credits
- IS 200 Introduction to Individualized Study (required)
- IS 206E. Prior Learning Experience: Research and Writing the Portfolio (optional, for students pursuing credit for prior learning experience only)
- 100- and 200-level courses not used elsewhere
- 000 general credit transfer courses

## Mechanisms for Earning Credit

The number of credits, which might be accepted or earned through the following methods, is determined by the student’s approved program. It is reasonable to expect that the unique educational needs, background and personal circumstances of each student will determine to a great extent the manner in which credit has been and will be earned.

- Transfer credit
- Credit by departmental examination
- Credit for sponsored learning or independent studies
- Regular course work
- Credit for experiential learning through portfolio evaluation (See below)\*
- Credit for educational programs of the Armed Forces
- College Level Examination Program (CLEP)\*
- American Council on Education College Credit Recommendation Service (ACE)\*

\*Non-traditional credits; no more than 30 non-traditional credits can be counted towards degree requirements of 120.

## Online Academic Modules

Online academic modules have been developed in cooperation with academic units at the university. Students can use these modules when developing their concentration. Current modules include:

- Applied Computing
- Autism Spectrum Disorders
- Business Technology
- Entrepreneurship
- Human Resource Development
- Professional and Workplace Communication

## Prior Learning Assessment

College level learning, acquired through other than traditional classroom experience, must be documented by the student. Procedures for doing so have been established by the ADP office. Requests for experiential learning credit should be submitted as soon as possible after an ADP student completes IS 200 and IS 206E. Experiential learning credit is not transferable to a traditional degree program. ADP students requesting experiential learning credit must complete IS 206E. Prior Learning Experience: Research and Writing the Portfolio. A fee is charged for each learning component evaluated by academic units for credit.

## College Credit Recommendation Service

ADP accepts some but not all credits as recommended in the National Guide to Educational Credit for Training Programs and the Guide to Educational Credit by Examination prepared by the American Council on Education. Additional information on program policies and procedures is available through the ADP website.

## College-Level Examination Program

The Adult Degree Program at JMU participates in the College-Level Examination Program. CLEP is a national program of credit by examination that offers students an opportunity to obtain recognition for achievement in specific college courses.

Interested individuals may schedule a CLEP test by directly contacting the Adult Degree Program office.

## Credit/No-Credit

Students enrolled in ADP may take courses on a credit/no-credit basis if they have completed 28 credit hours of college course work and have a 2.25 cumulative GPA.

Courses in the area of concentration, including the senior project, may not be taken on a credit/no-credit basis. Other provisions of the credit/no-credit option, as described in this catalog, will also be in effect.

# School of Art, Design and Art History

*Dr. Katherine A. Schwartz, Director*

Phone: (540) 568-6216/6661

Location: Duke Hall, Room 1011

Email: [schwarka@jmu.edu](mailto:schwarka@jmu.edu)

Website: <http://www.jmu.edu/art>

## Professors

T. Cole, R. Daniel, C. Diop, D. Ehrenpreis, L. Halpern, L. Katzman, J. McCaslin, D. McCusker, J. Ott, M. Rooker, K. Schwartz, M. Shanahan, R. Silberman, G. Stewart, L. Tubach, C. Welter, W. Wightman, S. Zurbrigg

## Associate Professors

A. Adesanya, S. Brooks, S. Choi, R. Hilliard, K. Stevens, W. Tate, A. Taylor, K. Tollefson-Hall, R. Tomhave

## Assistant Professors

A. Barnes, D. Hardy, C. Henriques, R. Mertens, K. Phaup, E. Tickle, S. Williams

## Mission Statement

The School of Art, Design and Art History is a collaborative community that fosters independent thought and creativity, embraces the diversity of cultural expression, and cultivates excellence in the making and understanding of visual art and design.

## Goals

The School of Art, Design and Art History discerns the following five distinct goals for the teaching of art at JMU:

- To prepare future professional artists and designers.
- To educate future art historians and museum specialists with a global perspective on the visual arts.
- To develop and license future elementary and secondary art teachers.
- To enrich the general education of non-art majors.
- To supply professional instruction in the visual arts for students who wish to enrich their education by studying art as a second major or minor.

To meet these goals, the School of Art, Design and Art History offers three degrees, a choice of five majors and select areas of emphasis. PK-12 Licensure is available to every School of Art, Design and Art History major, regardless of their degree track. Minors are offered in select areas. All degrees require a minimum of 120 credit hours. A full description of degree requirements is listed under degree requirements.

## Degrees Offered

### Bachelor of Arts

- Art History
- Studio Art

### Bachelor of Fine Arts

- Architectural Design
- Graphic Design
- Studio Art

### Bachelor of Science

- Industrial Design
- Studio Art

## Career Opportunities and Marketable Skills

Art students at JMU have the opportunity to prepare for a wide variety of art and art-related career fields. Because the School of Art, Design and Art History educates art students as critical

thinkers and creative problem solvers, graduates have an enhanced ability to think independently, respond flexibly, work productively and compete successfully for employment in career fields that value original and thoughtful creativity. Some possible careers include:

- Advertising Designer
- Architectural Designer
- Artist
- Art Critic
- Art Educator
- Art Historian
- Ceramicist
- Conservator
- Gallery Owner
- Graphic Designer
- Illustrator
- Industrial Designer
- Jeweler
- Multimedia Designer
- Museum Curator/Educator
- Painter
- Photographer
- Printmaker
- Sculptor
- Textile Designer

To discuss specific career options, students should contact the school and make an appointment with a member of the faculty.

## Accreditation

Supplementing JMU's general accreditation, all degrees offered by the School of Art, Design and Art History are professionally accredited by the National Association of Schools of Art and Design. In addition, the Art Education program is also accredited by the National Council for Accreditation of Teacher Education (NCATE).

## Special Admission Requirements

### Art History Majors

Students intending to major in art history are not required to submit a portfolio, but should follow the regular JMU admissions process. To be considered for departmental scholarships, students must submit a resume, writing sample, and short essay to the department. To enroll in the museum studies concentration in art history, students must have a 3.3 GPA in the major and a minimum of nine credits in art history (ARTH) and general education art history (ARTH) courses.

## Architectural Design, Graphic Design, Industrial Design and Studio Art Majors

All prospective freshmen, transfer and change of major students intending to major in architectural design, graphic design, industrial design or studio art must meet JMU admission requirements. In addition to meeting JMU admission requirements, all students are required to submit a portfolio to the school's SlideRoom account. There is a \$10 charge for this submission. Additionally, transfer and change of major students will need to upload unofficial transcripts and a statement of intent to the school's SlideRoom account that explains their educational and artistic goals, articulating the reasons for choosing this area of study. The submission of a portfolio is seen as evidence of a student's interest and potential for future success in art. Students must attend an on-campus Portfolio Review day or schedule a Skype interview to be considered for a scholarship. All scholarship awards are based on merit and vary in amount, up to the full cost of tuition.

The School of Art, Design and Art History (SADAH) offers students the opportunity for feedback on their portfolio, prior to the digital submission, through several on-campus and off-campus portfolio review days. This portfolio review event will provide an opportunity for feedback on actual artwork, as well as an opportunity to meet with faculty from the school. Tours of facilities and program info sessions will take place at on-campus events. All prospective freshman, transfer and change of major students are strongly encouraged to attend a portfolio review day prior to submitting their portfolio. For these in-person feedback sessions, it is highly recommended that students show actual works of art; however, a portfolio that consists of printed images is acceptable. If time-based media examples are included (video and animation), students will need to bring their own digital device for presentation purposes. Refer to the SADAH website for the dates of the upcoming portfolio feedback days and for additional portfolio requirements.

Students seeking official acceptance into the graphic design major must enroll in GRPH 208 and submit a portfolio representing work completed in GRPH 200, Design Methodology; GRPH 202, Computer Graphics; and GRPH 206, Introduction to Typography. Students not admitted may reapply the following semester.

Students seeking official acceptance into the architectural design major must enroll in ARCD 208 and submit a portfolio representing work completed in ARCD 200. Architectural Design Studio I and ARCD 202. Architectural Design Studio II. Students not admitted may reapply the following year.

## Degree and Major Requirements

### Bachelor of Arts in Art History

*Coordinator: Dr. Sarah Brooks*

Phone: (540) 568-6642 Email: brooksst@jmu.edu

The Bachelor of Arts in art history is intended for students who wish to study the history of the visual arts, including the cultural and social context in which they were created. It is the mission of the art history program to educate students with a global perspective on the arts.

Western art history is emphasized, coupled with opportunities to study the art of select non-Western traditions. Students

majoring in art history will develop a general knowledge of the principle monuments and artists of all major historical art periods. Students also will:

- Become acquainted with the art history of non-Western cultures.
- Locate unfamiliar works within major style periods and cultures.
- Describe, analyze and interpret the form and content of individual works of art in relation to the cultures from which they originate.
- Recognize major art media.
- Understand at least three major historical periods of art in detail.
- Become familiar with art history theory and methods of analysis and criticism.
- Research and write about significant artists, artistic events, periods and artistic concepts.

The art history program encourages majors and minors to participate in internship opportunities at museums, galleries and other art related settings, and it provides up-to-date information about jobs and graduate programs in art history and related fields. Visiting scholars, campus art exhibitions, trips to major museums and the JMU Study Abroad program provide students with opportunities to study and apply their art history knowledge outside the classroom. Upon completion of the art history major, students will have been exposed to a broad background and knowledge of the opportunities for graduate school and employment. The art history program also advocates cross disciplinary education and actively supports students who double major with other disciplines.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives <sup>3</sup>	23-37
Major requirements	39
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Language, Literature and Culture's placement test.

<sup>3</sup> Depends on number of hours needed to fulfill the B.A. foreign language requirement. If they are completed in six hours, students should use the larger number of general electives to complete a second major or minor that complements art or art history or, for students intending to pursue graduate degrees, to gain reading knowledge of a second foreign language.

### Major Requirements

The major in art history requires 39 credit hours in art history and studio and/or courses, as the following chart shows. At least six of these credit hours must be 400-level art history courses.

Core courses at the 200 level are broad interpretive overviews of art history that combine lecture and discussion to permit students to learn the content and chronology of world art history, to learn how art historians collect, analyze and synthesize evidence and engage in introductory exercises in the discipline. They generally include short formal writing assignments and exams with essay sections.

Distributives at the 300 level also combine lecture and discussion, more narrowly survey specific periods or cultures and address aspects of art historical methodology. These courses require

longer formal writing assignments and include student research. Courses at the 400 level are seminars on specialized topics that center on advanced student research. A single course may not fulfill more than one distribution requirement.

Required Courses	Credit Hours
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
ARTH 300. Art History Seminar <sup>1</sup>	3
ARTH 400. Art History Research Portfolio	0
Non-Western Electives (choose one of the following):	3
ARTH 312. African Art: Sub-Saharan.	
ARTH 332. Islamic Art and Architecture	
ARTH 418. Modern and Contemporary African Art	
ARTH 419. Topics in African Art	
ARTH 424. Arts of Ancient Egypt	
ARTH 446. Renaissance Art and the East	
ARTH 484. Art of the Americas	
Western Electives (choose one of the following):	3
ARTH 322. Ancient Art	
ARTH 340. Early Medieval Art	
ARTH 346. Italian Renaissance Art	
ARTH 360. Nineteenth Century Art	
ARTH 372. Modern Art from 1900-1945	
ARTH 380. American Art to 1870	
ARTH 382. American Art from 1870	
ARTH 406. Monticello	
ARTH 439. Topics in Medieval Art	
ARTH 440. City of Jerusalem	
ARTH 444. Gothic & Gothic Revival Architecture	
ARTH 446. Renaissance Art and the East	
ARTH 449. Topics in Renaissance Art.	
ARTH 450. Baroque Art	
ARTH 452. Eighteenth Century Art	
ARTH 459. Topics in 17th and 18th Century Art	
ARTH 464. Romanticism and Enlightenment	
ARTH 466. Art and Nationalism	
ARTH 469. Topics in Nineteenth Century Art	
ARTH 471. Public Art in America	
ARTH 472. Modern Art Since 1945	
ARTH 479. Topics in Twentieth Century Art	
ARTH 488. African American Art	
Pre-Modern Elective (choose one of the following):	3
ARTH 312. African Art: Sub-Saharan	
ARTH 322. Ancient Art	
ARTH 332. Islamic Art and Architecture	
ARTH 340. Early Medieval Art	
ARTH 346. Italian Renaissance Art	
ARTH 424. Arts of Ancient Egypt	
ARTH 439. Topics in Medieval Art	
ARTH 444. Gothic & Gothic Revival Architecture	
ARTH 446. Renaissance Art and the East	
ARTH 449. Topics in Renaissance Art	
ARTH 450. Baroque Art	
ARTH 484. Art of the Americas	
Modern and Contemporary Elective (choose one):	3
ARTH 360. Nineteenth Century Art	
ARTH 372. Modern Art from 1900-1945	
ARTH 380. American Art to 1870	
ARTH 382. American Art from 1870	
ARTH 406. Monticello	
ARTH 418. Modern and Contemporary African Art	
ARTH 419. Topics in African Art	
ARTH 452. Eighteenth Century Art	
ARTH 459. Topics in 17th and 18th Century Art	
ARTH 464. Romanticism and Enlightenment	
ARTH 466. Art and Nationalism	

ARTH 469. Topics in Nineteenth Century Art	
ARTH 471. Public Art in America	
ARTH 472. Modern Art Since 1945	
ARTH 479. Topics in Twentieth Century Art	
ARTH 488. African American Art	
Art history electives (300-400 level) <sup>1</sup>	12
Studio art and design electives (any level) <sup>2</sup>	6

<sup>1</sup> ART 305. Seminar in Aesthetics, may count as an art history elective. A maximum of three credits from ARTH 490, ARTH 495 or ARTH 499 may count toward the major. Recommended elective taken in first or second year of the major: ARTH 301. Institutions and Professions.

<sup>2</sup> ART 200. Art in General Culture may not count as a studio art and design elective.

## Recommended Schedule For Majors

First Year	Credit Hours
Choose one of the following:	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	
ARTH 206. Survey of World II: Renaissance to Modern	
Foreign language courses	6
Cluster One: Skills for the 21st Century	9
General Education course	3-6
General electives	6-9
	30

Second Year	Credit Hours
Choose one of the following:	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	
ARTH 206. Survey of World Art II: Renaissance to Modern	
Choose foreign language (if needed) or general electives	6
General Education courses	18
Studio Art Elective	3
	30

Third Year	Credit Hours
Non-Western art history elective	3
Western art history electives	6
ARTH 300. Art History Seminar	3
General electives	3
Studio Art elective	3
General Education courses	12
	30

Fourth Year	Credit Hours
Art History electives	12
General electives	18
	30

## Internship/Independent Study Credit

A maximum of three credits of art history internship, independent study, or honors course work may be applied toward the major in art history. A student may petition the art history coordinator to apply six credit hours toward the art history major if the internship or independent study course work is directly relevant to the student's interests and career goals.

## Concentration Requirements

### Museum Studies Concentration

The museum studies concentration enriches the art history curriculum by offering course work that examines the critical role that museums have played in constructing the discipline and pedagogy of art history. History and theory-oriented classes will introduce students to the role and function of museums in society and the ways in which museums both reflect and perpetuate the values of the cultures that create them. Experiential practica or internship courses will expose students to the wide range of work conducted in museums, including

curatorial, collections management, conservation, education, design and installation, media and public relations, publications, development and administration.

While the concentration is academic and not vocational, it offers students valuable hands-on experience beneficial for admission into graduate school and entry into the competitive market of art-related professions. Virginia is a state that boasts a plethora of art museums, house museums, history museums, and historic and archaeological sites. Art history majors who complete the concentration will be well positioned for seeking employment in regional and state museums.

The museum studies concentration consists of five courses (15 credit hours). Students are required to complete three core courses and two elective courses. Students may only count three credit hours toward both the art history major and the museum studies concentration.

A 3.3 GPA in the minimum of nine credits in Art History (ARTH) and General Education Art History (ARTH) courses are required to enroll in the concentration. To apply, students submit an unofficial transcript to the area coordinator. Students may apply to the concentration in the fall or spring semester, but no later than the last day of the course add registration deadline.

Required Courses	Credit Hours
ARTH/HIST 394. Introduction to Museum Work	3
ARTH/HIST 408. The Museum: History and Controversies	3
ARTH 495. Internship in Art History	3
Electives (choose two of the following):	6
ARTH/HIST 396. Introduction to Public History	
ARTH/HIST 406. Monticello	
ARTH 491. Exhibition Seminar	
ARTH/ANTH/HIST 492. American Material Culture	
ARTH/HIST 493. Historic Preservation	
ANTH 494. Field Topics in Archaeology	
HIST 440. The History Museum	

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## Requirements for Art History as a Second Major

Students in any degree program may study art history as a second major by completing the 39 credit art history requirement. Students studying art history as a second major do not need to complete the requirements for the B.A. degree if their first major will complete the requirements for a different baccalaureate degree. However, non-B.A. degree students completing art history as a second major are strongly encouraged to complete the B.A. foreign language requirement.

## Bachelor of Arts in Studio Art

*Coordinator: Corinne Diop*

Phone: (540) 568-6485 Email: diopcj@jmu.edu

The Bachelor of Arts (B.A.) degree is intended for students interested in pursuing a program of art study that promotes lifelong learning with an emphasis on the humanities. The B.A. in studio art is designed for students who seek a breadth of knowledge in the visual arts and who have an interest or background in the humanities. Students majoring in studio art will:

- Grasp how artworks are created.
- Understand how the visual arts relate to the culture that influences them.
- Gain an overview of the sequences of style and meaning evident in the history of art.

- Improve their ability to articulate their ideas and knowledge about art to others.
- Learn about career opportunities in art and closely related fields.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language courses (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	17-31
Major requirements (listed below)	45
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Language, Literature and Culture's placement test.

## Major Requirements

The studio art major requires a minimum of 45 credit hours in art and art history, as the following chart shows.

Required Art Courses	Credit Hours
Foundation Courses	
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ART 205. Professional Practices in Art	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
3-D Studio Art courses (choose one of the following):	3
ART 220. Introductory Ceramics: Potter's Wheel	
ART 222. Introductory Ceramics: Handbuilding	
ART 232 or ART 234. Introduction to Fiber Arts	
ART 240. Metal and Jewelry	
ART 280. Sculpture	
Studio art courses (300-400 level) <sup>1</sup>	6
General art electives (any level) <sup>2</sup>	15
Art history elective (300-400 level) <sup>3</sup>	3
	45

<sup>1</sup> The six credit hours of studio art electives (300-400 level) must be taken in a single studio area. Graphic design, industrial design and architectural design course credits cannot count as a concentration area. Studio art credits cannot be double-counted.

<sup>2</sup> A minimum of nine credit hours of general art electives must consist of studio-based courses with an ART prefix (excluding ART 200, 304, 305, 491, 493, and 496). The other six credit hours of general art electives must consist of any courses with the prefix ARCD, ARED, ART, ARTH, GRPH and INDU.

<sup>3</sup> Excludes ARTH 490, ARTH 495 and ARTH 499.

## Recommended Schedule for Majors

First Year	Credit Hours
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
Cluster One: Skills for the 21st Century	9
General Education courses	9
	30
Second Year	Credit Hours
ARTH 206. Survey of World Art II: Renaissance to Modern	3
ART 205. Professional Practices in Art	3
Required studio art course	3
Foreign language courses (if needed)	6
General Education courses	12
General art electives (any level)	3
	30
Third Year	Credit Hours
Art history elective (300-400 level)	3

General art electives (any level)	9
General electives	6
B.A. philosophy requirement	3
General Education courses	9
	<hr/>
	30
<b>Fourth Year</b>	<b>Credit Hours</b>
Studio art courses (300-400 level)	6
Art or general electives	24
	<hr/>
	30

## Bachelor of Fine Arts in Architectural Design

*Coordinator: Evelyn Tickle*

Phone: (540) 568-6696 Email: tickleec@jmu.edu

The B.F.A. in architectural design educates future design leaders. It is an intensive program focused on rigorous design processes. Architectural design is approached holistically—emphasizing investigations into the nature of materials and objects, interior space, ergonomics, history and theory, programmatic invention, functional poetics, and collaboration across disciplines. The curriculum instills purpose, craft, technological competencies and versatile thinking.

### Admission Requirements

Admission to the B.F.A. in architectural design is selective and competitive for a limited number of reserved seats in upper-division (300-400 level) architectural design courses. Declaration of architectural design as a major and completion of lower-division (100-200) prerequisite art courses does not guarantee admission into the program. Admission to upper-division ARCD courses is based on completion of all prerequisite art courses and merit as determined by faculty review of portfolios submitted in satisfaction of the course ARCD 208. Portfolio Review.

ARCD 208 is a 0 credit, pass/fail course that functions as a prerequisite to enrollment in 300-400 level architectural design courses. Students should enroll in ARCD 208 during the semester in which they are enrolled in ARCD 202. ARCD 208 portfolios are reviewed during the spring semester (February) prior to pre-registration. Students should contact the area coordinator of architectural design to determine the exact time and location for the ARCD 208 portfolio review.

Any art major may take ARCD 200 and ARCD 202, but is restricted from taking any 300-400 level architectural design course until ARCD 208 has been taken and passed.

Accepted students who receive a passing grade for ARCD 208 will be able to register for ARCD upper division courses for the following semester. Students not accepted will have one opportunity to reapply the following spring semester or may choose to continue in another major within the SADAH.

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	41
University electives	1
Major requirements (listed below)	78
	<hr/>
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major Requirements

This major requires 78 credit hours in art, art history and art-related courses; 54 must focus on architectural design.

Required Art Courses	Credit Hours
Foundation Courses	18
ART 102. Two-Dimensional Design	
ART 104. Drawing I	
ART 106. Three-Dimensional Design	
ART 108. Drawing II	
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	
ARTH 206. Survey of World Art II: Renaissance to Modern	
Required Major Courses	54
ARCD 200. Architectural Design Studio I	
ARCD 202. Architectural Design Studio II	
ARCD 208. Portfolio Review	
ARCD 220. CAD: 3D Modeling	
ARCD 300. Architectural Design Studio III	
ARCD 302. Architectural Design Studio IV	
ARCD 330. Materials and Methods I	
ARCD 332. Materials and Methods II	
ARCD 390. Independent Study in Architectural Design	
ARCD 400. Architectural Design Studio V	
ARCD 402. Architectural Design Studio VI	
ARCD 440. Professional Design Practices	
ARCD 496. Internship in Architectural Design	
ARTH 370. History of Architectural Design	
ARTH 376. History of Modern Architecture	
Choose two of the following electives:	6
ART 220. Introductory Ceramics: Potter's Wheel	
ART 222. Introductory Ceramics: Handbuilding	
ART 230. Introduction to Fiber Processes	
ART 240. Metal and Jewelry	
ART 260. Introductory Photography: Black and White	
ART 270. ART 272 or ART 274. Printmaking	
ART 280. Sculpture	
ART 305. Seminar in Aesthetics	
ART 350. Figure Drawing	
GRPH 200. Design Methodology	
GRPH 202. Computer Graphics	
ARCD 392. Topics in Architectural Design	
ARCD 470. Contemporary Design Theory	
ARCD 490. Independent Studies in Architectural Design	
INDU 390. Independent Studies in Industrial Design	
INDU 392. Topics in Industrial Design	
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	78

## Recommended Schedule for Majors

First Year	Credit Hours
General Education	12
Art Foundations	18
	<hr/>
	30
Second Year	Credit Hours
ARCD 200. Architectural Design Studio I	6
ARCD 202. Architectural Design Studio II	6
ARCD 220. CAD: 3D Modeling	3
ARTH 370. History of Architectural Design	3
General Education	15
ARCD 208. Portfolio Review (spring)	0
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	33
Third Year	Credit Hours
ARCD 300. Architectural Design Studio III	6
ARCD 302. Architectural Design Studio IV	6
ARCD 330. Materials and Methods I	3
ARCD 332. Materials and Methods II	3

ARCD 440. Professional Practices in Architectural Design	3
ARTH 376. History of Modern Architecture	3
General Education	6
ARCD 496. Internship <sup>1</sup>	0

30

Fourth Year	Credit Hours
ARCD 400. Architectural Design Studio V	6
ARCD 402. Architectural Design Studio VI	6
ARCD Electives	6
General Education	9

27

<sup>1</sup> ARCD 496 is typically completed during the summer.

## Bachelor of Fine Arts in Graphic Design

*Coordinator: Dawn McCusker*

Phone: (540) 568-6500      Email: [mccuskd@jmu.edu](mailto:mccuskd@jmu.edu)

The graphic design program provides a professional education with an interdisciplinary approach. Program objectives for the graphic design student are:

- Articulate ideas and understand the fundamental elements and principles of graphic design while using correct terminology pertinent to the field.
- Demonstrate a working knowledge of artistic methods, craft and formal structure as vehicles to enhance a solutions communicative value.
- Demonstrate proficiency in both traditional and digital ways of making.
- Develop diverse problem-solving methodologies that combine theory, research, analytical skills and conceptualization to create effective graphic design solutions.
- Develop a professional graphic design portfolio reflective of one's knowledge and abilities that encompasses the contemporary design market.

The graphic design program objectives are enhanced by frequent field trips to design events, guest speakers, workshops and internship opportunities. Design students have an opportunity to engage with design leaders in the field through field trips, events and participation in a professional design organization.

### Admission Requirements

Admission to the B.F.A. in graphic design is selective and competitive for a limited number of reserved seats in upper-division (300-400 level) graphic design courses. Declaration of graphic design as a major and completion of lower-division (100-200) prerequisite ART and GRPH courses does not guarantee admission into the program. Admission to upper-division GRPH courses is based on completion of all prerequisite GRPH courses and merit as determined by a faculty review of portfolios submitted in satisfaction of GRPH 208. Portfolio Review.

GRPH 208. Portfolio Review is a 0 credit, pass/fail course that functions as a prerequisite to enrollment in all 300-400 level graphic design courses. Students should enroll in GRPH 208 during the semester following completion of GRPH 200, GRPH 202 and GRPH 206 (or concurrently with GRPH 206). GRPH 208 portfolios are reviewed each semester. Students enrolled in GRPH 208 will be emailed at the beginning of the semester and will be informed of the exact time and location of the GRPH 208 portfolio review.

Any art major may take GRPH 200, GRPH 202 and GRPH 206, but is restricted from taking any 300-400 level graphic design course until GRPH 208 has been taken and passed.

Accepted students who receive a passing grade for GRPH 208 will be able to register for upper-division courses GRPH for the following semester and are required to furnish a Macintosh laptop computer. Purchase recommendations can be found at <http://www.jmu.edu/computing/purchase/dept.shtml>

Students not accepted will have one opportunity to reapply in the following semester or may choose to continue in another major within the School of Art, Design and Art History.

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	41
University electives	1
Major requirements (listed below)	78
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

This major requires 78 credit hours in art, art history and art-related courses; 36 are graphic design concentration required and elective courses.

Required Courses	Credit Hours
Foundation Courses	18
ART 102. Two-Dimensional Design	
ART 104. Drawing I	
ART 106. Three-Dimensional Design	
ART 108. Drawing II	
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	
ARTH 206. Survey of World Art II: Renaissance to Modern	
Required art studio courses (choose four of the following):	12
ART 220. Introductory Ceramics: Potter's Wheel or	
ART 222. Introductory Ceramics: Handbuilding	
ART 230. Introduction to Fiber Processes	
ART 240. Metal and Jewelry	
ART 252. Introductory Painting	
ART 260. Introductory Photography: Black and White	
ART 270. ART 272. or ART 274. Printmaking	
ART 350. Figure Drawing	
Major Courses (Required)	30
ARTH 303. History of Design	
GRPH 200. Design Methodology	
GRPH 202. Computer Graphics	
GRPH 206. Introduction to Typography	
GRPH 208. Portfolio Review	
GRPH 306. Intermediate Typography	
GRPH 312. Web Design	
GRPH 313. Interactive Media	
GRPH 406. Advanced Typography	
GRPH 408. Brand Identity	
GRPH 410. Graphic Design Portfolio	
Major Courses (Electives)	9
GRPH 300. Illustration	
GRPH 304. Package Design	
GRPH 340. Poster Design	
GRPH/ART 375. Letterpress	
GRPH/ART 376. Intermediate Book Arts: Concept, Content, Form	
GRPH 390. Independent Studies in Graphic Design	
GRPH 392. Topics in Graphic Design	
GRPH 496. Internship in Graphic Design <sup>1</sup>	

Art and art-related electives <sup>2</sup>	6
Art history electives (300-400 level) <sup>3</sup>	6
	78

1 A maximum of six credit hours of practicum or internship may count toward the degree.

2 Studio art and art related electives may include courses from general fine arts, architectural design, graphic design and industrial design and internships, but excludes courses taken to fulfill the studio concentration.

3 Excludes ARTH 490, ARTH 495 and ARTH 499.

## Recommended Schedule for Majors

First Year (first semester)	Credit Hours
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
Cluster One: Skills for the 21 <sup>st</sup> Century	3
General Education courses	3
<b>First Year (second semester)</b>	
ART 106. Three-Dimensional Design	3
ART 108. Drawing II	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
General Education courses	6
	30

Second Year (first semester)	Credit Hours
GRPH 200. Design Methodology <sup>1</sup>	3
GRPH 202. Computer Graphics <sup>1</sup>	3
Two-D or Three-D Studio Art Courses	3
General Education courses	6
<b>Second Year (second semester)</b>	
GRPH 206. Introduction to Typography <sup>1</sup>	3
GRPH 208. Portfolio Review <sup>1</sup>	0
Two-D or Three-D Studio Art Courses	6
General Education courses	6
	30

Third Year (first semester)	Credit Hours
GRPH 306. Intermediate Typography <sup>1</sup>	3
GRPH 312. Web Design	3
Art history elective (300-400 level)	3
General Education courses	6
<b>Third Year (second semester)</b>	
GRPH 313. Interactive Media	3
Two-D or Three-D Studio Art Courses	3
Art history elective (300-400 level)	3
General Education courses	6
	30

Fourth Year (first semester)	Credit Hours
GRPH 406. Advanced Typography <sup>1</sup>	3
GRPH 408. Brand Identity <sup>1</sup>	3
Art and art-related electives	6
General Education courses	3
<b>Fourth Year (second semester)</b>	
GRPH 410. Graphic Design Portfolio <sup>1</sup>	3
GRPH Concentration Elective	9
General Education courses	2
University Elective (if total credits do not reach 120)	1
	30

1 Part of a sequence of courses that may not be taken in less than a five-semester sequence.

## Bachelor of Fine Arts in Studio Art

Coordinator: Corinne Diop

Phone: (540) 568-6485

Email: diopcj@jmu.edu

The Bachelor of Fine Arts degree in studio art is intended for those students whose goal is the professional production of visual art. Only those students serious about preparing for a

studio career in the visual arts and willing to commit the time and energy necessary to achieve professional competence in their chosen area of studio concentration should enroll.

These areas of concentration within the B.F.A. in studio art degree seek to:

- Develop students' visual vocabulary.
- Foster a deeper understanding of the formal visual relationships present in the art and design process.
- Enhance their aesthetic awareness of art forms.
- Promote the competency to independently seek further professional growth.

Students develop competency in several media (painting, drawing, sculpture, ceramics, fiber, metals and jewelry, printmaking, photography, glass, mixed-media) and foster a professional command of at least one medium. Upon completion of the degree, students are prepared to pursue the professional production and exhibition of their own art or more in-depth study at the graduate school level.

## Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	41
University elective	1
Major requirements (listed below)	78
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major and Concentration Requirements

The general fine arts concentration requires 78 credit hours in art, art history and art related courses.

Required Art Courses	Credit Hours
<b>Foundation Courses</b>	
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ART 108. Drawing II	3
ART 205. Professional Practices in Art	3
ART 305. Seminar in Aesthetics	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
Studio art courses (choose six of the following): <sup>1</sup>	18
ART 220. Introductory Ceramics: Potter's Wheel or	
ART 222. Introductory Ceramics: Handbuilding	
ART 232 or ART 234. Fiber Arts	
ART 240. Metal and Jewelry	
ART 252. Introductory Painting	
ART 260. Introductory Photography: Black and White	
ART 270, ART 272 or ART 274. Printmaking	
ART 280. Sculpture	
GRPH 200. Design Methodology	
<b>Studio Concentration (choose one of the following):<sup>2</sup></b>	15
<b>Ceramics</b>	
ART 220. Introductory Ceramics: Potter's Wheel	
ART 222. Introductory Ceramics: Handbuilding	
ART 320. Intermediate Ceramics: Molds and Casting	
ART 322. Intermediate Ceramics: Surface Development	
ART 420. Advanced Ceramics: Portfolio Development (repeatable to 9 credits)	
<b>Fiber Arts</b>	
ART 230. Introduction to Fiber Processes	
ART 330. Intermediate Fiber Processes	
ART 430. Advanced Fiber Processes (repeatable to 9 credits)	

Metals and Jewelry	
ART 240. Metal and Jewelry	
ART 340. Intermediate Metal and Jewelry	
ART 440. Advanced Metal and Jewelry	
An additional 6 credits in ART 340 and/or ART 440	
Painting and Drawing	
ART 252. Introductory Painting	
ART 350. Figure Drawing	
ART 352. Intermediate Painting	
ART 452. Advanced Painting (repeat for credit)	
Photography	
ART 260. Introductory Photography: Black and White	
ART 360. Intermediate Photography: Digital	
Complete three of the following courses:	
ART 362. Intermediate Photography: Experimental Black and White	
ART 364. Intermediate Photography: Large Format	
ART 460. Advanced Photography: Alternative Processes	
ART 462. Advanced Photography: The Prehistory of Photography, Magic and Illusion	
ART 464. Advanced Photography: The Photograph as Document	
ART 466. Advanced Photography: Performance for the Lens	
ART 468. Advanced Photography: Screen-based Photo/Video	
ART 469. Advanced Photography: Portfolio Development	
Printmaking	
ART 270. Printmaking: Screenprinting	
ART 272. Printmaking: Relief and Intaglio	
ART 274. Printmaking: Lithography	
ART 470. Advanced Printmaking (repeatable to 6 credits)	
Sculpture	
ART 280. Sculpture	
ART 380. Intermediate Sculpture	
ART 480. Advanced Sculpture (repeatable to 9 credits)	
Art History electives (300-400 level) <sup>3</sup>	6
Art and art-related electives <sup>4</sup>	15
	<b>78</b>

1 Courses cannot be double-counted in studio concentration.

2 Credits taken to fulfill the studio concentration must be taken in a single studio area.

3 Excludes ARTH 490, ARTH 495 and ARTH 499.

4 Studio art and art-related electives must consist of courses with the prefix ARCD, ARED, ART, GRPH, and INDU but excludes courses taken to fulfill the studio concentration.

## Recommended Schedule for Majors

<b>First Year</b>	<b>Credit Hours</b>
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ART 108. Drawing II	3
ART 205. Professional Practices in Art	3
Cluster One: Skills for the 21st Century	9-12
General Education courses	3-6
	<b>30</b>
<b>Second Year</b>	<b>Credit Hours</b>
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey II: Renaissance to Modern	3
Required two- and three-dimensional studio art electives	9
Studio concentration	6
General Education courses	9
	<b>30</b>
<b>Third Year</b>	<b>Credit Hours</b>
Art history elective (300-400 level)	3
Required two- and three-dimensional studio art electives	9
Studio concentration	6
General or art electives (any level)	3
ART 305. Seminar in Aesthetics	3
General Education courses	6
	<b>30</b>

<b>Fourth Year</b>	<b>Credit Hours</b>
Art history elective (300-400 level)	3
Studio concentration	6
General or art electives	9
General Education courses	12
	<b>30</b>

## Bachelor of Fine Arts in Studio Art – Integrated 3D Concentration

*Greg Stewart, Coordinator*

Phone: (540) 568-6816

Integrated 3D students explore the technical, formal, conceptual and cultural overlaps between sculpture, ceramics, fiber and metals.

Integrated 3D students complete a beginning and intermediate course in each 3D medium. This develops a strong, broad skill base, 3D visualization and thinking skills, habits of investigation with a 3D perspective, and knowledge of contemporary practices in 3D media. Students also complete a six to 12-credit concentration in their chosen medium and two capstone courses to further develop and refine specialized technical, analytical and creative skills as well as help students to prepare for professional practice.

Upon completion of the degree, integrated 3D students will be well prepared to pursue professional production and exhibition of their own art or more in-depth study at the graduate level.

### Degree Requirements

<b>Required Courses</b>	<b>Credit Hours</b>
General Education courses <sup>1</sup>	41
University electives	1
Major requirements (listed below)	78
	<b>120</b>

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

The integrated 3D emphasis requires 78 credit hours in art, art history and art related courses.

<b>Required Courses</b>	<b>Credit Hours</b>
<b>Foundation Courses</b>	<b>18</b>
ART 102. Two-Dimensional Design	
ART 104. Drawing I	
ART 106. Three-Dimensional Design	
ART 108. Drawing II	
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	
ARTH 206. Survey of World Art II: Renaissance to Modern	
<b>2D Studio Art courses (choose two)</b>	<b>6</b>
ART 210 or ART 212. Animation	
ART 252. Introductory Painting	
ART 260. Introductory Photography: Black and White	
ART 270, ART 272 or ART 274. Printmaking	
ART 350. Figure Drawing	
GRPH 200. Design Methodology	
<b>3D Studio Art courses</b>	<b>24</b>
ART 220. Introductory Ceramics: Potter's Wheel or ART 222. Introductory Ceramics: Handbuilding	
ART 230. Weaving and Other Fiber Arts	
ART 240. Metal and Jewelry	
ART 280. Sculpture	
ART 320. Intermediate Ceramics: Molds and Casting, or ART 322. Intermediate Ceramics: Surface Development	
ART 330. Intermediate Weaving and Other Fiber Arts	
ART 340. Intermediate Metal and Jewelry	

ART 380. Intermediate Sculpture  
 Emphasis (choose one of the following media): 6-12  
*Ceramics*  
 ART 220. Introductory Ceramics: Potter's Wheel  
 or ART 222. Introductory Ceramics: Handbuilding  
 ART 320. Intermediate Ceramics: Molds and Casting,  
 or, ART 322. Intermediate Ceramics: Surface Development  
 ART 420. Advanced Ceramics: Portfolio Development  
 (repeatable up to 9 credits)

*Fiber Arts*  
 ART 430. Advanced Fiber Arts (repeatable up to 9 credits)  
*Metals and Jewelry*  
 ART 440. Advanced Metal and Jewelry (repeatable up to 9 credits)

*Sculpture*  
 ART 480. Advanced Sculpture (repeatable up to 9 credits)

Required Capstone Courses

ART 495 Capstone Seminar: Three-Dimensional Art (offered every spring)	3
ART 497 Capstone Studio: Three-Dimensional Art (offered fall and spring)	3
Art history electives (300-400 level) 4	6
Art and art-related electives 5	0-6
	78

1 This course fulfills the College of Visual and Performing Arts writing-intensive requirement for the major.  
 2 Courses cannot be double-counted in studio concentration.  
 3 Credits taken to fulfill the studio concentration must be taken in a single studio area.  
 4 Excludes ARTH 490, ARTH 495 and ARTH 499.  
 5 Studio art and art-related electives include courses from graphic design, interior design, art education and internships, but excludes courses taken to fulfill the studio concentration.

### Recommended Schedule for Majors

First Year	Credit Hours
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ART 108. Drawing II	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
Cluster One: Skills for the 21 <sup>st</sup> Century	3
General Education courses	3
	30
Second Year	Credit Hours
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey II: Renaissance to Modern	3
Required 200- and/or 300-level three-dimensional studio art courses	12
Required two-dimensional studio art electives	6
General Education courses	6
	30
Third Year	Credit Hours
Art history elective (300-400 level)	3
Required 200- and/or 300-level 3D studio art courses	12
ART 305. Seminar in Aesthetics	3
General Education courses	12
	30
Fourth Year	Credit Hours
ART 495 Capstone Seminar: Three Dimensional Art (offered every spring)	3
ART 497 Capstone Studio: Three Dimensional Art (offered fall and spring)	3-6
Art history elective (300-400 level)	3
Studio concentration	3-9
art and art-related electives	0-6
General Education courses	12
	30

## Bachelor of Science in Industrial Design

*Coordinator: Audrey Barnes*

Phone: (540) 568-7670 Email: barnesal@jmu.edu

The industrial design major seeks to:

- Integrate knowledge of the visual arts with applied design technology.
- Enhance problem-solving and communication skills in the creation of design concepts.
- Develop student knowledge that optimizes the function, value and appearance of manufactured products and systems.

### Degree Requirements

Required Courses	Credit Hours
General Education requirements <sup>1</sup>	41
Quantitative requirement <sup>2</sup> (in addition to General Education courses)	3
Scientific Literacy requirement (in addition to General Education courses)	3
Major requirements (listed below)	78
	125 <sup>3</sup>

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.  
 2 Quantitative requirements may be double-counted with elective course work in the major. Check with adviser.  
 3 Students can double count up to two courses, thus reducing the total credit hours to 119. Students will need to enroll in three additional credit hours to reach the university minimum requirement of 120 credit hours.

### Major Requirements

The industrial design major requires 78 credit hours in art, art history and art-related courses. Of these hours, 42 credits must be in INDU courses, as the following list shows<sup>1</sup>.

Required Courses	Credit Hours
<i>Foundation Courses (15 credits)</i>	
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
Art and Design Electives (choose two of the following):	6
ART 220. Introductory Ceramics: Potter's Wheel	
ART 222. Introductory Ceramics: Handbuilding	
ART 230. Introduction to Fiber Processes	
ART 240. Metal and Jewelry	
ART 260. Introductory Photography: Black and White	
ART 270, ART 272 or ART 274. Printmaking	
ART 280. Sculpture	
ART 305. Seminar in Aesthetics	
ART 350. Figure Drawing	
GRPH 206. Introduction to Typography	
ARCD 392. Topics in Interior Architecture	
<i>Required Concentration Courses (21 credits):</i>	
GRPH 200. Design Methodology	3
INDU/ARCD 200. Introduction to Design	6
INDU 202. Industrial Design Studio	6
INDU 208. Portfolio Review	0
INDU/ARCD 220. CAD 3D Modeling	3
INDU 380. Materials & Processes	3
<i>Elective Concentration Courses (24 credits):</i>	
INDU 300. Product Design	6
INDU 302. Transportation	6
INDU 400. Systems & Services	6
INDU 402. Social Innovation & Social Entrepreneurship	6
INDU 404. Advanced Special Topics Studio	6

INDU 406. Senior Thesis Studio (Instructor Permission Required)	6
INDU 408. Swing-Studio Option	6
Art History (300 Level)	
ARTH 303. History of Design (required)	3
<i>Interdisciplinary Electives</i>	9
Society and Culture <sup>1</sup> (choose one of the following):	3
ANTH 195. Intro to Cultural Anthropology	
ANTH 205. Buried Cities, Lost Tribes: The Rise and Fall of Early Human Societies.	
ANTH 323. Visual Anthropology	
SOC 260. Sociology of Culture	
SOC 311. Sociology of Environment	
SOC 315. Science, Technology and Society	
SOC 337. Sociology of Gender	
<i>Engineering and Technology</i> <sup>2</sup>	3
ENGR 231. Engineering Design I (2 credits)	
ENGR 232. Engineering Design II (2 credits)	
ENGR 280. Projects in Engineering (1-4 credits)	
ENGR 498. Innovation (3 credits)	
ENGR 498. Realization (3 credits)	
ENGR 498. Human Centered Design (3 credits)	
ENGR 498. Innovation Exchange (3 credits)	
ENGR 498. Systems Design and Placemaking (3 credits)	
ENGR 480. Projects in Engineering (1-4 credits)	
ISAT 211. Modem Production Issues in Science and Technology (3 credits)	
ISAT 330. Manufacturing Systems: Technology & Techniques (3 credits)	
Business, Marketing and Entrepreneurship (choose one):	3
COB 218. Legal and Ethical Environment of Business	
MKTG 380. Principles of Marketing	
MGT 405. Topics in Management	
MGT 472. Venture Creation	
	78

<sup>1</sup> May fulfill the B.S. Natural/Social Science requirement.

<sup>2</sup> Students selecting ENGR electives must have approval from the course instructor and the INDU adviser.

## Recommended Schedule for Majors

First Year	Credit Hours
General Education	12
Art Foundations	15
Elective	3
	30
Second Year	Credit Hours
INDU 200. Introduction to Design	6
INDU 202. Industrial Design Studio	6
INDU 208. Portfolio Review	0
INDU 220. CAD 3D Modeling	3
GRPH 200. Design Methodology	3
General Education	14
	32
Third Year	Credit Hours
Advanced Studio	6
Advanced Studio	6
INDU 380. Materials & Processes	3
ARTH 303. History of Design	3
Interdisciplinary Elective: Engineering and Technology	3
Interdisciplinary Elective: Society and Culture	3
General Education	6
	30
Fourth Year	Credit Hours
Advanced Studio	6
Advanced Studio	6
Art and Design Electives	6

General Education	9
Interdisciplinary Elective: Business, Marketing and Entrepreneurship	3
	30

<sup>1</sup> Students seeking acceptance into the advanced industrial design courses must enroll in INDU 208 and submit a portfolio representing work comprised of projects completed in INDU 200, INDU 202, GRPH 202, INDU 220, INDU 380 and independent design related work. It may be repeated once for a pass/fail standing.

## Bachelor of Science in Studio Art

*Coordinator: Corinne Diop*

Phone: (540) 568-6485 Email: diopcj@jmu.edu

The Bachelor of Science degree in studio art is designed for students who seek a breadth of knowledge in the visual arts and who have a preferred interest or stronger background preparation in math, the natural sciences or the social sciences. The major of studio art allows students to study in one of two areas: studio art or studio art with an emphasis in industrial design. The studio art major allows students to:

- Develop students' visual vocabulary.
- Provide a range of elective options that complement the major in studio art.

Required Courses	Credit Hours
General Education requirements <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3
University electives	28
Major requirements (listed below)	45

120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> In addition to course work taken to fulfill General Education requirement.

<sup>3</sup> A minimum of nine credit hours of general art electives must consist of studio-based courses with an ART prefix (excluding ART 200, 304, 305, 491, 493 and 496). The other six credit hours of general art electives must consist of any courses with the prefix ARCD, ARED, ART, ARTH, GRPH and INDU.

## Major Requirements

The studio arts major requires 45 credit hours in art and art history courses, as the following chart shows.

Required Courses	Credit Hours
Foundation Courses	
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ART 205. Professional Practices in Art	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
3-D Studio Art courses (choose one of the following):	3
ART 220. Introductory Ceramics: Potter's Wheel	
ART 222. Introductory Ceramics: Handbuilding	
ART 232 or ART 234. Fiber Arts	
ART 240. Metal and Jewelry	
ART 280. Sculpture	
Studio art electives (300-400 level) <sup>1</sup>	6
General art electives (any level) <sup>2</sup>	15
Art history elective (300-400 level) <sup>3</sup>	3
	45

<sup>1</sup> The six credits of studio art electives (300-400 level) must be taken in a single studio area. Graphic design, architectural design and industrial design course credits cannot count as a concentration area. Studio art credits cannot be double-counted.

<sup>2</sup> Must include a minimum of nine credit hours in studio art. Up to six hours in art history may be included.

<sup>3</sup> Excludes ARTH 490, ARTH 495 and ARTH 499.

## Recommended Schedule for Majors

First Year	Credit Hours
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
ART 106. Three-Dimensional Design	3
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
Cluster One: Skills for the 21st Century	9-12
General Education	6-9
	30
Second Year	Credit Hours
ARTH 206. Survey of World Art II: Renaissance to Modern	3
ART 205. Professional Practices in Art	3
Required studio art elective	3
Scientific Literacy requirement (in addition to General Education)	3
General Education course	9
General art electives (any level)	6
General elective	3
	30
Third Year	Credit Hours
Art history elective (300-400 level)	3
General art electives (any level)	9
General elective	3
Quantitative requirement (in addition to General Education)	3
General Education courses	12
	30
Fourth Year	Credit Hours
Studio art electives (300-400 level)	6
General electives	9-12
General Education courses	12-15
	30

## Teaching Licensure

*Coordinator: Dr. Karin Tollefson-Hall*

Phone: (540) 568-4304 Email: tollefl@jmu.edu

Art education professional PK-12 licensure is available to all studio and design majors. In addition to the general education and academic major requirements, students desiring PreK-12 teaching licensure in art must complete 23 credits of additional course work in art education, education and psychology, and 16 credits of student teaching. It is necessary to be admitted to the teacher education program prior to enrolling in professional education courses. For a complete description of admission and retention policies and procedures for teacher education, refer to the College of Education. Students seeking licensure are encouraged to consult regularly with the program coordinator of art education. The undergraduate degree leading to licensure must include the following minimum requirements in art:

- Nine credits must be earned in art history and art appreciation.
- Six credits must be earned in ceramics and crafts, with a minimum of one course in ceramics.
- Six credits must be earned in three-dimensional media, with one course in sculpture.
- Twelve credits must be earned in four different two-dimensional media.
- Twenty-seven studio credits, with a minimum of six credits in each of three separate studio areas.

## Course Requirements

The following are required courses leading to PK-12 art licensure and a suggested sequence of when each may be taken.

Required Courses	Credit Hours
ART 304. Methods of Art Criticism (spring, second year)	3
ARED 300. Elementary Art Education Methods (fall, third year)	3
ARED 302. Secondary Art Education Methods (spring, third year)	3
ARED 400. Visual Arts Across the Curriculum (fall, fourth year)	3
ARED 490. Special Studies in Art Education (taken concurrently with ARED 300, ARED 302 and ARED 400) 1 credit; repeatable	3
	15

## Required Education and Psychology Courses

Required Courses	Credit Hours
PSYC 160. Life Span Human Development <sup>1</sup>	3
EDUC 300. Foundations of American Education	3
READ 420. Content Area Literacy, K-12	2
ARED 480. Student Teaching (spring, fourth year)	16
	24

<sup>1</sup> PSYC 160 may double-count toward General Education Cluster Five

## Minor Requirements

Students may select a minor from the following areas. A minimum of 18 credit hours is required for any minor. The art minors attempt to:

- Broaden students' understandings of the value and role of the visual arts in general culture.
- Deepen their appreciation for personal artistic production.
- Enhance their creativity and ability to think independently.

### Art Minor

Students enrolled in any degree program may minor in art by completing a minimum of 18 credit hours in architectural design, art, graphic design or industrial design courses. The student's minor program is subject to approval by the school director.

Required Courses	Credit Hours
ART 102. Two-Dimensional Design	3
ART 104. Drawing I	3
Art or art-related courses (any level) <sup>1</sup>	6
Art or art-related courses (300-400 level) <sup>2</sup>	6
	18

<sup>1</sup> Art and design studio courses are restricted to ARCD, ART, GRPH, and INDU courses, but do not include ART 200, ART 205, ART 305, ART 491, ART 493, ART 496 and ART 499.

<sup>2</sup> These 300-400 level courses cannot count toward the students' major(s).

### Art History Minor

Students enrolled in any degree program may minor in art history by completing a minimum of 18 credit hours in art history courses, as the following chart shows. At least six of these credit hours must be 400-level art history courses. The student's minor program is subject to approval by the school director.

Required Courses	Credit Hours
ARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
ARTH 206. Survey of World Art II: Renaissance to Modern	3
Art history courses (300-400 level) <sup>1</sup>	12
	18

<sup>1</sup> For studio art, graphic design and architectural design majors, required ARTH courses in the art emphasis program may count toward the art history minor. Excludes ARTH 390, ARTH 490, ARTH 495 and ARTH 499.

### Book Arts Minor

For information on this cross disciplinary minor, refer to the cross disciplinary minors catalog section.

# Department of Biology

*Dr. Joanna B. Mott, Department Head*

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Email: [mottjb@jmu.edu](mailto:mottjb@jmu.edu)

*Dr. Kyle Seifert, Undergraduate Coordinator*

Location: Bioscience Building, Room 2001C

Website: <http://www.jmu.edu/biology>

## Professors

M. Gabriele, N. Garrison, H. Griscom, C. Lantz, C. McMullen, J. Monroe, J. Mott, M. Renfroe, C. Rose, K. Seifert, B. Wiggins, R. Wunderlich, G. Wyngaard

## Associate Professors

S. Babcock, M. Bechtel, T. Bloss, J. Brown, C. Cleland, D. Cocking, S. Cresawn, J. Daniel, K. Gobetz, S. Halsell, J. Herrick, C. May, T. Rife, K. Slekár

## Assistant Professors

I. Cooper, K. Cresawn, R. Enke, J. Harsh, K. Kubow, P. Ludwig, D. McLeod, M. Parker, M. Steffen, D. Strong, P. Vasudevan, B. Velayudhan, G. Vidal, M. Walker, L. Wurch

## Visiting Assistant Professor

K. Roth

## Lecturers

B. Cage, E. Doyle, O. Hyman, T. Hynd, P. Kilkenney, A. Pesce

## Mission

The Department of Biology holds as its primary core value a commitment to providing superlative teaching for students. To accomplish this mission, we will create an environment for learning that will include opportunities for undergraduate research, a broadly based academic program, a supportive, diverse and collaborative faculty, an understanding of the process of science and a recognition of the importance of community outreach and involvement.

## Career Opportunities and Advanced Fields of Study

- Anthropology
- Aquatic Science
- Biodiversity
- Bioinformatics
- Biotechnology
- Botany
- Clinical Laboratory Sciences
- Dentistry
- Ecology and Environmental Science
- Epidemiology
- Forensic Science
- Forestry
- Genetic Counseling
- Graduate School in the Biological Sciences
- Immunology
- Landscape Architecture
- Medicine
- Microbiology
- Microscopy
- Neurobiology
- Nursing
- Occupational Therapy
- Optometry

- Pharmacology
- Physical Therapy
- Physician Assistant
- Physiology
- Research Assistant
- Scientific Writing
- Secondary Education
- U.S. Fish and Wildlife Service
- Veterinary Medicine
- Virology
- Zoology

Students interested in pursuing any of these career opportunities should contact the biology office. An appropriate adviser will be assigned for mentoring and course selection.

## Co-curricular Activities and Organizations

Biology majors participate in activities such as:

- Weekly departmental seminars
- Tri-Beta, a national biology society
- Pre-professional health clubs and honor society
- EARTH, an environmental action club
- Summer and academic-year research opportunities
- Summer courses at biological field stations
- Internships with various organizations
- Aiding in teaching as student assistants
- Presenting papers at meetings
- Volunteering at Rockingham Memorial Hospital and with the rescue squad

## Special Requirements

To be used as prerequisites for biology courses, grades of "C-" or higher should be earned in the following: BIO 140, BIO 150, BIO 240, BIO 250, CHEM 131, CHEM 131L and CHEM 132 .

It is the student's responsibility to provide evidence to demonstrate that the subject content of the sequence taken is the same as BIO 140 and BIO 150 combined. In order for BIO 270 and BIO 290 credit to be transferred, both semesters of an Anatomy and Physiology course (A&P I and A&P II) must be completed at the "C" or higher level. A single semester of either of these sequences transfers as BIO 000. Practical hands-on experience in the field and/or laboratory is important content of laboratory based courses.

Transfer credit for courses including laboratories will only be awarded for those having skill and application content comparable to that of JMU courses. Upper division biology credits applicable toward the major or minor are transferred as specific courses or as BIO 300 or BIO 426. Credits not applicable toward the major or minor, but applicable toward the 120 hour degree requirement, are transferred as BIO 000. A maximum of eight credit hours of first year (100) level BIO courses may be applied to the biology major or minor requirements.

Students who declared a major in biology before fall 2016 should consult with their adviser about course requirements.

## Degree and Major Requirements

### Bachelor of Science and Bachelor of Arts in Biology

The department offers a four-year B.S. degree program for a major in biology and for a major in biology qualifying for the Secondary Collegiate Professional License. Requirements for the B.A. degree can be met by adding the completion of an intermediate level foreign language and three credit hours in philosophy. Students may not receive dual credit toward the biology major for 300- and 400-level BIO courses that are applied toward the biotechnology major.

Biology majors must complete 40 credit hours of biology courses including 16 credit hours at the 300 and 400 level. Specific requirements include four core courses (BIO 140, BIO 150, BIO 240 and BIO 250), at least two upper-division laboratory courses and one course from a list of courses with an emphasis on organismal diversity. In addition, biology majors must complete a set of cognate courses in chemistry, mathematics, statistics and physics that are listed below. Students are encouraged to participate in independent research with a faculty mentor. Credits earned doing research will count toward the biology major but some restrictions apply.

When requested, senior biology majors are expected to participate in program assessment test activities as a graduation requirement. Assessment information helps the department modify the curriculum to meet student needs.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education) <sup>2</sup>	3
Scientific Literacy requirement (in addition to General Education) <sup>2</sup>	3-4
Biology requirements (listed below)	40
Cognate requirements (listed below)	31-36
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The quantitative and scientific literacy requirements are met by courses required in the major.

## Major Requirements

Core Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 240. Genetics	4
BIO 250. Ecology and Evolution	4

16

## Additional Biology Course Requirements

Students in the biology major must complete at least 24 credit hours of approved biology courses and at least 16 of these must be at the 300 and 400 levels. Also, one course must be from a group of courses on organismal diversity and two courses must have a laboratory component. Courses in both lists may count for both requirements. Three credits of independent research (BIO 497 and/or BIO 499) may be used for one, but only one, of the laboratory courses.

### 1. Choose at least one organismal diversity courses:

- BIO 305. Ornithology
- BIO 309. Marine and Freshwater Invertebrates
- BIO 310. Marine Biology
- BIO 320. Comparative Anatomy of Vertebrates
- BIO 340. Morphology and Anatomy of Vascular Plants
- BIO 345. Animal Field Biology
- BIO 360. Plant Biology
- BIO 364. Human Uses of Plants
- BIO 386. Field Botany
- BIO 412. Mammalogy
- BIO 470. Morphology of Nonvascular Plants
- BIO 486. Systematics of Vascular Plants

### 2. Choose at least two laboratory courses:

- BIO 305. Ornithology
- BIO 310. Marine Biology
- BIO 316L. Principles of Animal Development (taken with BIO 316)
- BIO 320. Comparative Anatomy of Vertebrates
- BIO 340. Morphology and Anatomy of Vascular Plants
- BIO/MATH 342. Mathematical Models in Biology
- BIO 343L. Immunology Laboratory (must be taken with BIO 343)
- BIO 345. Animal Field Biology
- BIO 346. Bacterial Discovery
- BIO 348L. Medical Microbiology Lab (taken with BIO 348)
- BIO 364L. Laboratory in Human Uses of Plants taken with BIO 364)
- BIO 370. Animal Physiology
- BIO 386. Field Botany
- BIO 387L. Environmental Biology Lab (taken with BIO 387)
- BIO/GEOL 400. Geology and Ecology of the Bahamas
- BIO/GEOG 402. Forest Ecology
- BIO 403. Animal Communication
- BIO 410. Advanced Human Anatomy
- BIO 412. Mammalogy
- BIO 416. Human Embryology
- BIO 420L. Medical Parasitology Lab (taken with BIO 420)
- BIO 432. Light Microscopy
- BIO 445. Neurobiology
- BIO 446. Experimental Neurobiology
- BIO 452. Population Ecology
- BIO 455. Plant Physiology
- BIO 456. Landscape Ecology
- BIO 457. Biological Applications of Geographic Information Systems
- BIO 459. Freshwater Ecology
- BIO 460. Plant Biotechnology
- BIO 465. Environmental Toxicology
- BIO 470. Morphology of Nonvascular Plants
- BIO 480. Advanced Molecular Biology
- BIO 481. Genomics

BIO 482. Human Histology  
 BIO 483. Bioinformatics  
 BIO 486. Systematics of Vascular Plants  
 BIO 490. Biomechanics

Only one Topics in Biology (BIO 426/427) may fulfill one of the laboratory course and/or organismal requirements. A list of the topics that may be used is available in the biology department office. These can be repeated with a change in topic, but only 12 credits from BIO 426/427 can be applied toward the 40-hour biology course requirement.

When choosing additional biology courses to complete the 40 credit hour requirement, students are strongly encouraged to discuss their career interests with an adviser who can help select courses best suited to their needs. Students are encouraged to participate in independent research and teaching courses with a faculty mentor, though a maximum of eight credits of BIO 492, BIO 494, BIO 495, BIO 496, BIO 497, BIO 499 and ISCI 450 can be counted toward the biology major.

## Cognate Requirements

The following five groups of support courses are required for the biology major. Consult your academic adviser about which courses are appropriate.

Required Courses	Credit Hours
1) Complete all of the following:	11
CHEM 131. General Chemistry I	
CHEM 131L. General Chemistry Laboratory	
CHEM 132. General Chemistry II	
CHEM 132L. General Chemistry Laboratory	
CHEM 241. Organic Chemistry I	
2) Choose one of the following: <sup>1</sup>	3
CHEM 242. Organic Chemistry II	
BIO/CHEM 361. Biochemistry I	
CHEM 353. Environmental Chemistry	
GEOL/CHEM 355. Geochemistry of Natural Waters	
3) Choose one of the following sets of courses: <sup>2</sup>	4-7
MATH 231. Calculus with Functions I	
MATH 232. Calculus with Functions II	
or	
MATH 235. Calculus I	
4) Choose one of the following courses: <sup>3</sup>	3-4
MATH 220. Elementary Statistics	
MATH 285. Data Analysis	
MATH 318. Introduction to Probability and Statistics	
5) Choose one of the following sets of courses:	8
PHYS 140 -140L. College Physics I with Laboratory	
PHYS 150 -150L. College Physics II with Laboratory	
or	
PHYS 240-140L. University Physics I with Laboratory	
PHYS 250 -150L. University Physics II with Laboratory	

30-33

1 Chemistry beyond the minimum requirement is recommended in many areas of biology. Consult with your adviser about which courses are appropriate. Students who take BIO/CHEM 361 in addition to CHEM 242, CHEM 353, CHEM 354 or GEOL/CHEM 355 will not have BIO/CHEM 361 applied toward their BIO 300-400-level elective requirements. BIO/CHEM 361 may not be used for both a chemistry cognate and a biology major elective.

2 Mathematics beyond the minimum requirement is desirable in many areas of biology. Consult your adviser about which courses are appropriate.

3 Statistics beyond the minimum requirement is desirable in many areas of biology. Consult your adviser about which courses are appropriate.

## Recommended Schedule for Majors

First semester first year biology majors are encouraged to start with a 14-15 hour course load. This will generally include BIO

140, CHEM 131 and CHEM 131L, and/or a math course plus General Education. The work load will then be increased in the second semester based on the level of first semester success.

First Year	Credit Hours
BIO 140. Foundations of Biology I <sup>1</sup>	4
BIO 150. Foundations of Biology II	4
CHEM 131-132. General Chemistry Lectures <sup>1</sup>	6
CHEM 131L-132L. General Chemistry Laboratories	2
Mathematics courses <sup>1</sup>	4-7
General Education: Cluster One	9-12
	29-35

1 Fulfills General Education: Cluster Three.

Second Year	Credit Hours
BIO 240. Genetics	4
BIO 250. Ecology and Evolution	4
CHEM 241. Organic Chemistry I	3
CHEM 242, BIO/CHEM 361, CHEM 353 or GEOL/CHEM 355	3
Mathematics course	3-4
General Education: from Clusters Two, Four and Five	12
	29-30

Third Year	Credit Hours
Upper-level biology laboratory courses	8
Biology elective	3-4
Physics courses	8
General Education: from Clusters Two, Four and Five	7
Electives	6
	32-33

Fourth Year	Credit Hours
Upper-level biology laboratory course	4
Biology electives	9
General Education: from Clusters Two, Four and Five	3
Electives	15
	31

## Concentrations

### Concentration in Ecology and Environmental Biology

The biology department offers a concentration within the biology major for students with interest in ecology, field biology, natural resources, environmental biology, conservation biology, evolution, animal behavior and organismal biology.

Students choosing a concentration in ecology and environmental biology must meet all of the requirements for the biology major as well as the following additional requirements. Courses for this concentration can also satisfy biology major requirements.

1. Students must complete at least 20 credit hours from the following list. With prior approval from the concentration coordinator, BIO 426 and/or BIO 427 may be substituted. Students are strongly encouraged to discuss their career interests with an adviser who can help select courses best suited to their needs. In addition to the courses listed below, a maximum of eight credits of BIO 495, BIO 496, BIO 497 and BIO 499 can be counted toward the EEB concentration.

BIO 305. Ornithology<sup>1,2</sup>  
 BIO 309. Marine and Freshwater Invertebrates<sup>1</sup>  
 BIO 310. Marine Biology<sup>1,2</sup>  
 BIO 320. Comparative Anatomy of Vertebrates<sup>1,2</sup>

BIO 340. Morphology and Anatomy of Vascular Plants<sup>1,2</sup>  
 BIO/MATH 342. Mathematical Models in Biology  
 BIO 345. Animal Field Biology<sup>1,2</sup>  
 BIO 354. Global Climate Change and Life  
 BIO 360. Plant Biology<sup>1</sup>  
 BIO 370. Animal Physiology<sup>2</sup>  
 BIO 380. General Microbiology<sup>1,2</sup>  
 BIO 386. Field Botany<sup>1,2</sup>  
 BIO 387. Environmental Microbiology  
 BIO 387L. Environmental Microbiology Laboratory<sup>2</sup>  
 BIO/PSYC 395. Comparative Animal Behavior  
 BIO/GEOL 400. Geology and Ecology of the Bahamas  
 BIO/GEOG 402. Forest Ecology<sup>2</sup>  
 BIO 403. Animal Communication<sup>2</sup>  
 BIO 404. Evolutionary Analysis  
 BIO 412. Mammalogy<sup>1,2</sup>  
 BIO 447. Evolution and Ecology of Infectious Disease  
 BIO 449. Insect Ecology<sup>1,2</sup>  
 BIO 452. Population Ecology<sup>2</sup>  
 BIO 453. Microbial Ecology and Evolution  
 BIO 454. Introduction to Biometrics  
 BIO 455. Plant Physiology<sup>2</sup>  
 BIO 456. Landscape Ecology<sup>2</sup>  
 BIO 457. Biological Applications of Geographic Information Systems<sup>2</sup>  
 BIO 459. Freshwater Ecology<sup>2</sup>  
 BIO 465. Environmental Toxicology<sup>2</sup>  
 BIO 466. Toxicology Seminar  
 BIO 470. Morphology of Nonvascular Plants<sup>1,2</sup>  
 BIO 486. Systematics of Vascular Plants<sup>1,2</sup>

<sup>1</sup> Meets the biology major requirement for an organismal diversity course.

<sup>2</sup> Meets one of the biology major requirements for laboratory/field courses.

2. Students must take two additional cognate courses:

MATH 321. Analysis of Variance and Experimental Design or MATH  
 322. Applied Linear Regression or BIO 454. Introduction to  
 Biometrics  
 GEOG 215. Geospatial Tools I - Cartography and GIS or BIO 457.  
 Biological Applications of Geographic Information Systems

It is highly recommended that students take additional upper-level degree elective courses in geography/GIS (such as GEOG 466. GIS and Geographic Databases, or GEOG 467. GIS Project Management) and in statistics (such as MATH 322. Applied Linear Regression, or MATH 324. Applied Nonparametric Statistics). Students should consult with their adviser about which courses are appropriate.

## Concentration in Microbiology

The biology department offers a concentration within the biology major for students with interest in bacteriology, virology, immunology, parasitology and infectious disease.

Students choosing a concentration in microbiology must meet all the requirements for the biology major, including the following specific requirements.

Required Courses	Credit Hours
BIO 245. General Microbiology	4
BIO 246. Microbiology Seminar	1
BIO 348. Medical Microbiology	3
BIO 387. Environmental Microbiology	3
Choose one of the following courses:	1-2
BIO 204. Viral Genome and Bioinformatics	
BIO 346. Bacterial Discovery <sup>1</sup>	
Choose two courses. With prior approval from the concentration coordinator, BIO 426 and/or BIO 427 may be substituted.	6
BIO 343. Immunology	
BIO 420. Medical Parasitology	

BIO 444. Virology  
 BIO 447. Evolution and Ecology of Infectious Disease  
 BIO 453. Microbial Ecology and Evolution

18-19

<sup>1</sup> Meets one of the biology major requirements for a laboratory/field course.

## Concentration in Neuroscience

The biology department offers a concentration within the biology major for students with interests in cell and molecular, systems, and behavioral aspects of the nervous system and its functionality. Students choosing a concentration in neuroscience must meet all of the requirements for the biology major in addition to the following requirements. Courses for this concentration can also satisfy biology major requirements.

Required Courses	Credit Hours
Choose one:	3
BIO 301. Introductory Neuroscience	
BIO/PSYC 385. Biopsychology	
Choose one:	3-4
BIO/CSD 415. Neuroanatomy and Neurogenic Communication Disorders	
BIO 445. Neurobiology <sup>1</sup>	
Neuroscience Concentration Electives: Choose three, of which at least one must be principally a neurobiology course (BIO/PSYC 375, BIO/CSD 415, BIO 445, or BIO 446).	9-12
BIO 316. Animal Development, with optional laboratory <sup>1</sup>	
BIO/PSYC 375. Sensation and Perception	
BIO/CSD 415. Neuroanatomy and Neurogenic Communication Disorders <sup>2</sup>	
BIO 445. Neurobiology <sup>1,2</sup>	
BIO 446. Experimental Neurobiology <sup>1</sup>	
BIO 480. Advanced Molecular Biology <sup>1</sup>	
BIO 481. Genomics <sup>1</sup>	
BIO 482. Human Histology <sup>1</sup>	

15-19

<sup>1</sup> Meets one of the biology major requirements for a laboratory/field course.

<sup>2</sup> BIO 445 and BIO/CSD 415: The course not taken as part of required neuroscience concentration core may be used to fulfill elective requirements.

Students should choose additional BIO courses at the 300-400 level, including a course that fulfills the organismal diversity major requirement, and are strongly encouraged to discuss their career interests with an adviser who can help select courses best suited to their needs. With prior approval from the concentration coordinator, BIO 426 and/or BIO 427 may be substituted. It is recommended that students participate in independent research (BIO 497/499) with a faculty mentor.

## Dual Degree Program in Forest Biology

*James Madison University Liaison: Heather Griscom*  
 Phone: (540) 568-5525

This dual degree program makes it possible for the student to earn a B.S. degree in biology from James Madison University and a Master of Forestry degree from Virginia Tech in five years.

During the first three years at JMU, the student must complete 90 credit hours, including all JMU general education requirements, the biology core requirements, BIO 402. Forest Ecology and four additional hours in biology.

Also, the student must take the cognate courses for biology majors in chemistry, mathematics and physics and a course in geology (GEOL 110).

During the fourth year of study the student will take further courses (at least 30 hours) at Virginia Tech for credit toward, following JMU transfer policy, the B.S. in biology from JMU.

A total of 38 semester hours of biology and biology-related courses (taken at JMU and Virginia Tech) will be required for the JMU B.S. in biology, which will be conferred after the fourth year of study. If the student's academic record is satisfactory, he/she will be admitted into the graduate program of the Department of Forestry at Virginia Tech, where he/she will spend an additional year taking forest biology and natural resources courses to obtain the degree of Master of Forestry. To apply for the dual degree program, the student must have the permission of the dean of the College of Science and Mathematics. Information about the program can be obtained from the Department of Biology. Students are encouraged to inquire as early as possible in their undergraduate careers.

## Minor Requirements

### Biochemistry and Molecular Biology

#### Minor

For more detailed information on this cross disciplinary minor, refer to the biochemistry and molecular biology section.

#### Biology Minor

*Minor Advisor: Julia Stutzman*

Students who declared a major in biology before fall 2016 should consult with their adviser about course requirements. The biology minor is not available to biotechnology majors.

Students choosing to minor in biology must complete the following courses:

Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 240. Genetics	4
BIO 250. Ecology and Evolution	4
Biology elective (300-level and above)	3-4

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19-20

## Credit by Examination

When evidence of sufficient background or preparation is presented, the Department of Biology offers credit by examination in many of its non-lab courses at the discretion of the course instructor or coordinator. Students seeking such credit should make arrangements with the course instructor or coordinator and obtain approval of the department head.

## Teaching Licensure

Biology majors need courses in physics and geology as well as inorganic and organic chemistry for many science education positions.

In addition to the general education and academic major requirements, biology majors desiring secondary teacher licensure must be admitted to teacher education, complete the pre-professional program in secondary education at the undergraduate level and complete the graduate level Master of Arts in Teaching degree.

It is critical that students seeking licensure consult regularly with both their education adviser and their major adviser to support their progression through the programs. For a full description of the program in secondary teaching, refer to the Department of Middle, Secondary and Mathematics Education, in addition to the College of Education.

# Biotechnology Program

*Dr. Marta K. Bechtel, Director*

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## Mission

In cooperation with the Department of Integrated Science and Technology and the Department of Chemistry and Biochemistry, the Department of Biology offers a four-year, cross disciplinary B.S. degree program for a major in biotechnology. Students majoring in biotechnology will be prepared to either enter the biotechnology workforce or pursue graduate education in a wide array of fields including medical, agricultural or industrial biotechnology. Fields of research in biotechnology include applied molecular biology, bioinformatics and genomics.

Biotechnology majors must complete 47-50 credit hours of science foundation courses, 17 credit hours of biotechnology transition and core courses, and 15 credit hours of elective courses. Students may not receive dual credit toward the biotechnology major for 300- and 400-level biology courses that are applied toward the biology major. Biotechnology majors are not eligible for the biochemistry and molecular biology minor.

## Degree and Major Requirements

### Bachelor of Science in Biotechnology

Degree Requirements	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
Major requirements (listed below) and electives	79
	126

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to General Education.

### Major Requirements

Science Foundation Courses	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
BIO 240. Genetics	4
BIO 250. Ecology and Evolution	4
CHEM 131+132. General Chemistry I-II	6
CHEM 131L+132L. General Chemistry Lab I-II	2
CHEM 241+242. Organic Chemistry Lecture I-II	6
CHEM 242L. Organic Chemistry Lab	2
PHYS 140+140L-150+150L. College Physics I-II + Labs	8
Choose one of the following sets of courses:	
MATH 231. Calculus with Functions I	3
MATH 232. Calculus with Functions II	3
or MATH 235 Calculus I	4
Choose one of the following courses:	
MATH 220. Elementary Statistics	3
MATH 285. Data Analysis	4
	47-50

Biotechnology Transition and Core Courses	Credit Hours
BIOT 260. Biotechnology Seminar	1
ISAT 305. Biotechnology Lab	1

ISAT 451. Biotechnology in Industry and Agriculture	3
ISAT 456. Ethical, Legal and Social Implications of Biotechnology	3
CHEM 361. Biochemistry I	3
CHEM 366L. Biochemistry Lab	2
BIO 480. Advanced Molecular Biology	4
	17

### Biotechnology Elective Courses

### Credit Hours

Select 15 credit hours:

BIO 316. Principles of Animal Development	4
BIO 324. Human Genetics	3
BIO/MATH 342. Mathematical Models in Biology	3
BIO 343. Immunology	3
BIO 343L. Immunology Laboratory	1
BIO 348. Medical Microbiology	3
BIO 348L. Medical Microbiology Lab	1
BIO 364. Human Uses of Plants	3
BIO 364L. Lab in Human Uses of Plants	1
BIO 370. Animal Physiology	4
BIO 380. General Microbiology	4
BIO 416. Human Embryology	4
BIO 420. Medical Parasitology	3
BIO 420L. Medical Parasitology Lab	1
BIO 444. Virology	3
BIO 445. Neurobiology	4
BIO 451. Current Topics in Human Development and Evolution	3
BIO 454. Introduction to Biometrics	4
BIO 455. Plant Physiology	4
BIO 460. Plant Biotechnology	4
BIO 465. Environmental Toxicology	4
BIO 466. Toxicology Seminar	3
BIO 472. Human Metabolism	3
BIO 475. Advanced Cell Biology	3
BIO 481. Genomics	4
BIO 482. Human Histology	4
BIO 490. Biomechanics	4
CHEM 270. Inorganic Chemistry I	3
CHEM 331. Physical Chemistry I	3
CHEM 336L. Applied Physical Chemistry Lab	2
CHEM 351. Analytical Chemistry	4
CHEM 352. Instrumental Analysis	3
CHEM 352L. Instrumental Analysis Lab	2
CHEM 362. Biochemistry II	3
CHEM 440. Intermediate Organic Chemistry	3
CHEM 445. Polymer Chemistry	4
ISAT 450. Biotechnology and the Environment	3
ISAT 452. Medical Biotechnology	3
ISAT 454. Computer Applications in Biotechnology	3
ISAT 455. Regulatory Issues in Biotechnology	3
ISAT 457. Business of Biotechnology	3
ISAT 459. Awareness and Understanding of Chemical, Biological and Radiological Weapons of Mass Destruction	3
MATH 318. Introduction to Probability and Statistics	4
MATH 321. Analysis of Variance and Experimental Design	3
MATH 322. Applied Linear Regression	3
MATH 421. Applied Multivariate Statistical Analysis	3

Other 300- and 400-level courses may meet the requirement but permission must be sought from the program director.

Students are highly encouraged to include academic credit for research, up to 8 credits of which may be applied to the elective requirement.

## Recommended Schedule for Majors

First semester, first year biotechnology majors are encouraged to start with a 14-15 hour course load. This will generally include a biology course (four credit hours), CHEM 131 and CHEM 131L, and/or a math course, plus General Education. The work load will then be increased in the second semester based on the level of success during the first semester.

First Year	Credit Hours
BIO 140. Foundations of Biology I	4
BIO 150. Foundations of Biology II	4
CHEM 131+CHEM 131L. General Chemistry I <sup>1</sup>	4
CHEM 132+CHEM 132L. General Chemistry II	4
Quantitative course <sup>1</sup>	4-6
General Education: Cluster One	9
	29-31

<sup>1</sup> Fulfills General Education: Cluster Three.

Second Year	Credit Hours
BIOT 260. Biotechnology Seminar	1
ISAT 305. Biotechnology Lab	1
BIO 240. Genetics	4
BIO 250. Ecology and Evolution	4
CHEM 241+242. Organic Chemistry Lecture	6
CHEM 242L. Organic Chemistry Laboratory	2
Quantitative course	3-4
General Education: from Clusters Two, Four and Five	9
	30-31

Third Year	Credit Hours
CHEM/BIO 361+CHEM 366L. Biochemistry Lab	5
BIO 480. Advanced Molecular Biology	4
Biotechnology Electives	4
Physics courses	8
General Education: from Clusters Two, Four and Five	7
Electives	4
	32

Fourth Year	Credit Hours
ISAT 456. Social and Ethical Issues	3
ISAT 451. Biotechnology in Industry	3
Biotechnology Electives	11
General Education: from Clusters Two, Four and Five	6
Electives	6
	29

# Department of Chemistry and Biochemistry

*Dr. Linette M. Watkins, Department Head*

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Location: Physics and Chemistry Building, Room 1186

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Website: <http://www.jmu.edu/chemistry>

## Professors

D. Amenta, K. Caran, T. DeVore, D. Downey, R. Foust, J. Gilje, G. MacDonald, B. Reisner, L. Watkins

## Associate Professors

B. Boardman, C. Hughey, S. Lewis, D. Mohler, N. Wright, Y. Zhang

## Assistant Professors

A. Baber, C. Berndsen, O. Kokhan, P. Raston, I. Sumner

## Lecturers

D. Blumling, K. Funck, Q. Liu, D. Warnaar, D. Wilson

## Mission

The Department of Chemistry and Biochemistry offers the B.S. degree for a major in chemistry, with concentrations that meet the American Chemical Society Accredited Programs requirements for programs in biochemistry, materials chemistry and in chemistry/chemical education. In addition, the department offers a B.S. degree in biophysical chemistry. It also offers minors in chemistry, biochemistry and molecular biology, and materials science. The programs are designed to provide the theoretical and practical instruction in chemistry and related areas to prepare students for careers in chemistry, biochemistry, medicine, dentistry, paramedical areas, forensic sciences, chemical engineering and other technology based areas. The department also recognizes its responsibility to provide courses for non-chemistry majors who need a basic understanding of the principles of chemistry either for their chosen major or their general education.

## Career Opportunities

- Graduate school in chemistry, biochemistry or related areas (ACS Certified Degrees preferred)
- Professional employment as a chemist or biochemist (ACS Certified Degrees preferred)
- Professional school (medical, dental, veterinary, pharmacy, business and law)
- Chemical engineering
- Environmental science
- Forensic science
- Immunology
- Industrial hygiene
- Pharmaceutical chemistry
- Pharmacology
- Production supervision
- Quality control
- Research assistant
- Scientific writing
- Some forms of development work
- Technical library science
- Toxicology

## Co-curricular Activities and Organizations

- American Chemical Society Student Affiliate Chapter
- Alpha Chi Sigma Professional Fraternity (Coed)
- Iota Sigma Pi

## Degree and Major Requirements Bachelor of Science in Chemistry

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education) <sup>2</sup>	3
Scientific Literacy requirement (in addition to General Education) <sup>2</sup>	3-4
Major requirements and electives	70-74
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary. Some courses that are required for this major will meet General Education requirements.

<sup>2</sup> The quantitative and scientific literacy requirements are met by courses required in the major.

Students must complete all course work in one of the six concentrations listed to earn a bachelor's degree in chemistry. The credit hours for major requirements will vary based on the chosen concentration.

Core Requirements for all Concentrations	Credit Hours
CHEM 131-132. General Chemistry I-II	6
CHEM 135L. Special General Chemistry Laboratory <sup>1</sup>	1
CHEM 136L. Special General Chemistry Laboratory <sup>1</sup>	2
CHEM 241-242. Organic Chemistry Lecture	6
CHEM 270. Inorganic Chemistry I	3
CHEM 287L-288L. Integrated Inorganic/Organic Laboratory	4
CHEM 331. Physical Chemistry I	3
CHEM 351. Analytical Chemistry	4
CHEM 361. Biochemistry I	3
CHEM 481-482. Literature and Seminar I-II	2

**Required Cognate Courses for all Concentrations**

MATH 235-236. Calculus I-II (or MATH 231, 232 and 236)	8-10
PHYS 240-250. University Physics I-II	6
PHYS 140L-150L. General Physics Laboratories	2

16-18

1 CHEM 131L and 132L may be substituted.

**Electives**

The well-prepared student is encouraged to take as many of the additional departmental offerings as possible as electives with attention being given to junior and/or senior research projects.

Three credits of undergraduate research (CHEM 390/497/499) may be used to satisfy chemistry elective requirements if the research project is completed with the same faculty mentor over multiple semesters.

**Concentrations****Concentration I: American Chemical Society Certified Curriculum in Chemistry**

All ACS Certified Programs require a minimum of 400 hours of laboratory and research. Students completing concentration I must complete the courses below in addition to core courses.

Required Courses	Credit Hours
CHEM 352. Instrumental Analysis	3
CHEM 352L. Instrumental Analysis Laboratory	2
CHEM 432. Physical Chemistry II	3
CHEM 438L. Physical Chemistry Laboratory	2
CHEM 470. Inorganic Chemistry II	3
MATH 237. Calculus III	4
MATH 238. Linear Algebra and Differential Equations	4

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**Concentration II: American Chemical Society Certified Curriculum in Biochemistry**

This program meets the recommended undergraduate degree requirements of the American Society for Biochemistry and Molecular Biology for a major in biochemistry. All ACS Certified Programs require a minimum of 400 hours of laboratory and research. Students completing concentration II must complete the courses below in addition to core courses.

Required Courses	Credit Hours
CHEM 352. Instrumental Analysis	3
CHEM 352L. Instrumental Analysis Laboratory	2
CHEM 362. Biochemistry II	3
CHEM 366L. Biochemistry Laboratory	2
CHEM 432. Physical Chemistry II	3
CHEM 438L. Physical Chemistry Laboratory	2
BIO 140. Foundations I	4
BIO 240. Genetics	4
BIO 380. General Microbiology	4
BIO 480. Molecular Biology	4

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**Concentration III: American Chemical Society Certified Curriculum in Materials Chemistry**

All ACS Certified Programs require a minimum of 400 hours of laboratory and research. Students completing concentration III must complete the courses below in addition to core courses.

Required Courses	Credit Hours
CHEM 336L. Applied Physical Chemistry Laboratory	2
CHEM 352. Instrumental Analysis	3
CHEM 352L. Instrumental Analysis Laboratory	2

CHEM 375. Introduction to Materials Science	3
CHEM 432. Physical Chemistry II	3
CHEM 445. Polymer Chemistry (with laboratory)	4
MATH 237. Calculus III	4
MATH 238. Linear Algebra and Differential Equations	4
Choose one of the following:	3-4
CHEM 485. Science of the Small	
ENGR 314. Materials and Mechanics	
ENGR 498. Advanced Topics in Engineering (when topic is appropriate)	
GEOL 390. Laboratory Techniques in Geology	

28-29

**Concentration IV: American Chemical Society Certified Curriculum in Chemical Education**

All ACS Certified Programs require a minimum of 400 hours of laboratory and research. Students completing concentration IV must complete the courses below in addition to core courses.

Required Courses	Credit Hours
CHEM 352. Instrumental Analysis	3
CHEM 352L. Instrumental Analysis Laboratory	2
CHEM 432. Physical Chemistry II	3
CHEM 438L. Physical Chemistry Laboratory	2
ACS Certified Chemical Education Courses: See Licensure Programs.	

**Concentration V: General Program in Chemistry**

Students completing concentration V must complete the courses below in addition to core courses.

Courses	Credit Hours
CHEM 336L. Applied Physical Chemistry Lab	2
CHEM 352. Instrumental Analysis	3
CHEM 352L. Instrumental Analysis Laboratory	2
Upper division chemistry elective	3

10

**Concentration VI: Chemistry/Business Program**

This program is designed for business-oriented chemistry students preparing for careers in patent law, technical sales, technical service and related areas. Students completing concentration VI must complete the courses below in addition to core courses.

Courses	Credit Hours
CHEM 336L. Applied Physical Chemistry Laboratory	2
ACTG 244. Accounting for Non-Business Majors	3
COB 204. Computer Information Systems	3
ECON 201. Introduction to Microeconomics	3
ECON 200. Introduction to Macroeconomics	3
FIN 345. Finance for the Non-financial Manager	3
MATH 220. Elementary Statistics	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3
Approved chemistry, science and/or COB <sup>1</sup> electives	5

31

<sup>1</sup> COB 218. Legal and Ethical Environment of Business is a suggested elective. Although business electives may be taken by students in this concentration, the total number of business credit hours may not exceed 27

**Recommended Schedule for Chemistry Majors**

First Year	Credit Hours
CHEM 131-132. General Chemistry I-II	6
CHEM 135L-136L. Special General Chemistry Laboratory (or CHEM 131L-132L)	2-3
MATH 235-236. Calculus I-II	8
BIO 140. Foundations I	4

General Education courses or electives	10
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30-31

<b>Second Year</b>	<b>Credit Hours</b>
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CHEM 241-242. Organic Chemistry Lecture	6
CHEM 270. Inorganic Chemistry I	3
CHEM 287L-288L. Integrated Inorganic/Organic Laboratory	4
PHYS 240-250. University Physics I-II	6
PHYS 140L-150L. General Physics Laboratories	2
General Education courses or electives	9

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30

<b>Third Year</b>	<b>Credit Hours</b>
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CHEM 331. Physical Chemistry I	3
CHEM 351. Analytical Chemistry	4
CHEM 352-352L. Instrumental Analysis with Laboratory	5
CHEM 361. Biochemistry I	3
CHEM 481-482. Literature and Seminar I-II	2
Courses in the concentration, General Education or electives	13

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30

<b>Fourth Year</b>	<b>Credit Hours</b>
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Courses in the concentration, General Education or electives	29
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29

## Bachelor of Science in Biophysical Chemistry

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education) <sup>2</sup>	3
Scientific Literacy requirement (in addition to General Education) <sup>2</sup>	3-4
Major requirements and electives	85-87

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131

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary. Some courses that are required for this major will meet General Education requirements.

2 The quantitative and scientific literacy requirements for this degree are met by courses required for the major. As a result, the total credit hours earned for the degree will be 131.

<b>Major Requirements</b>	<b>Credit Hours</b>
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CHEM 131-132. General Chemistry I-II	6
CHEM 135L. Special General Chemistry Lab <sup>1</sup>	1
CHEM 136L. Special General Chemistry Lab <sup>1</sup>	2
CHEM 270. Inorganic Chemistry	3
CHEM 241-242. Organic Chemistry	6
CHEM 287L-288L. Organic Laboratory <sup>2</sup>	4
CHEM 351. Analytical Chemistry	3
CHEM 361. Biochemistry I	3
CHEM 363. Biophysical Chemistry (Literature & Seminar included)	3
CHEM 367L. Biochemistry Laboratory (fall)	2
CHEM 368L. Biophysical Chemistry Laboratory (spring)	2
CHEM 331. Physical Chemistry I	3
CHEM 432. Physical Chemistry II	3
CHEM 336L. Applied Physical Chemistry Laboratory	2
BIO 140. Foundations I	4
BIO 240. Genetics	4
BIO 480. Advanced Molecular Biology	4
Physics and Mathematics Background Courses	24

MATH 235-237. Calculus I-III (or MATH 231, MATH 232, MATH 236, MATH 237)

MATH 238. Linear Algebra with Differential Equations

PHYS 240-250. University Physics I-II

PHYS 140L-150L. General Physics Laboratory

Choose at least two of the following electives: 6-8

CHEM/PHYS/MATS 375. Introduction to Materials Science

CHEM 362. Biochemistry II (Special Topics)

CHEM 440. Intermediate Organic

CHEM 445. Polymer Chemistry

CHEM 470. Inorganic Chemistry II

BIO 324. Human Genetics

BIO 445. Neurobiology

BIO 475. Advanced Cell Biology

PHYS 260. University Physics III

PHYS 270. Modern Physics

PHYS 326. Biophysics

PHYS/MATS 381. Materials Characterization

MATH 318. Introduction to Probability and Statistics

BIO/MATH 342. Mathematical Models in Biology

CHEM 390. Problems in Chemistry /497. Undergraduate Chemical Research/499. Honors

BIO 494. Internship in Biology/497. Biological Research

PHYS 398. Independent Study in Physics

/498R. Undergraduate Research in Physics/ 499. Honors

MATH 497-498. Independent Study/499. Honors

ANY 300-400 level CHEM, PHYS or MATH course pre-approved by adviser

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85-87

1 CHEM 131L/132L may be substituted.

2 CHEM 242L may be substituted.

### Recommended Schedule for Majors

First Year	Credit Hours
CHEM 131-132. General Chemistry I-II	6
CHEM 135L-136L. Special General Chemistry Laboratory (or CHEM 131L-132L)	2-3
BIO 140. Foundations I	4
MATH 235-236. Calculus I-II	8
General Education courses or electives	12

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32-33

<b>Second Year</b>	<b>Credit Hours</b>
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CHEM 241-242. Organic Chemistry Lecture	6
CHEM 270. Inorganic Chemistry	3
CHEM 287L-288L. Integrated Inorganic/Organic Laboratory	4
BIO 240. Genetics	4
MATH 237. Calculus III	4
PHYS 240-250. University Physics I-II	6
PHYS 140L-150L. General Physics Laboratory	2
General Education courses or electives	3

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<b>Third Year</b>	<b>Credit Hours</b>
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CHEM 331. Physical Chemistry I	3
CHEM 336L. Applied Physical Chemistry Laboratory	2
CHEM 351. Analytical Chemistry	4
CHEM 361. Biochemistry I	3
CHEM 367. Biochemistry Laboratory	2
MATH 238. Linear Algebra/Differential Equations	4
General Education courses or electives	14

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32

Fourth Year	Credit Hours
CHEM 363. Biophysical Chemistry	3
CHEM 368L. Biophysical Chemistry Laboratory	2
CHEM 432. Physical Chemistry II	3
BIO 480. Advanced Molecular Biology	4
General Education courses or electives	12
	<hr/>
	24

## Minor Requirements

### Biochemistry and Molecular Biology

For more detailed information on this cross disciplinary minor, refer to Biochemistry and Molecular Biology.

### Chemistry Minor

The requirements for a minor in chemistry are 24 credit hours in chemistry, distributed as follows:

Courses	Credit Hours
General Chemistry	8
CHEM 131-132. General Chemistry I-II	
CHEM 131L-132L. General Chemistry Laboratories	
Organic Chemistry: One or two lectures and corresponding lab	4-8
CHEM 241 + CHEM 241L (or CHEM 241 + CHEM 242 + CHEM 242L)	
Physical Chemistry: One lecture and corresponding lab	5
CHEM 331 + CHEM 336L (or CHEM 432)	
Analytical Chemistry	4
CHEM 351. Analytical Chemistry	
An approved three-credit CHEM elective	3
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	24

In order to complete this minor, prerequisite courses in mathematics and physics are required. These courses collectively fulfill the nine-credit approved technical elective package for the Bachelor of Science in Engineering.

### Materials Science Minor

Refer to Cross Disciplinary Programs for more detailed information on this cross disciplinary minor.

## Credit by Examination

The chemistry and biochemistry department offers credit by examination for CHEM 131 and 132. General Chemistry I-II. Students who want permission to take the examination must apply to the department head. Details regarding approval to take the examination and examination dates will be provided when the application is received.

## Teaching Licensure

Students interested in becoming teachers must meet specific curriculum requirements in their major as part of the undergraduate academic degree. Chemistry majors must also complete a course in biology and a course in geology.

In addition to the general education and academic major requirements, chemistry majors desiring secondary teacher licensure must be admitted to teacher education, complete the pre-professional program in secondary education at the undergraduate level and the graduate level Master of Arts in Teaching degree.

It is critical that students seeking licensure consult regularly with both their education adviser and their major adviser to support their progression through the programs. For a full description of the program in secondary teaching, refer to the Department of Middle, Secondary and Mathematics Education, in addition to the College of Education/Professional Education Unit section of the catalog.

# Department of Communication Sciences and Disorders

*Dr. Cynthia R. O'Donoghue, Head*

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## Professors

R. DePaolis, L. Gray, C. O'Donoghue, J. Spindel

## Associate Professors

C. Clinard, C. Dudding, S. Pavelko, A. Rout, G. Timler

## Assistant Professors

S. Ingram, E. Kamarunas, C. Kuo, J. Lee, M. Longerbeam, Y. Nie, E. Piker

## Instructors

E. Clinard, L. Freeman

## Mission

The Department of Communication Sciences and Disorders engages students, faculty and members of the community to advance the state of knowledge through basic and applied research, innovative professional and pre-professional education, and enhanced clinical practices to better serve those with communication disorders.

The Department is committed to promoting comprehensive, state-of-the-art undergraduate pre-professional education that includes discipline-specific course work and observation. In keeping with university requirements, this includes a broad-based General Education component. The department also delivers graduate-level course work and practicum experiences for those interested in entering professional practice in either speech-language pathology or audiology, a university teaching and research position, or a management/administrative position in service delivery settings.

The department is committed to advancing the state of knowledge in both basic and applied aspects of communication sciences and disorders through its master's and doctoral research degrees and the research activities of its faculty and students and to providing service to the profession, university and client communities at local, state, national and international levels. Through the Speech, Language, and Hearing Clinic, the department provides services as part of the clinical teaching component of its mission and serves as a clinical research resource for students and faculty.

## Goals

- Providing course work and observation at the undergraduate level, including study of the underlying science and development of human communication, and an introduction to disorders that may occur in human communication.
- Providing course work at the undergraduate level that will prepare students for:
- Graduate study in the areas of speech-language pathology or audiology;
- Graduate school in a related discipline; and

- A liberal education in the discipline of communication sciences and disorders.
- Offering a minor in communication sciences and disorders for undergraduate students majoring in other fields.

## Programs of Study

The department offers a B.A. and B.S. in communication sciences and disorders. The department also offers the M.S. in speech-language pathology (professional preparation), the M.S. in communication sciences and disorders (research), the Au.D. (Doctor of Audiology) and the Ph.D. in communication sciences and disorders with emphases in audiology, speech-language pathology and/or speech and hearing science. Inquiries concerning these graduate programs should be directed to the dean of The Graduate School or the appropriate department graduate coordinator. A master's degree is the minimum requirement for competency/certification endorsed by the American Speech-Language-Hearing Association and for Virginia licensure in speech-language pathology. In audiology, a doctoral degree is the minimum requirement for competency/certification endorsed by the American Speech-Language-Hearing Association and for new Virginia licensure applicants.

## Speech, Language, and Hearing Clinic

The JMU applied teaching laboratory for CSD students provides the following services for communicatively impaired individuals of the university community and its service area. Appointments for services may be made by any member of the community.

## Areas of Service Delivery

- Speech-language and/or hearing assessments
- Intervention programs in speech, language and hearing disorders
- Preventative and educational consultation
- Referrals for other professional services when indicated

## Career Opportunities

With relevant graduate degrees:

- Audiologist in medical centers, medical practice, private practice
- Clinical supervisor
- Hearing scientist
- Researcher, university professor
- Speech-language pathologist in the public schools, rehabilitation centers, medical environment, private practice
- Speech scientist

## Co-curricular Organizations

- National Student Speech-Language-Hearing Association
- Student Academy of Audiology

## Degree and Major Requirements

### Bachelor of Arts

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1,2</sup>	41
Foreign Language classes (intermediate level required) <sup>3</sup>	0-14
Philosophy course(s) (in addition to General Education courses)	3
University electives	28-34
Major requirements (listed below)	48
	120

1 Biological science, statistics, physics and/or chemistry courses are required. They may be taken as part of the General Education courses or as non-departmental required courses.

2 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

3 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

#### Major Requirements

Required Courses	Credit Hours
CSD 200. Introduction to Communication Disorders	3
CSD 207. Phonetics	3
CSD 208. Anatomy and Physiology of the Ear and Voice Mechanism	3
CSD 209. Acoustics of Hearing and Speech	3
CSD 300. Language Development	3
CSD 301. Audiology	3
CSD 314. Phonological and Language Disorders	3
CSD 318. Aural Rehabilitation	3
CSD 412. Multicultural Topics in Communication Disorders	3
CSD/BIO 415. Neuroanatomy and Neurogenic Communication Disorders	3
CSD 416. Organic Speech Disorders	3
Choose one of the following:	
CSD 470. Methods and Observations	
CSD 471. Methods and Observations in Audiology	
PSYC 101. General Psychology	3
PSYC 160. Life Span Human Development	3
EXED 200. Nature and Issues of Disabilities	3
MATH 220. Elementary Statistics	3
	48

## Bachelor of Science

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1,2</sup>	41-44
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	25-31
Major requirements	48
	120

1 Biological science, statistics, physics and/or chemistry courses are required. They may be taken as part of the General Education courses, as part of the B.S. requirement or as non-departmental required courses.

2 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Required Courses	Credit Hours
CSD 200. Introduction to Communication Disorders	3
CSD 207. Phonetics	3
CSD 208. Anatomy and Physiology of the Ear and Voice Mechanism	3
CSD 209. Acoustics of Hearing and Speech	3
CSD 300. Language Development	3
CSD 301. Audiology	3
CSD 314. Phonological and Language Disorders	3
CSD 318. Aural Rehabilitation	3
CSD 412. Multicultural Topics in Communication Disorders	3
CSD/BIO 415. Neuroanatomy and Neurogenic Communication Disorders	3
CSD 416. Organic Speech Disorders	3
Choose one of the following:	3
CSD 470. Methods and Observation	
CSD 471. Methods and Observation in Audiology	
PSYC 101. General Psychology	3
PSYC 160. Life Span Human Development	3
EXED 200. Nature and Issues of Disabilities	3
MATH 220. Elementary Statistics	3
	48

### Recommended Schedule for Majors

First Year	Credit Hours
CSD 200. Introduction to Communication Disorders	3
PSYC 101. General Psychology	3
Biological sciences course <sup>1</sup>	3-4
General Education courses	18
	27-30

Second Year	Credit Hours
CSD 207. Phonetics	3
CSD 208. Anatomy and Physiology of the Ear and Voice Mechanism	3
CSD 209. Acoustics of Hearing and Speech	3
PSYC 160. Life Span Human Development	3
EXED 200. Nature and Issues of Disabilities	3
MATH 220. Elementary Statistics	3
Physics and/or chemistry course <sup>1</sup>	3-4
General Education and/or elective courses	18

39-40

<b>Third Year</b>	<b>Credit Hours</b>
CSD 300. Language Development	3
CSD 301. Audiology	3
CSD 314. Phonological and Language Disorders	3
CSD 318. Aural Rehabilitation	3
General Education and/or elective courses	15
	<hr/>
	27

<b>Fourth Year</b>	<b>Credit Hours</b>
CSD 412. Multicultural Topics in Communication Disorders	3
CSD/BIO 415. Neuroanatomy and Neurogenic Communication Disorders	3
CSD 416. Organic Speech Disorders	3
Choose one of the following:	3
CSD 470. Methods and Observation	
CSD 471. Methods and Observation in Audiology	
Electives	21
	<hr/>
	30

1 Biological science, statistics, physics and/or chemistry courses are required. It may be taken as part of the General Education courses, as part of the B.S. requirement or as a non-departmental required course.

## Minor Requirements

### Communication Sciences and Disorders Minor

The minor program in communication sciences and disorders requires a minimum of 18 credit hours in courses with CSD prefixes, excluding CSD 300 and CSD 314. Students are advised to check prerequisites.

# School of Communication Studies

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*Dr. Toni S. Whitfield, Assistant Director*

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## Professors

M. Alemán, P. Bsumek, E. Fife, C. Hickerson, S. Mazzarella, L. Nelson, S. Opt, R. Soenksen, T. Whitfield

## Associate Professors

C. Alemán, T. Ball, A. Bodkin, L. Britt, H. Carmack, S. Richards, D. Schill, C. Woo

## Assistant Professors

M. Brigham, M. Broderick, M. Davis, L. Harvell-Bowman, K. Hobson, Y. Kim, L. Kristiansen, S. Meganck, J. PeeksMease, J. Rosier

## Lecturers/Instructors

E. Armstrong, A. Brickner, J. Briscoe, A. Dupal, A. Ewing Goodman, J. Gochenour, G. Hazard, J. Krauklis, P. Mabrey, L. Mayfield, A. Noland, A. Reid, C. Saindon, S. Taylor Mayhak

## Mission

The School of Communication Studies promotes an academic environment in which students, faculty and staff develop innovative communication practices and facilitate constructive dialogue in the classroom and community to inspire responsible citizenship in a diverse world. We are committed to the teaching of communication theory and criticism, the development of communication and advocacy skills, the research of communication processes and practices, and the application of generated knowledge about human communication toward the betterment of self and community.

Accordingly, members of the School of Communication Studies strive to create a learning environment whereby:

- Individuals are academically well-rounded, diverse in experience and reflective in their methods, research, and skill sets for approaching communication;
- Scholarship is communication focused, but interdisciplinary in approach, and produces meaningful dialogue within our academic disciplines and communities;
- Professional service, outreach to communities, and advocacy for human betterment is valued by and from each individual.

## Goals

As the school offers courses and programs in communication studies, the school seeks to fulfill the following goals:

- To prepare all JMU students who take a communication studies course to use oral communication skills effectively.
- To prepare students with a major or minor in communication studies for graduate and professional study as well as for careers in communication and communication-related professions.
- To provide co-curricular opportunities which enhance and reinforce communication competencies for all JMU students.

## Career Opportunities and Marketable Skills

Students of communication studies develop skill competencies required for effective interaction and leadership in communities, workplaces and groups. Some of these skills include:

- Speaking
- Interacting in small groups
- Using nonverbal communication skills such as use of space, voice, gaze and facial expressions
- Constructing persuasive messages and campaigns
- Using computers for word processing, statistical analysis, desktop publishing, graphic design, web page construction and browsing the Internet
- Analyzing communication at all levels including interpersonal, small group and organizational
- Persuading successfully
- Using language effectively
- Writing effectively
- Mediating and resolving conflicts
- Listening and problem solving

Such careers are part of the following fields:

- Consulting
- Entertainment
- Hospitality Industry
- Management
- Personnel
- Politics
- Sales
- Teaching

Study in communication studies also serves as valuable pre-professional preparation for graduate and professional studies in the following fields:

- Communication
- Counseling
- Law
- Management
- Ministry

Students who study communication studies acquire skills that enable them to interact with others effectively. These skills include:

- Speaking in front of groups
- Interacting effectively in small groups
- Using nonverbal communication skills such as use of space, voice, eyes and facial expressions
- Constructing persuasive messages and campaigns

- Using computers for word processing, statistical analysis, desktop publishing, graphic design, web page construction and browsing the Internet
- Analyzing communication problems at the organizational level
- Persuading successfully
- Using language effectively
- Writing effectively
- Mediating and resolving conflicts

## Co-curricular Activities and Organizations

To enhance courses and programs in communication studies, the school offers a variety of co-curricular activities and organizations open to all JMU students. Co-curricular activities involve practical communication experiences for which credit is available, either through the various practicums or one of the school's applied courses. Co-curricular organizations are student clubs and honorary societies associated with the school's individual programs of study.

### Activities

- Annual Communication Studies Conference: Annual program highlighting undergraduate scholarship in which students deliver professional presentations to the JMU community on a variety of topics that reflect the diverse research methodologies and areas of study in the School of Communication Studies.
- Debate Team: Affords students interested in debating intercollegiate tournament competition and local audience experiences.
- Individual Events Team: Intercollegiate tournament competition and local audience experiences for students interested in public speaking and the oral interpretation of literature can be acquired through individual events team participation.

### Organizations

- Delta Sigma Rho-Tau Kappa Alpha: A chapter of a national honorary organization for students competing in intercollegiate debate and individual events.
- International Association of Business Communicators: A chapter of a national organization for students and professionals interested in business communication and public relations.
- Lambda Pi Eta: A chapter of a national honorary organization for students interested in communication.
- Destination Imagination: Students interested in effective conflict resolution and mediation skills can participate in the activities.
- Public Relations Student Society Association: An award-winning student organization for students pursuing careers in public relations.
- Health Communication Institute: Students interested in effective communication with health communication professionals can work with the institute in a practicum or directed project.
- Institute for Constructive Advocacy and Dialogue: An cross disciplinary organization whose goal is to bridge the gap

between the university and the broader community through outreach, community service, research and scholarship centered on productive communication processes and efforts. Students can work as trained dialogue facilitators.

## Admission to the Major

Admission to JMU does not guarantee admission to the School of Communication Studies. All students interested in majoring in the program must apply for a limited number of spaces while first completing SCOM 240 and SCOM 241. In order to register for these classes, students must change their major to "SCOM declared" to register for SCOM 240 and SCOM 241.

The School of Communication Studies reviews applications for admission to the major each semester. Students must submit their applications (which can be accessed from the SCOM website and submitted by email) in the semester in which they are completing the SCOM 240 and SCOM 241 requirements. Applications are due by November 15 (fall semester) and April 15 (spring semester). Students who have applied by the above deadlines will be notified of the department's admission decision at the end of the semester in which they complete the SCOM 240 and SCOM 241 requirements.

Admission to the major is based on availability to the most qualified students as determined by performance in SCOM 240 and SCOM 241. It is possible for a student to be accepted into the major but not into their first choice concentration.

Students who are not admitted may file one more additional application in the next regular semester. Students reapplying must apply in two consecutive semesters of enrollment at the university. If a student reapplies after retaking SCOM 240 and SCOM 241 (whether repeat or repeat/forgive), the school will look only at their highest grades earned when evaluating their second application.

Successful completion of a major in the School of Communication Studies requires, at the very least, a minimum of four semesters after a student is fully admitted to the School. Depending upon the student's particular circumstances and degree progress, more than four semesters may be required for completing the major. Once admitted to the School of Communication Studies, a student cannot retroactively apply more than nine hours of SCOM courses, including SCOM 240 and SCOM 241, to his/her major (SCOM 121/122/123 does not count towards those nine hours).

## Policy for Students Transferring from Another Institution

Students applying from other institutions are held to the same policies and guidelines as other applicants. However, once admitted to the School of Communication Studies, transfer students may petition for SCOM credit for courses taken at previous institutions. As with other applicants, they cannot retroactively apply more than nine hours of SCOM courses taken at JMU, including SCOM 240 and SCOM 241, to their major or minor once admitted to the School of Communication Studies.

## Minimum Grades

Any course taken to fulfill a degree requirement in communication studies must be completed with a minimum

grade of "C-." A communication studies course completed with a grade of "D," may be credited toward graduation but may not be included as course work toward a communication studies major or minor. Additionally, courses completed with a grade less than "C-" will not count as fulfilling prerequisites for future courses, and enrolled students may be administratively removed from courses for which they have not completed a required prerequisite with a grade of "C" or higher.

## Limitations in Applied Courses

No more than six hours combined credit in SCOM 318. Practicum in Communication Studies; SCOM 390. Directed Projects and SCOM 495. Internship in Communication Studies may be counted toward a major in communication studies unless approved by the academic unit head.

## Double Counting

Students with a communication studies major are allowed to count toward the major a maximum of six hours of credit earned to satisfy requirements in another major or minor.

## Degree and Major Requirements

The School of Communication Studies offers the Bachelor of Science and Bachelor of Arts degrees with a major in communication studies. Students must take at least 39 hours of work in communication studies beyond the General Education requirement.

All programs must include at least five elements:

- Twelve hours of required courses.
- Successful completion of the milestone Core Assessment in Communication Studies, upon completion of the core requirements.
- Fifteen hours of courses within distribution areas to meet the school depth requirement.
- Nine hours of free elective courses in communication studies at the 300 or 400 level and three hours at the 200, 300 or 400 level.
- Twelve hours of course work at the 300 level or above outside of the major program of study; or a second major or minor.

## Bachelor of Arts in Communication Studies

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives <sup>3</sup>	11-49
Major requirements (listed below)	39
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

3 A minimum of 12 credit hours of university electives must be at the 300 level or above, or students must earn a second major or minor.

## Major Requirements

Core Requirements	Credit Hours
SCOM 240. Introduction to Communication Theory	2
SCOM 241. Communication Theory Lab	1
SCOM 242. Presentational Speaking	3
SCOM 280. Introduction to Communication Research <sup>1</sup>	3
SCOM 341. Persuasion	3
Completion of Core Assessment in Communication Studies Milestone	0
Depth Requirement: (15 hours required from the depth areas below)	
Communication Skills (choose one):	3
SCOM 247. Small Group Communication	
SCOM 261. Public Relations Techniques I: Written	
SCOM 332. Mediation	
SCOM/JUST 333. Negotiations	
SCOM 335. Communication Consulting	
SCOM 340. Principles and Processes of Interviewing	
SCOM 342. Argument and Advocacy	
SCOM 344. Oral Interpretation	
SCOM 358. Business and Professional Communication Studies	
SCOM 361. Public Relations Techniques II: Visual	
SCOM 365. Sports Public Relations	
SCOM 367. Advanced Public Relations Writing	
SCOM 447. Facilitating Public Processes	
SCOM 449. Communication Training	
Communication Research (choose one):	3
SCOM 381. Rhetorical Research Methods	
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Communication Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	
Communication Theory and Context (choose three): <sup>2</sup>	9
SCOM 248. Intercultural Communication	
SCOM 260. Introduction to Public Relations	
SCOM/ANTH 305. Language and Culture	
SCOM 313. Topics in Communication Studies (1-3 credits)	
SCOM 314. Communication in Romantic Relationships	
SCOM 320. Introduction to Interpersonal Communication	
SCOM 330. Special Topics in Interpersonal Communication	
SCOM 331. Communication and Conflict	
SCOM 334. Alternative Dispute Resolution	
SCOM 345. Nonverbal Communication	
SCOM 346. Free Speech in America	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM/WGS 348. Communication and Gender	
SCOM 349. Ethnographic Approaches to Communication Studies	
SCOM 350. Organizational Communication	
SCOM/WRTC 351. Visual Rhetoric	
SCOM 352. Communication and Social Movements	
SCOM 353. American Political Culture and Communication	
SCOM 354/WRTC 326. Environmental Communication and Advocacy	
SCOM 355. Food as Communication	
SCOM 357. Youth, Communication and Culture	
SCOM 370. Introduction to Health Communication	
SCOM 371. Talking through Tough Cases: Ethical Principles and Practices in Communication Studies	
SCOM 395. Study Abroad Seminar	
SCOM 413. Advanced Topics in Communication Studies	
SCOM/WGS/WRTC 420. Feminist Rhetorics	
SCOM 425. Leadership Communication	
SCOM 431. Legal Communication	
SCOM 432. Senior Seminar in Conflict and Mediation Studies	
SCOM 440. Family Communication	
SCOM/ANTH/HIST 441. Oral History and Social Justice	

SCOM 442. Advanced Topics in Advocacy Studies	
SCOM 448. Communication, Culture and Identity	
SCOM 450. Advanced Studies in Organizational Communication	
SCOM 453. Political Campaign Communication	
SCOM 460. Public Relations Management	
SCOM 461. Public Relations Campaigns	
SCOM 463. International Public Relations	
SCOM 464. Communication, Culture and Sport	
SCOM 467. Global Public Relations Seminar	
SCOM 470. Health Communication Campaigns	
SCOM 471. Culture and Health Communication	
SCOM/SMAD/POSC 472. Media and Politics	
Additional communication studies elective at the 200, 300 or 400 level	3
Additional communication studies electives at the 300-400 levels	9
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1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 At least one theory and context course requirement must be at the 400-level.

## Bachelor of Science in Communication Studies

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
University electives <sup>3</sup>	21-46
Major requirements (listed below)	39
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	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

3 A minimum of 12 credit hours of university electives must be at the 300 level or above, or students must earn a second major or minor.

In addition, students pursuing a B.S. in communication studies must complete MATH 220. Elementary Statistics or a school-approved statistics course. School-approved statistics courses include, but are not limited to, COB 191. Business Statistics. MATH 220 can count as either a General Education or a B.S. quantitative requirement, but not both.

### Major Requirements

Core Requirements	Credit Hours
SCOM 240. Introduction to Communication Theory	2
SCOM 241. Communication Theory Lab	1
SCOM 242. Presentational Speaking	3
SCOM 280. Introduction to Communication Research <sup>1</sup>	3
SCOM 341. Persuasion	3
Completion of Core Assessment in Communication Studies Milestone	0
Depth Requirement: (15 hours required from the depth areas below)	
Communication Skills (choose one):	3
SCOM 247. Small Group Communication	
SCOM 261. Public Relations Techniques I: Written	
SCOM 332. Mediation	
SCOM/JUST 333. Negotiations	
SCOM 335. Communication Consulting	
SCOM 340. Principles and Processes of Interviewing	
SCOM 342. Argument and Advocacy	
SCOM 344. Oral Interpretation	
SCOM 358. Business and Professional Communication Studies	
SCOM 361. Public Relations Techniques II: Visual	
SCOM 365. Sports Public Relations	
SCOM 367. Advanced Public Relations Writing	

SCOM 447. Facilitating Public Processes	
SCOM 449. Communication Training	
Communication Research (choose one):	3
SCOM 381. Rhetorical Research Methods	
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Communication Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	
Communication Theory and Context (choose three): <sup>2</sup>	9
SCOM 248. Intercultural Communication	
SCOM 260. Introduction to Public Relations	
SCOM/ANTH 305. Language and Culture	
SCOM 313. Topics in Communication Studies (1-3 credits)	
SCOM 314. Communication in Romantic Relationships	
SCOM 320. Introduction to Interpersonal Communication	
SCOM 330. Special Topics in Interpersonal Communication	
SCOM 331. Communication and Conflict	
SCOM 334. Alternative Dispute Resolution	
SCOM 345. Nonverbal Communication	
SCOM 346. Free Speech in America	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM/WGS 348. Communication and Gender	
SCOM 349. Ethnographic Approaches to Communication Studies	
SCOM 350. Organizational Communication	
SCOM/WRTC 351. Visual Rhetoric	
SCOM 352. Communication and Social Movements	
SCOM 353. American Political Culture and Communication	
SCOM 354/WRTC 326. Environmental Communication and Advocacy	
SCOM 357. Youth, Communication and Culture	
SCOM 370. Introduction to Health Communication	
SCOM 371. Talking through Tough Cases: Ethical Principles and Practices in Communication Studies	
SCOM 395. Study Abroad Seminar	
SCOM 413. Advanced Topics in Communication Studies	
SCOM/WGS/WRTC 420. Feminist Rhetorics	
SCOM 425. Leadership Communication	
SCOM 431. Legal Communication	
SCOM 432. Senior Seminar in Conflict and Mediation Studies	
SCOM 440. Family Communication	
SCOM/ANTH/HIST 441. Oral History and Social Justice	
SCOM 442. Advanced Topics in Advocacy Studies	
SCOM 448. Communication, Culture and Identity	
SCOM 450. Advanced Studies in Organizational Communication	
SCOM 453. Political Campaign Communication	
SCOM 460. Public Relations Management	
SCOM 461. Public Relations Campaigns	
SCOM 463. International Public Relations	
SCOM 464. Communication, Culture and Sport	
SCOM 467. Global Public Relations Seminar	
SCOM 470. Health Communication Campaigns	
SCOM 471. Culture and Health Communication	
SCOM/SMAD/POSC 472. Media and Politics	
Additional communication studies elective at the 200, 300 or 400 level	3
Additional communication studies electives at the 300-400 levels	9
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1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 At least one theory and context course requirement must be at the 400-level.

## Concentrations

### Advocacy Studies

This concentration prepares students to understand, critically evaluate and engage the communication theories, processes, media institutions and communication technologies that citizens, political leaders, government officials, public administrators, interest groups and community service organizations use to campaign, deliberate, adjudicate, govern and advocate for social change. Skilled advocates adopt, develop and implement diverse sets of communication strategies that help clients articulate interests and goals, determine social systems and audiences most likely to achieve goals, identify effective media and appropriate goal oriented messages, and develop plans for implementing change.

In addition to the 12 hours of required communication studies courses, students studying advocacy must complete the following 18 hours from among the depth requirements. The school also recommends that students enroll in an internship during their junior or senior year.

Courses	Credit Hours
SCOM 342. Argument and Advocacy	3
SCOM 352. Communication and Social Movements	3
SCOM 353. American Political Culture and Communication	3
SCOM 381. Rhetorical Research Methods	3
SCOM 442. Advanced Topics in Advocacy Studies	3
Choose one:	3
SCOM 331. Conflict and Communication	
SCOM 343/WRTC 430. Contemporary Rhetorical Theory and Practice	
SCOM 346. Free Speech in America	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM 354/WRTC 326. Environmental Communication and Advocacy	
SCOM/SMAD 357. Youth, Communication and Culture	
SCOM/SMAD/WRTC 420. Feminist Rhetorics	
SCOM 431. Legal Communication	
SCOM 453. Political Campaign Communication	
SCOM 470. Health Communication Campaigns	
SCOM/SMAD/POSC 472. Media and Politics	
SCOM 495. Internship in Advocacy Studies	

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### Cultural Communication

This concentration prepares students to analyze, engage and manage communication situations where cultural identity becomes relevant to the persons involved in the interaction. Students analyze communication processes and theories that help explain dynamics of intercultural interactions in personal and professional contexts. The concentration affords students cultural competencies necessary for personal growth and professional success in increasingly diverse work and social settings. Communication skills learned here prepare students for careers in education, management and training, international relations, and law.

In addition to the 12 hours of required communication studies courses, students studying communication and culture must complete the following hours from among the depth requirements. Additionally, students are encouraged to enroll in an internship during their junior or senior year.

Courses	Credit Hours
SCOM 248. Intercultural Communication	3
SCOM 349. Ethnographic Approaches to Communication Studies	3
SCOM 448. Communication, Culture and Identity	3
Choose one:	3
SCOM 381. Rhetorical Research Methods	
SCOM 385. Qualitative Communication Research Methods	
Choose two:	6
SCOM 305. Language and Culture	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM 348. Communication and Gender	
SCOM 352. Communication and Social Movements	
SCOM 357. Youth, Communication and Culture	

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### Generalist

In addition to the 12 hours of required communication studies courses, students pursuing the generalist concentration must complete the following hours from among depth requirements.

Courses	Credit Hours
Communication Skills (choose one):	3
SCOM 247. Small Group Communication	
SCOM 261. Public Relations Techniques I: Written	
SCOM 332. Mediation	
SCOM/JUST 333. Negotiations	
SCOM 335. Communication Consulting	
SCOM 338. The Art of Public Debate	
SCOM 340. Principles and Processes of Interviewing	
SCOM 342. Argument and Advocacy	
SCOM 344. Oral Interpretation	
SCOM 358. Business and Professional Communication Studies	
SCOM 361. Public Relations Techniques II: Visual	
SCOM 365. Sports Public Relations	
SCOM 367. Advanced Public Relations Writing	
SCOM 447. Facilitating Public Processes	
SCOM 449. Communication Training	
Communication Research (choose one):	3
SCOM 381. Rhetorical Research Methods	
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Communication Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	
Communication Theory and Context (choose three): <sup>2</sup>	9
SCOM 245. Signs, Symbols and Social Interaction	
SCOM 248. Intercultural Communication	
SCOM 260. Introduction to Public Relations	
SCOM/ANTH 305. Language and Culture	
SCOM 313. Topics in Communication Studies (1-3 credits)	
SCOM 314. Communication in Romantic Relationships	
SCOM 320. Introduction to Interpersonal Communication	
SCOM 330. Special Topics in Interpersonal Communication	
SCOM 331. Communication and Conflict	
SCOM 334. Alternative Dispute Resolution	
SCOM 345. Nonverbal Communication	
SCOM 346. Free Speech in America	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM/WGS 348. Communication and Gender	
SCOM 349. Ethnographic Approaches to Communication Studies	
SCOM 350. Organizational Communication	
SCOM/WRTC 351. Visual Rhetoric	
SCOM 352. Communication and Social Movements	
SCOM 353. American Political Culture and Communication	
SCOM 354/WRTC 326. Environmental Communication and Advocacy	
SCOM 357. Youth, Communication and Culture	

SCOM 370. Introduction to Health Communication  
 SCOM 371. Talking through Tough Cases: Ethical Principles and Practices in Communication Studies  
 SCOM 395. Study Abroad Seminar  
 SCOM 413. Advanced Topics in Communication Studies  
 SCOM/WGS/WRTC 420. Feminist Rhetorics  
 SCOM 425. Leadership Communication  
 SCOM 431. Legal Communication  
 SCOM 432. Senior Seminar in Conflict and Mediation Studies  
 SCOM 440. Family Communication  
 SCOM/ANTH/HIST 441. Oral History and Social Justice  
 SCOM 442. Advanced Topics in Advocacy Studies  
 SCOM 448. Communication, Culture and Identity  
 SCOM 450. Advanced Studies in Organizational Communication  
 SCOM 453. Political Campaign Communication  
 SCOM 460. Public Relations Management  
 SCOM 461. Public Relations Campaigns  
 SCOM 463. International Public Relations  
 SCOM 464. Communication, Culture and Sport  
 SCOM 467. Global Public Relations Seminar  
 SCOM 470. Health Communication Campaigns  
 SCOM 471. Culture and Health Communication  
 SCOM/SMAD/POSC 472. Media and Politics

## Health Communication Studies

This concentration prepares students for careers in patient advocacy, health promotion and education, social marketing, health-related public relations, health-related writing, pharmacy sales and health-related advertising. Students will gain strong writing and research skills, project management expertise, leadership and team building, as well as gain knowledge in the areas of interpersonal doctor-patient communication, health campaigns and public health, culture and health, ethics and health, and organizational communication.

In addition to the 12 hours of required communication studies courses, students studying health communication must complete the following hours from among the depth requirements. Students are encouraged to enroll in an internship during their junior or senior years.

Courses	Credit Hours
SCOM 260. Introduction to Public Relations	3
SCOM 261. Public Relations Techniques I: Written	3
SCOM 370. Introduction to Health Communication	3
SCOM 470. Health Communication Campaigns	3
Choose one:	3
SCOM 350. Organizational Communication	
SCOM 371. Talking Through Tough Cases: Ethical Principles and Practices in Communication Studies	
SCOM 471. Culture and Health Communication	
Advanced Research Courses: Choose one:	3
SCOM 381. Rhetorical Research Methods	
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Communication Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	

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## Interpersonal Communication Studies

Students analyze how messages are used to manage personal relationships in social and professional contexts. By examining research, theory and processes of interpersonal communication, students learn important principles for managing impressions and building rapport, identifying needs and pursuing influence goals, reducing relational uncertainty and adapting to change. Students

completing the concentration learn to communicate the value of healthy relationships, are well prepared for graduate school, and develop relational skills for excelling in careers such as peer counseling, education, family and human services, sales and management, aging services, ministry and community leadership. In addition to the 12 hours of required communication studies courses, students must complete the following 18 hours from among the depth requirements. Students are encouraged to enroll in an internship as well as become involved in a research or community service project during their junior or senior years.

Courses	Credit Hours
SCOM 320. Introduction to Interpersonal Communication	3
SCOM 440. Family Communication	3
Choose one:	3
SCOM 247. Small Group Communication	
SCOM 248. Intercultural Communication	
SCOM 334. Alternative Dispute Resolution	
SCOM 370. Introduction to Health Communication	
SCOM 432. Senior Seminar in Conflict Analysis and Intervention	
Choose one research requirements:	
SCOM 381. Rhetorical Research Methods	3
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	
Choose one:	3
SCOM 332. Mediation	
SCOM 340. Principles and Processes of Interviewing	
Choose one:	3
SCOM 314. Communication in Romantic Relationships	
SCOM 331. Communication and Conflict	
SCOM 345. Nonverbal Communication	

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Students are encouraged to enroll in SCOM 330, Special Topics in Interpersonal Communication, in partial fulfillment of their SCOM elective requirement.

## Organizational Communication Studies

Organizational communication involves the study of the ways people interact within organizations, such as business, government, education and nonprofit groups. The specific focus of this concentration is internal and external communication of organizations. This concentration prepares students for careers in business, consulting, training and event planning and for the study of law.

In addition to the 12 hours of required communication studies courses, students studying organizational communication must complete the following 18 hours from among the depth requirements. Additionally, students are encouraged to enroll in an internship during their junior or senior year.

Courses	Credit Hours
SCOM 350. Organizational Communication	3
SCOM 358. Business and Professional Communication Studies	3
Choose one:	3
SCOM 320. Introduction to Interpersonal Communication	
SCOM 331. Communication and Conflict	
SCOM 345. Nonverbal Communication	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM/WGS 348. Communication and Gender	
SCOM 357. Youth, Communication and Culture.	
SCOM 425. Leadership Communication	
SCOM 450. Advanced Studies in Organizational Communication	3

Choose one:	3
SCOM 447. Facilitating Public and Organizational Engagement Processes	
SCOM 449. Communication Training	
Advanced Research Courses: Choose one:	3
SCOM 381. Rhetorical Research Methods	
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Communication Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	

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## Public Relations Studies

This concentration focuses on the management of communication between organizations and their internal and external publics with the goal of mutual understanding and influence. Public relations practitioners work with specific audiences relative to focused goals. Preparation for a career in public relations should include a broad educational base and a variety of communication skills.

In addition to the 15 hours of required communication studies courses, students studying public relations must complete the following 18 hours from among the depth requirements in order to receive a letter upon graduation that verifies that they have completed a program of public relations studies. The school also recommends that students enroll in an internship during their junior or senior year.

Courses	Credit Hours
SCOM 260. Introduction to Public Relations	3
SCOM 261. Public Relations Techniques I: Written	3
SCOM 362. Public Relations Theory and Concepts	3
SCOM 461. Public Relations Campaigns	3
Advanced Public Relations Skills: Choose one:	3
SCOM 361. Public Relations Techniques II: Visual	
SCOM 367. Advanced Public Relations Writing	
Advanced Research: Choose one:	3
SCOM 381. Rhetorical Research Methods	
SCOM 383. Quantitative Research Methods	
SCOM 385. Qualitative Research Methods	
SCOM 386. Survey Research Methods	
SCOM 388. Campaign Research Methods	
Public Relations in Context: Choose one:	3
SCOM 369. Topics In Engaged Public Relations	
SCOM 460. Public Relations Management	
SCOM 365. Sports Public Relations	
SCOM 463. International Public Relations	
SCOM 467. Global Public Relations Seminar	

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## Minor Requirements

### Admission to the Minor

Admission to JMU does not guarantee admission to a minor in the School of Communication Studies. All students interested in minoring in the program must apply for a limited number of spaces while first completing SCOM 240 and SCOM 241. In order to register for these classes, students must first submit their application for an SCOM minor. Applications can be accessed on the SCOM website and must be submitted by email. The School of Communication Studies reviews applications for admission to the minor each semester. Students who have applied will be notified of the department's admission decision

at the end of the semester in which they complete the SCOM 240 and SCOM 241 requirements.

Admission to an SCOM minor is based on availability to the most qualified students as determined by performance in SCOM 240 and SCOM 241.

Students who are not admitted may file one more additional application in the next regular semester. Students reapplying must apply in two consecutive semesters of enrollment at the university. If a student reapplies after retaking SCOM 240 and SCOM 241 (whether repeat or repeat/forgive), the school will look only at their highest grades earned when evaluating their second application.

Successful completion of any minor in the School of Communication Studies requires, at the very least, a minimum of two semesters after a student is fully admitted to the School. Depending upon the student's particular circumstances and degree progress, more than two semesters may be required for completing the minor. Once admitted to the School of Communication Studies, a student cannot retroactively apply more than nine hours of SCOM courses, including SCOM 240 and SCOM 241, to his/her minor. Also, once admitted to an SCOM minor, a student cannot automatically transfer into the SCOM major without reapplying in a subsequent semester, and there is no guarantee of acceptance.

### Communication Studies Minor

A minor in communication studies requires 18 hours of course work in communication studies beyond the General Education requirement, including SCOM 240, SCOM 241 and a minimum of nine hours at the 300 level and three hours at the 400 level. Before a student begins a minor in communication studies, the school director and the student's adviser must approve his/her planned program of study.

### Cultural Communication Minor

The minor in cultural communication is designed to provide students with principles and theories of communication processes that help explain dynamics of intercultural interactions in personal and professional contexts. The program is intended for students not majoring in communication studies who wish to augment their major area of study, develop skills of cultural competence and increase their awareness of diversity.

Courses	Credit Hours
SCOM 240. Introduction to Communication Theory	2
SCOM 241. Communication Studies Lab	1
SCOM 248. Intercultural Communication	3
SCOM 349. Ethnographic Approaches to Communication Studies	3
SCOM 448. Communication, Culture and Identity	3
Choose two:	6
SCOM 305. Language and Culture	
SCOM 347. Communication, Diversity and Popular Culture	
SCOM/WGS 348. Communication and Gender	
SCOM 352. Communication and Social Movements	
SCOM/SMAD 357. Youth, Communication and Culture	

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## Health Communication Minor

The minor in health communication is designed to provide students not majoring in communication studies with conceptual and applied knowledge about communication interaction and its effects on health care, health care practitioners and patients/clients. Students will gain strong writing and research skills, project management expertise, leadership and team building skills as well as gain knowledge in the areas of interpersonal doctor-patient communication, health campaigns and public health, culture and health, ethics and health, and organizational communication. It is designed for students pursuing careers in related health care fields or for students who have an interest in health communication.

<b>Courses</b>	<b>Credit Hours</b>
SCOM 240. Introduction to Communication Theory	2
SCOM 241. Communication Studies Lab	1
SCOM 370. Introduction to Health Communication	3
SCOM 470. Health Communication Campaigns	3
SCOM 471. Culture and Health Communication	3
Choose any two SCOM courses	6

## Political Communication Minor

The School of Communication Studies and the Department of Political Science offer a joint minor in political communication with emphases on political campaigning and interest groups. The purpose of this minor is to provide students with conceptual, practical and applied knowledge in the fields of public and private interest groups and political campaigns. For a full description of this minor, refer to the political communication minor entry in the cross disciplinary minor section. This minor is exempt from the School of Communication Studies minor admissions policy.

## Sport Communication Minor

The School of Communication Studies administers a cross disciplinary minor in sport communication. For a full description of this minor, refer to the sport communication minor entry in the cross disciplinary minor section.

# Department of Computer Information Systems and Business Analytics

*Dr. Art Gowan, Department Head*

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## Associate Professors

C. Guo, P. Wang

## Assistant Professors

D. Babik, A. Connolly, J. Ezell, K. Lamsal, J. May, L. Novoa, E. Torabi, B. Vaziri

## Instructors

L. Atkins, C. Cole, L. Dutt, J. Jewett, S. Lough, L. Tchommo

## Mission

The Department of Computer Information Systems and Business Analytics is committed to:

- Educating students by creating an active, experiential learning environment that prepares them to apply knowledge of information systems, operations, business analytics and business for the betterment of organizations and society; and
- Serving the academic community and business communities through appropriate research and service.

## Objectives

Computer information systems (CIS) is offered as a major through the Department of Computer Information Systems and Business Analytics. This program prepares business students for careers as information systems professionals. The program of study focuses on the development and management of information systems in a business environment. Students develop the technical skills and organizational insights required to analyze, design, implement and administer information systems. The CIS curriculum includes hands-on projects, laboratory exercises, case analysis and business simulations to build strong technical and analytical skills, effective oral and written communication skills, and the ability to work independently and in team-oriented environments. Students are offered the opportunity to gain practical experience through internships and co-op programs. The department faculty endorses the program educational objectives listed below.

The CIS B.B.A. program will produce graduates with the ability to:

- Analyze a problem and identify the computing requirements appropriate to its solution.
- Apply sound analysis and design methodologies toward creating technological solutions for the enhancement and improvement of business processes.
- Implement system solutions using state-of-the-art software development, database, telecommunications and security technologies in a global business environment.

- Assess security threats risks to technology assets and suggest security controls to prevent, detect and repair the security threats.
- Communicate effectively, in both oral and written form, in order to serve as liaisons between business-oriented end users and technically-oriented computing specialists.
- Work effectively in multi-disciplinary teams with the ability to manage themselves and their colleagues.
- Develop self-directed, lifelong engagement in the profession and professional development.

## Career Opportunities

Computer information systems professionals analyze business opportunities and problems, then design and build solutions using the power of information technologies. Students in the CIS program gain the business and technical skills that will prepare them to move quickly from technical to leadership roles within the organization.

- Consultant
- Business Analyst
- Business Intelligence Specialist
- Computer Forensics Specialist
- IT/IS Auditor
- IT/IS Consultant
- Risk Analyst
- Security Consultant
- Systems Analyst
- Telecommunications Analyst
- IT/IS Manager
- Application Development Manager
- Business Owner (IT/IS Industry)
- Chief Information Officer
- Chief Security Officer
- Data Warehousing Manager
- Information Systems Manager
- Program Manager
- Project Manager
- IT Operations Professional
- Database Administrator
- Information Technology Trainer

- Network and Systems Administrator
- Security Specialist
- Software Engineer
- Web Developer

## Co-curricular Activities and Organizations

The JMU Chapter of the National Association for Information Systems (AIS) was started in 2014 and serves to advance knowledge and to promote excellence in the practice and study of information systems. Along with providing premier networking opportunities with top consulting firms, AIS provides student members the ability to engage in national student competitions, in-house tutoring activities, professional development workshops, and various fundraising and social events.

## Accreditation

The B.B.A. in computer information systems is accredited by the Accreditation Board for Engineering and Technology (ABET)'s Computing Accreditation Commission.

## Degree and Major Requirements Bachelor of Business Administration in Computer Information Systems

The B.B.A. in computer information systems requires a minimum of 120 credit hours of undergraduate work. Sixty credit hours will be taken outside the College of Business. In counting the 60 credit hours of non-business courses, B.B.A. students may include all hours taken in General Education (usually 41), up to a total of nine hours in economics and three hours of COB 191. Business Analytics I. The remaining hours will be taken from any department outside the College of Business. Students should carefully select these non-business electives to help them gain additional knowledge and expertise for their careers and personal lives.

### Degree Requirements

Required Courses	Credit Hours
B.B.A. core courses <sup>1</sup>	39
CIS major requirements	28
General Education courses <sup>2</sup>	41
Non-business electives <sup>3</sup>	12
	120

1 Assumes that MATH 205 and ECON 200 are taken as General Education courses.

2 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

3 Credit hours may vary. See adviser for details.

### Major Requirements

Core Courses	Credit Hours
CIS 221. Principles of Programming	3
CIS 301. Operating Systems and Server Administration	1
CIS 304. Enterprise Architecture	3
CIS 320. Computing and Telecommunications Networks	3
CIS 330. Database Design and Application	3
CIS 331. Intermediate Computer Programming	3
CIS 454. Systems Analysis and Design	3
CIS 484. Information Systems Development and Implementation	3
Two computer information systems electives	6

28

Electives	Credit Hours
CIS 354. Advanced Visual BASIC Programming	3
CIS 366. Web Design and Development	3
CIS 411. Computer Forensics for Business	3
CIS 420. Computer-Based Networking	3
CIS 424. Computer Security Management	3
CIS 425. Defensive Cybersecurity	3
CIS 428. Mobile Computing and Security	3
CIS 434. Information Technology Consulting	3
CIS 463. Business Intelligence	3
CIS 464. Information Systems Project Management	3
CIS 466. Advanced Web Development	3
CIS 490. Special Studies in Computer Information Systems	3
CIS 498. Special Topics in Computer Information Systems	3

Students majoring in CIS are highly encouraged to complete an internship in computer information systems for non-academic credit (CIS 361).

## Concentrations

### Concentration in Cooperative Education

*Coordinator: Dr. Tom Dillon*

The cooperative education concentration in CIS and BSAN offers highly qualified undergraduate majors the opportunity to participate in a six- to eight-month professional experience with well-recognized industry leaders in information technology and operations. Students will be awarded 12 hours of academic credit that will substitute for two required courses in the CIS and BSAN curriculum and for six credits of special topics (CIS 498). Substitution for the two specific courses will be made based on the structure and context of the co-op experience and in cooperation with the co-op firm.

Students must demonstrate competency via examination in the two required courses selected in order to receive credit in those courses. Students who have at least a 3.0 GPA, are majors in CIS and have fulfilled all of their COB core requirements (except COB 487. Strategic Management) are eligible to apply on a competitive basis through the CIS and BSAN office.

Students who want to participate in a co-op program must apply both to the CIS and BSAN program office and the participating firm at least three months in advance of the start of the co-op. Co-ops typically begin in January or May and last six to eight months. Course substitutions must be approved in conjunction with the co-op coordinator in the CIS and BSAN office and the co-op coordinator in the firm.

A program of study must be placed on file for each student who is accepted for a co-op prior to beginning the co-op experience. Students may participate in a co-op during their junior or senior years, but they are limited to one co-op. Students who want to participate in a co-op as postgraduates may do so as special students. These students will receive a certificate on successful completion of the co-op experience. Prerequisite: CIS majors with junior standing and a minimum 3.0 grade point average.

## Minor Requirements

### Computer Information Systems Minor

*Coordinator: Dr. Michel Mitri*

The minor in computer information systems is primarily structured to provide students in various disciplines on campus with the opportunity to study business-oriented information systems.

Admission to the CIS minor is based on a student's performance in one course from each of the following seven competency areas:

- One introductory information-systems course (COB 204 or equivalent as determined by the department head)
- One introductory computer programming course (CIS 221, ISAT 252, CS 139 or equivalent as determined by the department head)
- One calculus course (MATH 205, MATH 231, MATH 235, ISAT 151 or equivalent as determined by the department head)
- One statistics course (COB 191, MATH 220 or equivalent as determined by the department head)
- One critical thinking course (student's Cluster One critical thinking course or equivalent as determined by the department head)
- One writing course (WRTC 103 or equivalent as determined by the department head)
- One quantitatively-oriented economics/business course (ECON 200, ECON 201, COB 241, COB 242, COB 291 or equivalent as determined by the department head)

Admission is based on weighted average of student's highest grades in one course from each of the seven competency areas and is subject to space availability of CIS courses. Students seeking to add the CIS minor may submit an application to the CIS & BSAN department at any time.

Required Courses	Credit Hours
COB 204. Computer Information Systems	3
CIS 221. Principles of Programming	3
CIS 304. Enterprise Architecture	3
CIS 330. Database Design and Application	3
CIS 454. Systems Analysis and Design	3
CIS elective	3
	18

### Business Analytics Minor

Business analytics is a technical approach to analyzing problems and making business-related decisions. It uses statistical methods, management science techniques, and mathematical modeling to forecast the implications of various choices and identify the best alternatives. Business analytics focuses on the effective use of data and information to provide fact-based insights and drive positive business actions. The minor in business analytics prepares students to solve complex decision problems in a business environment with a combination of quantitative skills and hands-on expertise using current software applications.

Admission to the BSAN program is limited and competitive. Students seeking to add the BSAN minor must submit an application by November 1. Students will be admitted as a cohort each fall to start the BSAN program in the spring.

To be eligible to apply for admission, students must have completed the following:

- One introductory calculus course (MATH 205, MATH 231, MATH 235, ISAT 151 or equivalent)
- One statistics course (COB 191, MATH 220, MATH 285, MATH 318, ISAT 251 or equivalent)
- One economics course (ECON 200 or ECON 201)
- One business analytics course (COB 291 or equivalent) with a grade of "B-" or higher

In addition, a student must be able to take the 300-level BSAN courses on a schedule of one per semester in a three-consecutive semester period.

A complete application to the minor includes the following:

- A completed BSAN minor application form
- A letter of recommendation from COB 291 instructor

Students may use transfer and/or college credits that have been accepted by JMU to meet competency requirements. Admission is based on an average of a student's highest grades in one course from each competency area and the letter of recommendation. Only grades earned at JMU and verified by the registrar will be used; transfer transcripts will also be reviewed. More emphasis will be placed on grades than on the recommendation letter. Following review by the BSAN Admission Committee, students will be notified about their acceptance into the minor. If accepted, students will be eligible to register for BSAN courses.

Required Courses	Credit Hours
Choose one of the following:	3-4
COB 191. Business Analytics I	
ISAT 251. Topics in Applied Statistics	
MATH 220. Elementary Statistics	
MATH 285. Data Analysis	
MATH 318. Introduction to Probability and Statistics	
COB 291. Business Analytics II <sup>1</sup>	3
BSAN 391. Quantitative Business Modeling	3
BSAN 392. Descriptive and Predictive Analytic Methods	3
CIS/BSAN 393. Predictive Analytics and Data Mining	3

Electives	Credit Hours
Choose one of the following:	3
CIS 463. Business Intelligence	
CS/ISAT 344. Intelligent Systems	
ECON 385. Econometrics	
FIN 475. Financial Modeling and Risk Analysis	
MATH 322. Applied Linear Regression	
MKTG 482. Marketing Analytics	

18-19

<sup>1</sup> COB 191 and MATH 205 or equivalent are prerequisites for COB 291. A grade of "B-" or higher in COB 291 or equivalent and junior or senior standing are prerequisites for taking the subsequent required courses (BSAN 391, BSAN 392, and CIS/BSAN 393) in the business analytics minor.

## Recommended Schedule for Majors

Computer information systems majors should follow the course schedule described here to complete the final two years of their program. It is possible to deviate from this program, but care must be taken to ensure that all course prerequisites are met.

### First Two Years

Students normally take the lower-division B.B.A. core curriculum along with many of the General Education curriculum. All lower-division core requirements must be completed before enrolling in the upper-division core courses. It is recommended that CIS 221. Principles of Programming be completed in the second semester of the second year.

### Third Year

First Semester	Credit Hours
COB 300A. Integrated Functional Systems: Management	3
COB 300B. Integrated Functional Systems: Finance	3
COB 300C. Integrated Functional Systems: Operations	3
COB 300D. Integrated Functional Systems: Marketing	3
CIS 304. Enterprise Architecture	3
<hr/>	
	15

Second Semester	Credit Hours
CIS 301. Operating Systems and Server Administration	1
CIS 320. Computing and Telecommunications Networks	3
CIS 330. Database Design and Application	3
Two General Education electives	6
<hr/>	
	13

### Fourth Year

First Semester	Credit Hours
CIS 331. Intermediate Computer Programming	3
CIS 361. Computer Information Systems Internship	0
CIS 454. Systems Analysis and Design	3
One Computer Information Systems elective	3
One General Education elective	3
One General Education or non-business electives	3
<hr/>	
	15

Second Semester	Credit Hours
CIS 484. Information Systems Development and Implementation	3
COB 487. Strategic Management <sup>1</sup>	3
One Computer Information Systems elective	3
Two General Education or non-business electives	6
<hr/>	
	15

<sup>1</sup> COB 487 may be taken in the fall or spring of the senior year.

# Department of Computer Science

*Dr. Sharon J. Simmons, Department Head*

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## Associate Professors

M. Aboutabl, F. Buchholz, M. Kirkpatrick, C. Mayfield, M. Norton, N. Sprague, D. Weikle

## Assistant Professors

J. Bowers, M. Lam, M. Stewart

## Mission

The computer science department strives to be an intellectual community that continually explores the broad field of computing, applies this knowledge to solve problems in a variety of domains and engages with the profession and society at large. Undergraduates join this community when they become majors, participating with faculty and other students in exploring computing through classes, projects, clubs and internships.

## Goals

The goals of the computer science department are to:

- Offer small classes that provide opportunities for personal interaction with students.
- Provide a broad, inclusive and up-to-date computing curriculum.
- Provide students opportunities for professional and community engagement and real world experiences.
- Help students to become computing problem solvers and good communicators.
- Produce graduates who will succeed in the computing profession.

## Career Opportunities and Marketable Skills

Computing technology pervades modern society and demand for computing professionals is strong and projected to remain strong for the foreseeable future. Careers in computing range from technical positions specifying, designing, building and maintaining networks and systems of all kinds, through project leadership and technical management. The computer science major prepares students for entry-level technical positions as programmers, software developers, requirements analysts, software designers, testers, software quality assurance professionals, system architects, network engineers, information security specialists and computing consultants.

## Co-curricular Activities and Organizations

The James Madison University Student Chapter of the Association for Computing Machinery is the local student chapter of the national association for computing professionals.

The JMU chapter of Upsilon Pi Epsilon, the international honor society in computer science, recognizes outstanding academic

achievement by students and outstanding contributions to education by faculty. The department also sponsors the Cyber Defense, Digital Forensics and Women in Technology clubs.

**Students are encouraged to intern in a business or government organization during the summer. Students may receive elective credit toward their major requirements for internship experiences.**

## Admission Requirements

Any student may declare a CS major or minor, but students may enroll in CS courses beyond CS 139/149, CS 159, and CS/MATH 227 only if they are fully admitted to the CS major or minor. Full admission to the major or minor is granted as described below.

Students who have attempted CS 139/149, CS 159, or CS/MATH 227 at JMU may not attempt them elsewhere (that is, they must make any second attempts at JMU).

Students must submit an application for full admission to the CS major or minor no earlier than the semester in which they complete CS 159.

Students with a GPA of 3.0 or better in CS 139/149 and CS 159 who have attempted these classes only once are guaranteed full admission to the major or minor. Others will be granted full admission to the CS major or minor as space permits based on their GPA in CS 139/149 and CS 159 and faculty evaluation of their potential to succeed in the CS major or minor.

- Students who have completed the CS minor may apply for full admission to the CS major no earlier than the semester in which they complete the last course in the CS minor.
- CS minors with a GPA of 3.0 or higher in the CS minor will be fully admitted to the CS major; others will be admitted as space permits based on their minor GPA.
- Students will be notified of their CS major or minor admission status by January 1st for admission in the spring semester (following application the previous fall semester), and by May 15th for admission in the fall semester (following application the previous spring semester).
- Students who are not granted full admission to the CS major or minor may file one additional application in the next regular semester after they are denied admission.

Transfer students who have completed the equivalent of CS 159 (or for whom this class is waived) are granted full admission to the CS major or minor. Other transfer students are subject to same process as non-transfer students.

## Degree and Major Requirements

### Bachelor of Science in Computer Science

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education)	3
Major requirements (listed below)	52-55
University electives	22-25
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

#### Major Requirements

Major Requirements	Credit Hours
Choose one:	3-4
CS 139. Programming Fundamentals	
CS 149. Programming Fundamentals (Advanced)	
CS 159. Advanced Programming	3
CS/MATH 227. Discrete Structures I or MATH 245	
CS 240. Algorithms and Data Structures	3
CS 260. Technical Communication for Computer Science	3
CS 261. Computer Systems I	3
CS 327. Discrete Structures II	3
CS 345. Software Engineering	3
CS 361. Computer Systems II	3
CS 430. Programming Languages	3
CS 474. Database Design and Application	3
Choose one systems elective:	3
CS 432. Compilers	
CS 450. Operating Systems	
CS 456. Computer Architecture	
CS 470. Parallel and Distributed Systems	
Computer Science electives above CS 300	9
MATH 235. Calculus I or equivalent	4
Choose one of the following statistics courses:	3-4
MATH 220. Elementary Statistics	
MATH 318. Introduction to Probability and Statistics	
	52-55

The credit/no-credit option may not be applied to any courses specifically listed above, nor may that option be applied to computer science electives

#### Progressing in the Major

Students may repeat CS 139/149, CS 159, and CS/MATH 227 only once. Most CS courses require a grade of "C-" or better ("B-" or better in CS 139/149) in prerequisites courses. Students must achieve a cumulative grade point average of 2.0 or better in all courses used to satisfy CS major degree requirements.

## Certificates

Periodically, the department may offer a collection of two or more advanced courses in a particular area of study.

Students successfully completing those courses will obtain a certificate in that area of study. Examples of possible certificate programs include networking, software engineering and information security.

## U.S. Government Requirements for Computer Scientists

The U.S. government standard for occupational category GS-1550: Computer Science Series includes a requirement of 15 hours in statistics and mathematics including differential and integral calculus. This means that students considering a career as a computer scientist with the U.S. government (including DoD, NASA, etc.) must complete more math courses than the minimum requirement for a B.S. degree. Recommended calculus sequences for these students are MATH 235-236 or MATH 231-232-236. However, only the U.S. Office of Personnel Management can give final approval of individual qualifications.

## Minor Requirements

### Computer Science Minor

*Minor Adviser: Dr. Michael Kirkpatrick*

Courses	Credit Hours
Choose one:	3-4
CS 139. Algorithm Development	
CS 149. Programming Fundamentals (Accelerated)	
CS 159. Advanced Programming	3
Choose twelve credits from the following courses. Must include at least one of CS 240, CS 261 or CS 345	12
CS 227. Discrete Mathematics I or MATH 245	
CS 240. Algorithms and Data Structures	
CS 261. Computer Systems I	
Computer Science courses above CS 300	
	18-19

### Robotics Minor

*Minor Adviser: Dr. Nathan Sprague*

The robotics minor provides students with appropriate preparation the opportunity to investigate technical issues in the design, construction and application of robots. For a full description of the requirements for the minor in robotics, see cross disciplinary programs.

### Telecommunications Minor

*Minor Adviser: Dr. Mohamed Aboutabl*

The Department of Computer Science, in cooperation with other departments, offers a cross disciplinary minor in telecommunications. The program is intended to augment major programs in preparing students to become network and telecommunications professionals. For a full description of the requirements for the minor in telecommunications, see cross disciplinary programs.

# Department of Early, Elementary and Reading Education

*Dr. Teresa Harris, Department Head*

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A. Bodle, K. Dredger, K. Kavanagh, J. Myers, E. Thacker, R. Wilson

## Inclusive Early Childhood Education Master's Level Licensure Program

### Birth – Third Grade

The inclusive early childhood program draws heavily from research and theories in child development, family systems, special education, and differentiated teaching and learning. Through course work and extensive field experiences, the teacher candidate is prepared to design activities that have a cross disciplinary focus, reflect an understanding of the individual child's development and learning, recognize the importance of family and developmental influences, support the young child in constructing knowledge about self and the world, and involve parents in supporting the child's growth and development.

The JMU program prepares teachers for endorsements in Early Childhood Special Education, birth to five, and Early Childhood Education, PreK-3. The program is based on these assumptions:

- Early childhood educators must have a strong liberal education.
- Early childhood educators should possess a broad range of knowledge that provides a context for understanding individual behavior, family and environmental influences and major social issues in a modern democratic and technological society.
- Early childhood educators must have professional preparation that develops critical thinking and problem-solving skills to become educational decision makers who consciously choose appropriate curriculum based on an understanding of how children develop and learn.

The courses in the Inclusive Early Childhood Education program are sequentially organized throughout four undergraduate and two graduate semesters to help candidates develop an understanding of how children learn and interact in learning environments as well as familiarity with methods and materials appropriate for teaching and working in a collaborative way with families and other professionals.

Field experiences are provided along with course work to enable candidates to apply their knowledge in a variety of family and learning settings. Candidates must be accepted in teacher education to begin upper level IECE course work.

Assessment occurs each semester, and performance will be reviewed at each assessment gate. Candidates must demonstrate satisfactory performance before moving on to the next semester. Satisfactory performance includes a "C" or higher in all education course work and an overall 2.5 GPA, demonstration of professional behaviors, and acceptable performance in practica and on key assessments.

To be recommended for licensure in ECSE and PreK-3, candidates must satisfy the following requirements:

- Complete the General Education and degree requirements of the university.
- Complete a major in IDLS.
- Meet all admission and retention requirements for teacher education and the IECE program.
- Complete the 49 credit hour pre-professional program with an overall 2.75 GPA.
- Be admitted to graduate school.
- Complete the 30 hour graduate program including student teaching

Candidates in this program must meet with an IECE program adviser to declare the pre-professional licensure program in inclusive early childhood education.

The IDLS major is assigned two advisers. One adviser is the adviser for the education pre-professional licensure program who will guide the student through the licensure program requirements. The other adviser is the IDLS adviser who will guide the student through the IDLS major requirements. Students should plan on consulting both advisers regularly. Typically, the education adviser is assigned when the student meets with the head of his/her licensure program and elects the licensure program. This may be as early as the first semester of the first year. The IDLS adviser is assigned when the first year student advising folders are transferred to the IDLS office (second semester, first year). Students are required to check with advisers regularly to ensure timely graduation.

## Degree and Major Requirements

Requirements	Credit Hours
General Education requirements <sup>1</sup>	41
Interdisciplinary Liberal Studies Major	37
IECE Licensure Pre-professional Course Work	49
Graduate Degree Course Work	30

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

Second Year Fall	Credit Hours
EXED 200. Foundations of Exceptional Education	3
EDUC 300. Foundations of American Education	3

Second Year Spring	Credit Hours
EDUC 310. Teaching in a Diverse Society	3

Third Year Fall	Credit Hours
IECE 300. Issues and Trends in IECE	3
IECE 301. Initial Field Experience in IECE	1
IECE 303. Development of Young Children (Birth-8)	3

Third Year Spring	Credit Hours
IECE 321. Intermediate Practicum in IECE	2
IECE 322. Teaching Young Children	3
IECE 324. Assessment of the Young Child	3
READ 366. Early Literacy Development and Acquisition	3

Fourth Year Fall	Credit Hours
IECE 423. Intermediate Practicum in IECE II	2
IECE 450. Contemporary Family Issues in Inclusive Education	3
IECE 466. Managing Classrooms and Guiding Behavior	3

Fourth Year Spring	Credit Hours
IECE 460. Instructional Practices in Numeracy	3
IECE 461. Advanced Field Experience in IECE I	2
IECE 462. Instructional Practices in Natural Sciences for Young Children	3
IECE 464. Instructional Practices in Social Sciences for Young Children	3
READ 436. Literacy Learning in the Elementary Grades	3

First Graduate Year Fall	Credit Hours
IECE 612. Effective Teaching in IECE	3
IECE 613. Advanced Practicum in IECE II	3
IECE 614. Individualized Behavior Intervention for Young Children	3
IECE 632. Creativity and Play	3
EXED 625. Medical and Technological Aspects of Early Childhood Special Education	3

First Graduate Year Spring	Credit Hours
IECE 620. Seminar in Inclusive Early Childhood Education Student Teaching	3
IECE 680. Student Teaching in Inclusive Early Childhood Education	12

## Elementary Education Pre-Kindergarten Through Sixth Grade Master's Level Licensure Program

The Elementary Education Program prepares candidates to teach students in grades PreK-6. Drawn from research and theories in child development, teaching, and learning, the course work and field experiences prepare teacher candidates to employ an cross

disciplinary approach to instruction that reflects an understanding of the diverse nature of learners and their families.

The JMU elementary program seeks to foster in its candidates an empathic understanding of the ways that children are affected by social contexts and by the children's own abilities/disabilities; the knowledge and pedagogical skills to support each child's right to success; and belief in the value of each child. Our candidates are guided in:

- Critically challenging conventional wisdom and common practices to identify hidden assumptions and activities that constrain or privilege some at the expense of others.
- Learning to ask questions and developing an inquiring approach motivated by the desire to understand the world in its myriad complexities.
- Reflecting deeply on and constructing positive relationships with others.
- Expressing knowledge, skills, and attitudes in ways that communicate with others and provide a forum for the creative and academic expression of the profession and the self.
- Developing an appreciation for the global connection of all humanity and our interdependence on the finite, natural resources of the earth.
- Experiencing life among people whose social contexts are unlike the candidates' own to broaden and deepen respect for and sensitivity to various cultures and social contexts.
- Knowing and appreciating the process of human unfolding throughout the cycles of life from conception onward, particularly throughout the period of childhood.

The courses in the Elementary Education program are sequentially organized throughout the junior and senior years and continue in the graduate program. Field experiences are provided along with course work to enable candidates to apply their knowledge in a variety of settings. Candidates must be accepted in teacher education to begin the ELED course work.

Assessment occurs each semester, and performance is reviewed at the end of each semester. Candidates must demonstrate satisfactory performance before moving on to the next semester. Satisfactory performance includes a "C" or higher in all education course work and an overall 2.5 GPA, demonstration of professional behaviors, and acceptable performance in practica and on key assessments.

Candidates in this program must meet with the head of the Department of Early, Elementary and Reading Education to declare the minor in elementary education, be assigned a date to start the ELED courses, and be assigned an adviser in elementary education. A limited number of candidates can start the ELED course work each semester.

## Recommended Schedule for Elementary Education

Students should take General Education, IDLS requirements, EDUC 300 and EXED 200 during their first and second years.

Third Year	Credit Hours
ECED 372. Introduction to Early Childhood Education	3
ELED 308. Child Development Birth Through Adolescence	3
ELED 310. Diversity in Elementary Education (with Service Learning)	3

ELED 311. Practicum in with a Focus on Learners and Learning	3
READ 366. Early Literacy Development and Acquisition	3
Major requirements/Electives	15
	<hr/>
	30

<b>Fourth Year</b>	<b>Credit Hours</b>
ELED 411. Practicum in Curriculum Integration & Guiding Behavior	3
ELED 432. Children and Science	3
ELED 433. Children and Math I: Number, Operations, Algebraic and Geometric Reasoning	3
ELED 434. Children and Social Studies	3
READ 436. Literacy Learning in the Elementary Grades	3
Major requirements/Electives	15
	<hr/>
	30

## Graduate Courses

Candidates beginning the graduate portion of the program must meet all Graduate School requirements and criteria for admission; it is expected that students will complete the admission process during their senior year. In addition, students must meet all graduate level graduation requirements.

<b>Courses</b>	<b>Credit Hours</b>
ELED 510. Creativity and the Arts	3
ELED 533. Children and Math II: Data, Chance, and Space	3
ELED 570. Planning, Instruction, and Assessment in the Elementary Education Curriculum	3
ELED 621. Practicum with a Focus on Inquiry	2
ELED 622. Seminar: Inquiry Projects	1
ELED 632. Inquiry in Elementary Education	3
ELED 641. Families, Schools, and Communities	2
ELED 690. Internship in Teaching	8
READ 590. Reading Across the Curriculum	3
Elective	3

31

## Student Teaching

Candidates must apply to student teach one year prior to their student teaching semester. At that time, students must be fully accepted into teacher education, be admitted unconditionally to graduate school and have a 3.0 graduate GPA.

# Department of Economics

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## Associate Professors

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## Assistant Professor

B. Brunton

## Lecturers

P. Heap, Z. Gochenour, J. Robinson, M. Sameni

## Mission

The Department of Economics is committed to students' intellectual development by fostering an understanding and appreciation of economic forms of explanation and their relationships to other social sciences. Economics faculty members are dedicated to sound and effective pedagogy, to scholarship of the highest quality and to outreach to the local and business community.

The department provides an intellectual foundation for the appreciation and understanding of economic theory and policy. This foundation is developed within a broader educational perspective that stresses the importance of imaginative thinking, free inquiry and the pursuit of life-long learning. In this way, the program prepares students with the economic literacy necessary to cope with the challenges inherent in a world of accelerating change.

## Goals

- Help students develop analytical and critical thinking skills.
- Promote cross disciplinary forms of instruction.
- Seek continuous improvement in the quality of classroom instruction.
- Serve the community through outreach services.
- Help students pursue careers and additional education.

## Marketable Skills

- Analytical thinking capabilities highly valued by business, government and the nonprofit sector.
- Writing and research skills applicable to a wide variety of careers.
- Statistical and econometric skills used in business and finance.
- Preparation in critical thinking valued by graduate schools, including law, business, and arts and sciences.
- Analytical skills valued by employers for internships in business, government and consulting.

## Co-curricular Activities and Organizations

- Economics Club (open membership)
- Omicron Delta Epsilon (national honor society in economics)

## Admission to the Major

Students wishing to pursue a B.A., B.B.A. or B.S. degree program in economics must be formally admitted to the program in order to enroll in the required core courses ECON 331, ECON 332 and ECON 385, which all require grades of "C" or better in their prerequisite courses. In order to be admitted as either a B.A. or B.S. candidate, the student must have at least three semesters remaining at JMU to complete the degree requirements. In order to be accepted as a B.B.A. candidate, the student must also meet all of the College of Business admission requirements (described in the College of Business section of the catalog).

To declare an economics major, students must submit the "Change or Declaration of Major" form and a copy of an unofficial transcript to the department head's office in Showker Hall, Room 434.

## Degree and Major Requirements

Economics majors choose from a B.A., B.S. or B.B.A. degree. The B.A. and B.S. degrees are traditional liberal arts degrees that lead to a variety of career and graduate school options; the B.B.A. is designed to prepare students for careers in business.

## Bachelor of Arts in Economics

The minimum requirement for a B.A. degree in economics is 33 credit hours of economics, including 18 credit hours of core courses and 15 credit hours of electives. It is also necessary for the student to complete the foreign language and philosophy requirements for a B.A. degree as well as complete the General Education program.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course(s) (in addition to General Education courses)	3
Major requirements (listed below) and electives	62-76
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232), or by placing out of that language through the Department of Foreign Language, Literatures and Cultures' placement test.

## Major Requirements

Required Economics Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 385. Econometrics	3
ECON 488. Senior Capstone Seminar in Economics	3
Economics electives (at least six credits must be at the 400 level, not including ECON 488, ECON 490 or ECON 499)	15

33

Students need to complete ECON 331, ECON 332 and ECON 385 with a grade of "C" or better.

## Recommended Schedule for B.A. in Economics Majors

### First Two Years

During the first two years, students should complete:

- Most of the General Education program
- ECON 201. Introduction to Microeconomics
- ECON 200. Introduction to Macroeconomics
- COB 191. Business and Economic Statistics
- Choose one of the following:
  - MATH 205. Introductory Calculus I
  - MATH 231. Calculus with Functions I
  - MATH 235. Calculus I
  - ISAT 151. Topics in Applied Calculus

Students are encouraged to take ECON 331 and/or ECON 332 in their sophomore year, which can only be taken once the prerequisites of ECON 200, ECON 201 and the prerequisite math course are completed.

### Third and Fourth Years

B.A. economics majors should complete ECON 331, ECON 332, and preferably ECON 385 by the end of their junior year. While most majors will complete the 400-level requirements in economics during their senior year, students may take a 400-level course during their junior year if the prerequisite for the course has been met. ECON 488 should be taken during the senior year.

## Bachelor of Science in Economics

The minimum requirement for a B.S. degree in economics is 33 credit hours of economics including 18 credit hours of core courses and 15 credit hours of electives. It is also necessary for the student to complete the quantitative and scientific literacy requirements for a B.S. degree as well as complete the General Education program.

## Degree Requirements

Required courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
Major requirements (listed below) and electives	72-73

120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> In addition to course work taken to fulfill General Education requirement.

## Major Requirements

Required Economics Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 385. Econometrics	3
ECON 488. Senior Capstone Seminar in Economics	3
Economics electives (at least six credits must be at the 400 level, not including ECON 488, ECON 490 or ECON 499)	15

33

Students need to complete ECON 331, ECON 332 and ECON 385 with a grade of "C" or better.

## Recommended Schedule for B.S. in Economics Majors

### First Two Years

During the first two years, students should complete:

- Most of the General Education program
- ECON 201. Introduction to Microeconomics
- ECON 200. Introduction to Macroeconomics
- COB 191. Business and Economic Statistics
- Choose one of the following:
  - MATH 205. Introductory Calculus I
  - MATH 231. Calculus with Functions I
  - MATH 235. Calculus I
  - ISAT 151 Topics in Applied Calculus

Students are encouraged to take ECON 331 and/or ECON 332 in their sophomore year, which can only be taken once the prerequisites of ECON 200, ECON 201 and the prerequisite math course are completed.

### Third and Fourth Years

B.S. economics majors should complete ECON 331, ECON 332, and preferably ECON 385 by the end of their junior year. While most majors will complete the 400-level requirements in economics during their senior year, students may take a 400-level course during their junior year if the prerequisite for the course has been met. ECON 488 should be taken during the senior year.

## Bachelor of Business Administration in Economics

The B.B.A. degree in economics requires a minimum of 120 credit hours of undergraduate work of which 60 credit hours must be taken outside the College of Business. The 60 credit hours of non-business courses may include all General Education program credits, up to nine hours in economics (including ECON 200) and three hours of COB 191. The remaining hours must be taken from any academic unit outside the College of Business. It is recommended that students carefully select non-business electives to effectively complement their economics and business education.

The minimum requirement for a B.B.A. degree in economics is 33 credit hours of economics including 18 credit hours of core courses and 15 credit hours of electives. B.B.A. students also complete the core business requirements as well as complete the General Education program.

## Degree Requirements

Required Courses	Credit Hours
B.B.A. core courses <sup>1</sup>	45-46
Economics major requirements (minus overlapping B.B.A. requirements)	27
General Education courses <sup>2</sup>	41-45
Non-business electives	6-7
	120

<sup>1</sup> Up to seven credit hours of core requirements in economics and calculus may also be taken for General Education credit. Students who take the General Education packages and courses recommended by the College of Business will have only 38 credit hours of additional B.B.A. core requirements.

<sup>2</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major Requirements

Required Economics Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 385. Econometrics	3
ECON 488. Senior Capstone Seminar in Economics	3
Economics electives (at least six credits must be at the 400 level, not including ECON 488, ECON 490 or ECON 499)	15
	33

Students need to complete ECON 331, ECON 332 and ECON 385 with a grade of "C" or better.

## Recommended Schedule for B.B.A. in Economics Majors

### First Two Years

During the first two years, students should complete:

The 29-30 hour, lower-division B.B.A. core curriculum (failing to complete these courses before the first semester of the junior year could delay admission to the degree program and enrollment in COB 300).

- Most of the General Education curriculum
- ECON 200. Introduction to Macroeconomics
- ECON 201. Introduction to Microeconomics
- COB 191. Business and Economic Statistics

Choose one of the following:

- MATH 205. Introductory Calculus I
- MATH 231. Calculus with Functions I
- MATH 235. Calculus I
- ISAT 151. Topics in Applied Calculus

### Third and Fourth Years

B.B.A. economics majors should take COB 300A, B, C, D in the fall semester of their junior year and complete ECON 331, ECON 332, and preferably ECON 385 by the end of their junior year.

While most majors will complete the 400-level requirements in economics during their senior year, students may take a 400-level course during their junior year if the prerequisite for the course has been met. ECON 488 should be taken during the senior year.

## Concentrations

### Concentration in Environmental and Natural Resource Economics

Required courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 305. Environmental Economics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 340. Natural Resource Economics	3
ECON 385. Econometrics	3
One 200- or 300-level economics elective	3
One 400-level economics elective	3
ECON 488. Senior Capstone Seminar in Economics	3
ECON 490. Special Studies in Economics	3
	33

In addition, students must choose Option A or Option B.

Option A	Credit Hours
For students with specific interests in forests, fisheries and wildlife	12
BIO 140. Foundations of Biology (4 credits)	
Choose one of the following (serves as the prerequisite to BIO 250)	
BIO 150 Foundations in Biology II (4 credits)	
GEOL 110 plus GEOL 110L. Physical Geology (3 credits) with Lab (1 credit)	
GEOG 210. Physical Geography (4 credits)	
ISAT 112. Environmental Issues in Science and Technology (4 credits)	
BIO 250. Ecology and Evolution (4 credits)	
	45

Option B	Credit Hours
For students interested in pollution prevention and control	9-10
Choose one of the following:(3-4 credits)	
ISAT 112. Environmental Issues in Science and Technology (4 credits)	
GEOL 115. Earth Systems and Climate Change (3 credits)	
GEOG 210. Physical Geography and Lab (4 credits)	
Choose one of the following: (3 credits)	
GEOG 325. Environmental Ethics (3 credits)	
GEOG/ISAT 429. Sustainability: An Ecological Perspective (3 credits)	
Choose one of the following: (3-4 credits)	
ISAT 320. Fundamentals of Environmental Science and Technology I (4 credits)	
ISAT 321. Fundamentals of Environmental Science and Technology II (3 credits)	
	42-43

### Concentration in Financial Economics

The minimum requirement for a B.A., B.S. or B.B.A. degree in economics with a concentration in financial economics is 27 credit hours of required economics courses and 12 credit hours of required finance courses (in addition to previous requirements).

Required Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 372. International Finance	3
ECON 385. Econometrics	3

ECON 430. Monetary Theory and Policy	3
ECON 488. Senior Capstone Seminar in Economics	3
Economics elective (400 level, not including ECON 490, ECON 499)	3
FIN 301. Principles of Finance (only if not completing COB 300)	3
FIN 360. Analytical Methods in Finance	3
FIN 371. Principles of Investments	3
FIN 380. Elemental and Derivative Securities Analysis	3

36-39

1 COB 241 is a prerequisite for this course.

## Concentration in International Economics

Students who elect a major in economics with a concentration in international economics are required to complete the following courses.

Required International Economics Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 370. International Trade	3
ECON/FIN 372. International Finance	3
ECON 385. Econometrics	3
ECON 488. Senior Capstone Seminar in Economics	3
Choose two of the following	6
ECON 301. Economics in Transition	
ECON 312. Comparative Economic Systems	
ECON 365. Economic Development	
Two 400-level economics electives	6

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In addition, students completing this course of study must have a genuine international experience (such as an internship or semester abroad) and must complete a foreign language through the civilization course, including all of the prerequisites for that course.

## Concentration in Political Economy

Students who elect a major in economics with a concentration in political economy are required to complete the following courses.

Required Political Economics Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 385. Econometrics	3
ECON 488. Senior Capstone Seminar in Economics	3
Choose four of the following:	12
ECON 312. Comparative Economic Systems	
ECON 326. Public Finance	
ECON 327. Game Theory	
ECON 405. Political Economy	
ECON 426. Theory of Public Choice	
Two 400-level economics electives	6
(which can include ECON 405 and/or ECON 426)	

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## Concentration in Socioeconomics

Students who elect a major in economics with a concentration in socioeconomics are required to complete the following courses.

Required Economics Courses	Credit Hours
ECON 200. Introduction to Macroeconomics	3
ECON 201. Introduction to Microeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 385. Econometrics	3

ECON 488. Senior Capstone Seminar in Economics	3
Two 400-level economics electives	6

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Economics Electives	Credit Hours
Choose four of the following:	12
ECON 301. Economics in Transition	
ECON 306. The Economics of Women and The Family	
ECON 307. The Economics of Aging	
ECON 340. Economics of Natural Resources	
ECON 360. Labor Economics	
ECON 365. Economic Development	
ECON 382. Urban Economics	
ECON 460. Human Resources	
Choose four of the following:	12
ANTH 195. Cultural Anthropology	
SOVI 336. Race and Ethnicity	
SOVI/SOWK 348. Introduction to Developing Societies	
SOVI 337. Sociology of Gender	
SOVI 344. Work and Society	
SOVI 346. Leisure in Contemporary Society	
SOVI 358. Sociology of Consumption	
HIST 320. Women in U.S. History	
HIST 428. American Workers in the Industrial Age, 1877-1948	
HIST 466. The Family, 1400-1800	

45-48

## Minor Requirements

### Economics Minor

The minimum requirement for a minor in economics is 18 credit hours in economics, including ECON 200, ECON 201 and at least six credit hours of either 300 or 400 level economics courses. Students may not receive credit towards the minor in economics for both ECON 270 and ECON 370.

### Preparation for Graduate Study in Economics

While not formal requirements, students intending to pursue graduate work in economics are encouraged to select as many of the following courses as possible:

Courses	Credit Hours
ECON 431. Advanced Microeconomic Theory	3
Choose one of the following:	3
ECON 430. Monetary Policy	
ECON 432. Advanced Macroeconomics	
ECON 484. Mathematical Economics	3
MATH 235-236-237. Analytic Geometry and Calculus I-II-III	12
MATH 238. Linear Algebra with Differential Equations	4
MATH 318. Introduction to Probability Theory and Statistics	4
MATH 336. Elementary Differential Equations	3
PHIL 250. Introductory Logic	3

### Credit by Examination

Credit in ECON 200 will be granted to students who achieve a grade of 4 or 5 on the Advanced Placement Test in Macroeconomics administered by the Educational Testing Service. Credit in ECON 201 will be granted to students who achieve a grade of 4 or 5 on the Advanced Placement Test in Microeconomics.

# Department of Educational Foundations and Exceptionalities

*Dr. William White, Department Head*

Phone: (540) 568-4188

Location: Memorial Hall, Room 3126

Email: [white2wl@jmu.edu](mailto:white2wl@jmu.edu)

Website: <http://www.jmu.edu/coe/efex/index.shtml>

## Professors

L. Desportes, S. Wasta

## Associate Professors

D. Allen-Bronaugh, K. Bethune, S. Blatz, C.R. Bosch, K. Koubek, T. Thomas

## Assistant Professors

T. Brown, R. Rodriguez, S. Snyder, M. Williams

## Instructor

L. Schick

The Department of Educational Foundations and Exceptionalities offers programs in special education, inclusive education, teaching English to speakers of other languages and gifted education.

## Special Education Master's Level Licensure Program

The special education pre-professional program enables students to become knowledgeable about the characteristics, diagnosis and remediation of children with disabilities accessing the general education curriculum. Students completing the five-year licensure program are prepared to serve as teachers of students with disabilities in a variety of educational placements and delivery models.

The licensure program is designed to prepare resilient, culturally responsive educators who are advocates for children and youth with disabilities that are not only qualified for the complexity of their professional roles but also are reflective problem-solvers.

The program includes extensive field experiences. Assessment of candidate performance includes evaluation of performance in individual courses and practicum, as well as other criteria. At various points throughout the program, there are formative and summative assessments where faculty committees review the overall performance of each candidate. Formative assessments will be used to advise candidates and develop a plan of action for addressing any concerns that have been identified by the faculty. Summative assessments will be used to identify those candidates who are not making satisfactory progress towards advancement to the next sequences of courses and experiences. If progress is unsatisfactory, the candidate will not be allowed to continue until any identified deficiencies are corrected. In some cases, a candidate will be allowed to continue in the next semester, but there will be a plan of action for addressing any concerns that have been identified by the faculty.

Students should consult with the program coordinator and their teacher education adviser early during the first year or, as soon thereafter as possible to obtain information concerning General Education, IDLS or any other liberal arts or science majors, and special education requirements as well as the requirements for admission to teacher education.

The IDLS major is assigned two advisers. One adviser is the adviser for the education pre-professional licensure program who will guide the student through the licensure program requirements. The other adviser is the IDLS adviser who will guide the student through the IDLS major requirements. Students should plan on consulting both advisers regularly. Typically, the education adviser is assigned when the student meets with the head coordinator of his/her licensure program and elects the licensure program. This may be as early as the first semester of the first year. The IDLS adviser is assigned when the first year student advising folders are transferred to the IDLS office (second semester, first year). Students are required to check with advisers regularly to ensure timely graduation.

It is important for students to understand that they must meet the requirements for a baccalaureate degree and successfully complete all undergraduate pre-professional courses and experiences prior to being fully admitted to the M.A.T. program. Students must complete the M.A.T. program satisfactorily in order to be recommended for a teaching license in special education through JMU.

Students should note that prerequisites and corequisites are required for many of the courses included in the pre-professional special education program. Exceptions to meeting those requirements must be approved by the Educational Foundations and Exceptionalities department head.

Students should also be aware that program requirements may change at any time reflecting changes in teacher licensure enacted by the Virginia Department of Education or other accrediting agencies after the catalog copy is approved. Therefore, it is especially important for students to confer with their advisers and the program coordinator on a regular basis.

# Special Education Licensure Programs

## General Curriculum K-Twelve

*Program Coordinator: Dr. Sharon Blatz*

Phone: (540) 568-6784 Email: blatzsl@jmu.edu

Completion of the five-year professional program may lead to eligibility for a Virginia teaching license for the special education general curriculum K-12.

Assessment occurs each semester and performance will be reviewed at each assessment gate. Candidates must demonstrate satisfactory performance before moving on to the next semester. Satisfactory performance includes a "C" or better in course work, demonstration of professional behaviors, and acceptable performance in practicums and on key assessments.

To be recommended for licensure, all students must meet the following requirements:

- Complete General Education and major requirements.
- Complete the special education pre-professional program as it corresponds to the related teaching track.
- Meet all admission and retention criteria for teacher education.
- Meet admission requirements for the special education M.A.T. program.
- Complete the graduate portion of the licensure program.

## Five-Year K-Twelve Special Education

### M.A.T.

Second Year Fall	Credit Hours
PSYC 160. Lifespan Human Development	3
EXED 200. Foundations of Exceptional Education	3

Second Year Spring	Credit Hours
PSYC 270. Foundations of Learning Cognition for Education	3
EDUC 300. Foundations of Education	3

Third Year Fall	Credit Hours
MSSE 240. Foundations of General Education 6-12	3

Third Year Spring	Credit Hours
EXED 303. Foundations of Classroom and Behavior Management	3
READ 430. Development, Assessment and Instruction of Literacy K-12	3
MAED 430. Teaching Mathematics in Grades K-12	3
EXED 341. Characteristics of Learners with Disabilities Accessing the General Curriculum	3

Fourth Year Fall	Credit Hours
EXED 450. Principles of Specialized Reading Instruction	3
EXED 474. Assessment and Evaluation for Management of Instruction and Behavior	3
EXED 476. Practicum in Assessment and Reading Instruction	2

Fourth Year Spring	Credit Hours
EXED 484. Instructional Methods for Learners with Disabilities	3
EXED 475. Building Instructional Programs and Plans for Learners with Disabilities	3
EXED 486. Supervised Clinical Practice with Planning and Methods in SPED	3

Graduate Program	Credit Hours
<b>Summer</b>	
EXED 520. Differentiation of Instruction and Assessment to Meet the Needs of Diverse Learners (Block 1)	3
EXED 605. Trends and Issues in EXED (Block 2)	3
<b>Fall</b>	
EXED 507. Supporting Access to General Curriculum for Learners with Disabilities (Block 1)	3
EXED 610. Practicum in Inclusive Settings (Block 1)	2-3
EXED 615. Transition of Learners with Disabilities into New Environments and Functions (Part A)	2
EXED 670. Professional Practice Seminar for Special Education (Block 2)	1-3
EXED 650. Student Teaching in Special Education (Block 2)	4-8
<b>Spring</b>	
EXED 510. Systematic Behavioral Interventions	3
EXED 615. Transition of Learners with Disabilities into New Environments and Functions (Part B)	2-4
EXED 605. Trends and Issues in Exceptional Education (Block 3)	3
EXED 670. Professional Practice Seminar for Special Education (Block 4)	1-3
EXED 650. Student Teaching in Special Education (Block 4)	4

## Inclusive Early Childhood Education (IECE) Master's Level Licensure Birth – Third Grade

*Program Coordinator: Dr. Mira Cole Williams*

Phone: (540) 568-3473 Email: willi9mc@jmu.edu

*Practicum Coordinator: Dr. Holly McCartney*

Phone: (540) 568-8753 Email: mccarthhb@jmu.edu

The IECE program draws heavily from research and theories in child development, family systems, special education, differentiated teaching and learning.

Through course work and extensive field experiences, the teacher candidate is prepared to design activities that have an cross disciplinary focus, reflect an understanding of the individual child's development and learning, recognize the importance of family and developmental influences, support the young child in constructing knowledge about self and the world, and involve parents in supporting the child's growth and development.

The JMU program prepares teachers for endorsements in Early Childhood Special Education, birth to five, and Early Childhood Education, PreK-3. The program is based on these assumptions:

- Early childhood educators must have a strong liberal education.
- Early childhood educators should possess a broad range of knowledge that provides a context for understanding individual behavior, family and environmental influences and major social issues in a modern democratic and technological society.
- Early childhood educators must have professional preparation that develops critical thinking and problem-solving skills to become educational decision makers who consciously choose appropriate curriculum based on an understanding of how children develop and learn.

The courses in the IECE Education program are sequentially organized throughout four undergraduate and three graduate semesters to help candidates develop an understanding of how children learn and interact in learning environments as well as familiarity with methods and materials appropriate for teaching

and working in a collaborative way with families and other professionals.

Field experiences are provided along with course work to enable candidates to apply their knowledge in a variety of family and learning settings. Candidates must be accepted in teacher education to begin upper level IECE course work.

Assessment occurs each semester and performance will be reviewed at each assessment gate. Candidates must demonstrate satisfactory performance before moving on to the next semester.

Satisfactory performance includes a "C" or higher in all education coursework with an overall 2.5 GPA, demonstration of professional behaviors, and acceptable performance in practica and on key assessments.

To be recommended for licensure in ECSE and PreK-3, candidates must satisfy the following requirements:

- Complete the General Education and degree requirements of the university.
- Complete a major in IDLS.
- Meet all admission and retention requirements for teacher education and the IECE program.
- Complete the 49 credit hour pre-professional program with an overall 2.75 GPA.
- Be admitted to the Graduate School.
- Complete the 30 hour graduate program including student teaching.
- Candidates in this program must meet with an IECE program adviser to declare the pre-professional licensure program in inclusive early childhood education.

The IDLS major is assigned two advisers. One adviser is the adviser for the education pre-professional licensure program who will guide the student through the licensure program requirements. The other adviser is the IDLS adviser who will guide the student through the IDLS major requirements. Students should plan on consulting both advisers regularly. Typically, the education adviser is assigned when the student meets with the head of his/her licensure program and elects the licensure program. This may be as early as the first semester of the first year. The IDLS adviser is assigned when the first year student advising folders are transferred to the IDLS office (second semester, first year) Students are required to check with advisers regularly to ensure timely graduation.

## Degree and Major Requirements

	Credit Hours
General Education requirements <sup>1</sup>	41
Interdisciplinary Liberal Studies Major	37
IECE Licensure Pre-professional Course Work	49
Graduate Degree Course Work	30

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Recommended Schedule for IECE

Second Year Fall	Credit Hours
EXED 200. Foundations of Exceptional Education	3
EDUC 300. Foundations of American Education	3
EDUC 310. Teaching in a Diverse Society	3

Third Year Fall	Credit Hours
IECE 300. Issues and Trends in IECE	3
IECE 301. Initial Field Experiences in IECE	1
IECE 303. Development of Young Children (Birth-8)	3

Third Year Spring	Credit Hours
IECE 321. Intermediate Field Experience in IECE	2
IECE 322. Teaching Young Children	3
IECE 324. Assessment of the Young Child	3
READ 366. Foundations of Literacy	3

Fourth Year Fall	Credit Hours
IECE 423. Intermediate Field Experience in IECE II	2
IECE 450. Contemporary Family Issues in Inclusive Education	3
IECE 466. Managing Classrooms and Guiding Behavior	3

Fourth Year Spring	Credit Hours
IECE 460. Instructional Practices in Numeracy	3
IECE 461. Advanced Field Experience in IECE I	2
IECE 462. Instructional Practices in Natural Sciences for Young Children	3
IECE 464. Instructional Practices in Social Studies for Young Children	3
READ 436. Literacy Learning in the Elementary Grades	3

Graduate Year Fall	Credit Hours
IECE 612. Effective Teaching in IECE	3
IECE 613. Advanced Field Experience in IECE II	3
IECE 614. Individualized Behavior Intervention for Young Children	3
IECE 632. Creativity, Play and Representation	3
EXED 625. Medical Aspectsof Working with Children with Significant Medical Needs	3

Graduate Year Spring	Credit Hours
IECE 620. Seminar in IECE Student Teaching	3
IECE 680. Student Teaching in IECE	12

## Special Education Non-Teaching Minor

*Program Coordinator: Dr. Laura Desportes*

Phone: (540) 568-4527 Email: [desporlx@jmu.edu](mailto:desporlx@jmu.edu)

The non-teaching minor program in exceptional education is designed for students in other major fields who wish to acquire professional knowledge related to assisting individuals with disabilities but who do not want to pursue Virginia teaching licensure. All students seeking to complete the minor must meet with the non-teaching program adviser to develop an approved program of study.

Required Courses	Credit Hours
EXED 200. Foundations of Exceptional Education (Prerequisite for all EXED courses. Offered online in the summer)	3
Complete two survey courses:	6
EXED 310. Survey of Emotional Disturbance	3
EXED 320. Survey of Learning Disabilities	3
EXED 330. Survey of Intellectual Disabilities	3
EXED 375. Overview Study of Autism <sup>1</sup> Spectrum Disorders	3
EXED 305. Acquired Brain Injury	3
Select nine credits from electives:	9
EXED 306. Lifespan Issues for Individuals with Disabilities	3
EXED 309. Supporting Community Access for Young Adults with Disabilities	3
EXED 443. Assistive Technology	3
EXED 401. Issues in Exceptional Education	1-3
EXED 455. Collaborative Teaching for Learners with Disabilities	3
EXED 465. Perspectives of Early Childhood Special Education	3
EXED 490. Special Study in Special Education <sup>2</sup>	1-3
CSD 420. Introduction to Sign Language	3
CSD 421. Sign Language II	3

KIN 313. Adapted Physical Education <sup>3</sup>	3
TESL 426. Concepts in First and Second Language Acquisition	3
EXED 440. Classroom Management and Professional Collaboration	3
Autism Certificate Courses <sup>4</sup>	
EXED 416. Overview & Assessment of Autism Disorders	3
EXED 417. Comm., Language & Sensory Issues of Autism	3
EXED 418. PBS, FBA & BIP	3
	18

1 Permitted only if the student is not enrolling the autism series (EXED 416, EXED 417, EXED 418).

2 Independent study must be approved and supervised by individual faculty.

3 For kinesiology majors only; KIN 310 is a prerequisite.

4 Students completing the autism certificate must complete these three courses in sequential order. No other electives must be completed if a student chooses this option. Not permitted in enrolling in EXED 375.

## Gifted Education

*Program Coordinator: Dani Allen-Bronaugh*

Phone: (540) 568-4952 Email: bronauda@jmu.edu

The Department of Educational Foundations and Exceptionalities offers an add-on endorsement in gifted education at the graduate level only. See the graduate catalog for information.

## Teaching English to Speakers of Other Languages

*Coordinator: Dr. Katya Koubek*

Phone: (540) 568-6760 Email: koubekex@jmu.edu

The Teaching English to Speakers of Other Languages (TESOL) program is designed to enable students to complete the TESOL non-licensure minor or the TESOL PK-12 licensure. Both programs prepare students to work effectively in promoting English language acquisition of children and adults who are not native English speakers. These programs also promote development of skills in cross-cultural competence and draw heavily upon theories of linguistics, research on social and cultural variables that influence second language acquisition, and the knowledge required to facilitate second language learning.

Candidates currently enrolled in initial teaching licensure programs may be able to complete the TESOL requirements in conjunction with completing their other preparation program. With careful planning, dual licensure is possible. Candidates interested in dual licensure should consult with the TESOL coordinator and the other program area adviser for more information.

## Non-Licensure TESOL Minor

*Coordinator: Dr. Katya Koubek*

Phone: (540) 568-6760 Email: koubekex@jmu.edu

The non-licensure minor program in TESOL is designed for students in various fields, who wish to acquire professional knowledge related to teaching English to speaker of other languages, but who do not want to pursue Virginia teaching licensure. Students will acquire skills in cross-cultural competence, understand and implement more equitable and effective ways of working with English learners (ELs), and become familiar with the processes of first and second language acquisition. Students will gain a foundational knowledge of effective teaching practices to assist and assess ELs. The TESOL

non-licensure minor requires a minimum of 19-20 credit hours; 16 credits are required core courses and 3-4 credits are electives selected in consultation with a program adviser.

Requirements	Credit Hours
Required Courses	
EDUC 310. Teaching in a Diverse Society	3
TESL 426. Concepts in First and Second Language Acquisition	3
TESL 428. Assessment for Curriculum and Development in English as a Second Language	3
READ 430. Development, Assessment and Instruction of Literacy, K-12	3
TESL 470. Instructional Strategies for Teaching English as a Second Language	3
EXED 490. Practicum	1
Electives (choose one)	3-4
EDUC 300. Foundations of American Education	
EDUC 370. Instructional Technology Practicum (Lab course)	
ENG 308. Introduction to Linguistics	
EXED 440. Classroom Management and Professional Collaboration	
READ 435. Literacy Development and Instruction for English Language Learners <sup>1</sup>	

19-20

1 This course has an additional one credit practicum, TESL 383.

2 This course has an additional one credit practicum, EXED 490.

## Teaching English to Speakers of Other Languages (TESOL) PK-Twelve: Undergraduate Licensure Program

*Coordinator: Dr. Katya Koubek*

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James Madison University's College of Education, through the Educational Foundations and Exceptionalities Department (EFEX) offers licensure preparation for PK-12 Teaching English to Speakers of Other Languages (TESOL). This program draws on theories of linguistics, research on social and cultural variables that influence second language acquisition and the knowledge required to facilitate second language learning. The TESOL program will prepare future educators to understand and implement more equitable and effective ways of working with English Language Learners in a variety of contexts, including inclusion in content/general education classes, sheltered-ESL classes and pullout classes.

Completion of this four-year program leads to eligibility for a Virginia teaching license for PK-12 English as a Second Language.

The College of Education's TESOL Program is interested in candidates who are committed to social justice and to creating affirming and academically challenging learning environments. Candidates must also complete a major in a liberal arts discipline closely associated with a teaching area (e.g., biology, history, mathematics, psychology, chemistry, English, etc. but not business administration, nursing, engineering, etc.).

Students considering PK-12 initial licensure in TESOL follow the process described below. Students pursuing initial licensure in other approved areas may also be admitted to the TESOL Program and simultaneously achieve initial licensure in TESOL.

All teacher education admission requirements are submitted through the Education Support Center, located in Memorial Hall, room 7230. Candidates must be fully admitted into teacher

education before they can register for certain designated undergraduate education courses.

Teacher education candidates must maintain an overall GPA of 2.5 or better and complete general education courses with a minimum grade of "C." Candidates must also complete academic major content courses and TESOL course work with a minimum grade of "C."

## Recommended Schedule for TESOL

Professional Education Courses	Credit Hours
PSYC 160. Life Span Human Development	3
EDUC 300. Foundations of American Education	3
EDUC 310. Teaching in a Diverse Society	3
EDUC 370. Instructional Technology Practicum	3
READ 366. Early Literacy Development and Acquisition	3
TESL 384. Practicum in Literacy Development (corequisite READ 366)	1
	<b>16</b>

It is strongly recommended that Professional Education Courses be taken prior to the TESOL Core Requirements. For students obtaining licensure in other areas, many of the professional education courses will be the same. In most cases, student teaching can be combined with other licensure areas and completed in one semester.

TESOL Core Requirements	Credit Hours
ENG 308. Introduction to Linguistics	3
TESL 426. Concepts in 1st/2nd Language Acquisition (Prerequisite for other TESOL courses, except ENG 308).	3
TESL 382. Practicum in TESOL 1st/2nd Language Acquisition (prerequisite for other TESOL courses, except ENG 308. corequisite TESL 426).	1
TESL 428. Assessment for Curriculum Development in ESL Practicum	3
READ 435. Literacy Development and Instruction for English Language Learners	3
TESL 383. Practicum in TESOL Literacy Development (corequisite READ 435)	1
TESL 470. Instructional Strategies for TESOL	3
TESL 381. Practicum in TESOL Instructional Strategies	3
TESL 480. Student Teaching (One eight-week block preK-6, one eight-week block 6-12)	12
TESL 482. Field Work in Professional Development, Partnership and Advocacy Seminar	1
Modern Foreign Language or Proficiency at Intermediate Level	0-12

33-45

## Student Teaching

Candidates must apply to student teach one year prior to their student teaching semester. At that time, students must be fully accepted into teacher education, be admitted unconditionally to graduate school and have a 3.0 graduate GPA.

# Department of Engineering

*Dr. Kurt Paterson, Department Head*

Phone: (540) 568-8110

Location: Engineering and Geoscience Building, Room 1122

Email: [paterskg@jmu.edu](mailto:paterskg@jmu.edu)

Website: <http://www.jmu.edu/engineering>

## Professors

K. Paterson, B. Striebig

## Associate Professors

K. Gipson, S. Harper, S. Holland, S. Morton, J. Nagel, R. Nagel, A. Ogundipe, R. Prins

## Assistant Professors

E. Barrella, J. Henriques, C. Miller, H. McLeod

## Mission

Through an engineering curriculum grounded in effective instructional practices, we nurture an engaged educational community of conscientious and adaptable learners who develop solutions for the betterment of society.

## Objectives

The JMU Engineering program provides an eight-semester project-driven platform for students to contribute engineering work for sustainable societies. We seek engineers who are eager to:

- understand the needs of people and communities, effectively communicate with project partners, and provide leadership for diverse teams,
- make beneficial solutions for society and the planet using innovation, design thinking, engineering analyses, and an understanding of complexities involved in real projects.
- function effectively in the work environment with integrity and professionalism, and
- demonstrate a commitment to professional development through self-motivated learning, career advancement, or advanced studies.

The Bachelor of Science in Engineering is a single cross disciplinary engineering degree that integrates many traditional engineering disciplines with course work in business, project management, engineering, design and liberal arts. The foci of the program are sustainability, engineering design and project delivery.

Engineering for a sustainable world is, in short, a body of knowledge and set of holistic analytical design skills that contribute to the development of products, processes, services and infrastructure that simultaneously protect the environment, conserve resources and meet human needs at an acceptable financial cost. By reframing traditional engineering practice, sustainability provides a way of moving toward the development of sustainable societies, where human quality of life is advanced with a minimum impact on finite resources and the environment. Traditional approaches to engineering, such as mechanical, electrical or chemical are not offered in this program.

Rather, this modern, project-based, engineering curriculum spans many areas of engineering to create adaptable engineers with practical know-how.

The curriculum is ABET accredited and prepares students for the Fundamentals of Engineering (FE) pre-licensure examination.

Graduates will be prepared to succeed in the engineering workforce or in advanced engineering degree programs by accumulating a professional portfolio of engineering project experiences throughout the curriculum.

## Career Opportunities

Upon graduation, alumni will be prepared for a wide range of opportunities in the engineering workforce or in graduate school. Typical fields of engineering that students will be prepared to enter include sustainable design, process design, product design, process engineering, project management and systems engineering. Other industry options include product service system design, technical sales, management training and technical marketing.

A wide range of graduate school options include master's and doctoral programs in civil engineering, environmental engineering, industrial engineering, materials engineering, mechanical engineering and systems engineering. Other post-graduation options include business school, law school, AmeriCorps, Peace Corps, military service, entrepreneurship (starting a small business), applied science fields, international experiences, medical school and careers in politics/public policy.

Some examples of the industries that hire engineers include, among others, design and build companies, aeronautic firms, automobile manufacturers, colleges and universities, computer service and software firms, consulting firms, energy systems firms, federal contractors, federal, state and local governments (e.g., NASA, EPA, NIST, DOD, DOE), non-profit agencies, manufacturing firms, inspection agencies, mining and petroleum firms, pharmaceutical and medical research companies, research and development laboratories, telecommunication companies, and waste management and recycling firms.

## Admission to the Major

The B.S. in engineering admits a limited number of students each year. To be eligible to apply for admission, students must have completed the following:

All courses (or approved equivalents) required for the engineering major with a grade of "C" or higher:

MATH 235, 236, 237, 238

PHYS 140L, 150L, 240, 250

CHEM 131, 131L and CHEM 132, 132L or CHEM 133E, 133LE

ENGR 112, 212, 221, 231, 232

Any of the preceding courses may only be repeated once to be considered for admission.

No more than 85 students (including transfer students with qualifying transcripts) will be admitted to the major at the junior-level. If more than 85 students meet the above standards, enrollment will be limited to the top 85 students. For on-campus students, the admission criterion will be grade point average (GPA) in the five ENGR courses (112, 212, 221, 231, 232). In the event of a tie, GPA in the lower-division MATH, CHEM and PHYS courses required for the engineering major (listed in #1) will be used as a tie-breaker. The student coordinator will work with the engineering Academic Unit Head to assess the relative merit of transfer students. Students who are not among the top 85 in their cohort may elect to wait one year and be considered with the next cohort, if they so choose, though the same selection criteria applies.

## Progressing in the Major

Once admitted to the engineering program, students must maintain an in-major and cumulative GPA of 2.0 or higher.

Once admitted, any course required as part of the engineering major may only be repeated once.

## Degree and Major Requirements Bachelor of Science in Engineering

Required courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3
Major requirements (listed below) and electives	80
	127

Students must complete a total of nine hours of approved electives, including at least six hours of technical electives.

Students may not use courses required for the engineering major to fulfill elective requirements.

- Technical Electives: Must include at least three credit hours of ENGR 440 – ENGR 479. Up to three credit hours of technical electives may be from ENGR 480 or 498.
- Free electives: May include up to three credit hours of any other 300 or 400 level courses at JMU (both ENGR and non-ENGR courses are eligible). This may include courses that qualify as technical electives but were not used to meet the technical elective requirement.

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

## Recommended Schedule for Majors

### First Year

Fall Semester	Credit Hours
MATH 235. Calculus I <sup>1</sup>	4
PHYS 240. University Physics I and PHYS 140L. Lab <sup>2</sup>	4
General Education <sup>3</sup>	6
	14
Spring Semester	Credit Hours
MATH 236. Calculus II	4
PHYS 250. University Physics II and PHYS 150L. Lab	4
ENGR 112. Introduction to Engineering (Engineering Decisions)	3
General Education <sup>3</sup>	3
	14

### Second Year

Fall Semester	Credit Hours
MATH 237. Calculus III	4
CHEM 131-131L. General Chemistry I + Lab	4
ENGR 231. Engineering Design I	2
General Education <sup>4</sup>	6
	16
Spring Semester	Credit Hours
MATH 238. Linear Algebra and Differential Equations	4
ENGR 212. Engineering Statics & Dynamics	4
ENGR 232. Engineering Design II	2
ENGR 221. Engineering Management I	3
CHEM 132-132L. General Chemistry II + Lab	4
	17

### Third Year

Fall Semester	Credit Hours
ENGR 311. Thermal-Fluids I + Lab	4
ENGR 313. Circuits and Instrumentation + Lab	4
ENGR 322. Engineering Management II	3
ENGR 331. Engineering Design III	3
General Education	3
	17

### Spring Semester

Spring Semester	Credit Hours
ENGR 312. Thermal-Fluids II + Lab	4
ENGR 314. Materials and Mechanics + Lab	4
ENGR 332. Engineering Design IV	3
Approved engineering Elective	3
General Education	3
	17

### Fourth Year

Fall Semester	Credit Hours
ENGR 411. Sustainability I	3
ENGR 413. Systems Analysis	3
ENGR 431. Engineering Design V	3
Approved engineering elective	3
General Education	6
	18

### Spring Semester

Spring Semester	Credit Hours
ENGR 412. Sustainability II	3
ENGR 432. Engineering Design VI	3
Approved engineering elective	3
General Education	7
	16

1 Also fulfills General Education requirement for Cluster Three, Group 1.

2 Also fulfills General Education requirement for Cluster Three, Group 2.

3 Fulfills General Education requirement for Cluster One.

4 Engineering students are required to take either BIO 222 or GEOL 210 to meet engineering requirements as well as Cluster Three, Group 3 requirements.

## Bachelor of Science in Engineering with a Minor in General Business

This program prepares the student for entry-level engineering management and project management positions. The student is prepared to plan, organize, direct and control engineering projects, programs and/or facilities. Also, the program provides a foundation for graduate study in engineering management.

A grade point average of 2.0 in the business minor is required for graduation. This program of instruction also will require a total of 126 credit hours. The engineering major with business minor program is coupled and must be completed together; if a student does not receive a degree in engineering, the business minor will not be awarded. Additionally, there is a limit of 27 College of Business credit hours that can be taken, which includes the ENGR 221 and ENGR 322 courses.

Required courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	4
Scientific Literacy requirement <sup>2</sup>	3-4
General business minor	21
Major requirements (listed below) and electives	75

143-144

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

## Recommended Schedule for Majors

### First Year

Fall Semester	Credit Hours
MATH 235. Calculus I <sup>1</sup>	4
PHYS 240. University Physics I and PHYS 140L. Lab <sup>2</sup>	4
General Education <sup>3</sup>	6
	14

Spring Semester	Credit Hours
MATH 236. Calculus II	4
PHYS 250. University Physics II and PHYS 150L. Lab	4
ENGR 112. Introduction to Engineering	3
General Education <sup>3</sup>	3
	14

### Second Year

Fall Semester	Credit Hours
MATH 237. Calculus III	4
CHEM 131-131L. General Chemistry I + Lab	4
ENGR 231. Engineering Design I	2
General Education <sup>4</sup>	6
	16

Spring Semester	Credit Hours
MATH 238. Linear Algebra and Differential Equations	4
ENGR 212. Statics and Dynamics	4
ENGR 221. Engineering Management I	3
ENGR 232. Engineering Design II	2
CHEM 132-132L. General Chemistry II + Lab	4
ECON 201. Principles of Economics (Micro)	3

20

### Third Year

Fall Semester	Credit Hours
ENGR 311. Thermal-Fluids I and Lab	4
ENGR 313. Circuits and Instrumentation and Lab	4
ENGR 331. Engineering Design III	3
COB 204. Computer Information Systems	3
ENGR 322. Engineering Management II	3
	17

Spring Semester	Credit Hours
ENGR 312. Thermal-Fluids II + Lab	4
ENGR 314. Materials and Mechanics + Lab	4
ENGR 332. Engineering Design IV	3
ACTG 244. Accounting for Non-Business Majors	3
General Education	3
	17

### Fourth Year

Fall Semester	Credit Hours
ENGR 411. Sustainability Fundamentals	3
ENGR 413. Systems Analysis	3
ENGR 431. Engineering Design V	3
FIN 345. Finance for the Non-Financial Manager	3
General Education	4
	16

Spring Semester	Credit Hours
ENGR 412. Sustainability II	3
ENGR 432. Engineering Design VI	3
MKTG 380. Principles of Marketing	3
General Education	9
	18

1 Also fulfills General Education requirement for Cluster Three, Group 1.

2 Also fulfills General Education requirement for Cluster Three, Group 2.

3 Fulfills General Education requirement for Cluster One.

4 Engineering students are required to take either BIO 222 or GEOL 210 to meet engineering requirements as well as Cluster Three, Group 3.

# Department of English

*Dr. Dabney A. Bankert, Department Head*

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## Professors

D. Bankert, M. Favila, A. Federico, J. Gabbin, B. Johnson, L. Kutchins, R. Majors, D. Mookerjea-Leonard, A. Morey, M. Parker, M. Rebhorn

## Associate Professors

P. Bogard, K. Castellano, E. Cavanagh, S. Cote, A. Fagan, R. Gaughran, D. Goode, B. Hefner, L. Henigman, M. Rankin, M. Thompson, S. White

## Assistant Professors

D. Babcock, M. Godfrey, D. Lo, S. Samatar, G. Wrenn

## Mission

The Department of English offers to all students, wherever their professional and vocational interests lie, skills in critical thinking, analysis and writing along with an appreciation of the great literary heritage of Western civilization, with particular emphasis upon British and American literature. The program also promotes global awareness and the appreciation of cultural diversity through numerous opportunities for world or multicultural studies.

Our goal is that, through the humanistic study of a variety of literature, students will obtain a better understanding of themselves, their culture and other cultures with which they must invariably come into contact.

A senior requirement ensures that each major will have a final capstone experience through courses designed to integrate earlier training and focus it toward postgraduate needs and opportunities.

## Goals

To build upon the skills introduced in the General Education program, the Department of English strives to:

- Provide students advanced instruction in writing styles ranging from expository and creative writing to literary criticism.
- Help students master advanced skills in analytical and critical thinking.
- Develop skills in research and information access.

## Career Opportunities

Careers that involve critical thinking, document analysis or oral and written communication such as:

- Career Counseling
- Corporate Recruiting
- Consulting
- Editing
- Educational Administration
- Film and Food Critic
- Graduate school in English, creative writing, law and library science
- Human Resources
- Insurance underwriting
- Intelligence analyst
- Law school

- Library science (librarian, archivist, preservationist)
- Literary agent
- Literacy Instructor
- Lobbyist
- Magazine writing and editing (print and online)
- Marketing
- Newspaper reporting/Foreign Correspondent
- Non-Profit Advocacy and Administration
- Public relations and public affairs officer
- Publishing
- Research
- Speech writer
- Stockbroker
- Teaching

## Co-curricular Activities and Organizations

- Sigma Tau Delta (the National English Honor Society)
- gardy loo! (a literary magazine)
- Sister Speak (JMU's feminist journal)
- MacGuffin Film Journal
- Cinemuse Film Club
- Hopscotch (children's literature magazine)

## Degree and Major Requirements

Students majoring in English earn the B.A. degree unless they are completing an English major with an cross disciplinary focus or an additional major in a degree program other than the B.A. The minimum requirement for a major in English is 36 credit hours of course work in the major.

The department recommends that students choose a variety of courses covering contemporary and early literature, as well as period, genre and linguistics courses. In addition to core courses, English majors must take nine credit hours of English electives on or above the 300 level. Courses taken to fulfill General Education Cluster Two requirements may also fulfill requirements in the English major. Students may complete credit requirements by taking additional electives.

The minimum requirement for a major in English with a cross disciplinary focus is 36 credit hours of course work; 24 of these hours must be in English courses, with 15 hours at the 300 level or above. Twelve hours from another discipline or disciplines must be chosen in conference with the student's adviser and approved by the department head. For more information about the cross disciplinary focus, contact a departmental adviser.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	26-40
Major requirements (listed below)	36
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement exam.

## Major Requirements

All students must include in their program the following core courses:

Core Courses	Credit Hours
ENG 299. Writing About Literature <sup>1</sup>	3
Choose one from the following:	3
ENG 235. Survey of English Literature: From Beowulf to the 18th Century	
ENG 247. Survey of American Literature: From the Beginning to the Civil War	
Choose one from the following:	3
ENG 221. Literature/Culture/Ideas	
ENG 222. Genre(s)	
ENG 235. Survey of English Literature: From Beowulf to the 18th Century	
ENG 236. Survey of English Literature: Victorian Era through the 20th Century	
ENG 239. Studies in World Literature	
ENG 247. Survey of American Literature: From the Beginning to the Civil War	
ENG 248. Survey of American Literature: From the Civil War to the Modern Period	
ENG 260. Survey of African-American Literature	
Choose one from the following:	3
ENG 235. Survey of English Literature: From Beowulf to the 18th Century	
ENG 236. Survey of English Literature: Victorian Era through the 20th Century	
ENG 239. Studies in World Literature	
ENG 247. Survey of American Literature: From the Beginning to the Civil War	
ENG 248. Survey of American Literature: From the Civil War to the Modern Period	
ENG 260. Survey of African-American Literature	
Choose one course at the 200 or 300 level	3
Choose five courses from the 300 level	15
Choose two approved 400-level courses from the Advanced Studies list	6
	36

The courses selected must include the following:

One course at the 300 or 400 level, pre-1700:  
 ENG 301. Old English Language and Literature  
 ENG 306. The Bible as Literature  
 ENG 311. Medieval Literature and Culture  
 ENG 313. Sixteenth Century British Literature  
 ENG 315. Seventeenth Century British Literature  
 ENG 316. Early Modern Drama  
 ENG 317. Shakespeare's Tragedies and Romances  
 ENG 318. Shakespeare's Comedies and Histories  
 ENG 319. Teaching Shakespeare  
 ENG 320L. Shakespeare on the Page and Stage in London  
 ENG 401. Advanced Studies in Medieval Literature  
 ENG 402. Advanced Studies in British Literature before 1700

One course at the 300 or 400 level, pre-1900:  
 ENG 301. Old English Language and Literature  
 ENG 306. The Bible as Literature  
 ENG 311. Medieval Literature and Culture  
 ENG 313. Sixteenth Century British Literature  
 ENG 315. Seventeenth Century British Literature  
 ENG 316. Early Modern Drama  
 ENG 317. Shakespeare's Tragedies and Romances  
 ENG 318. Shakespeare's Comedies and Histories  
 ENG 319. Teaching Shakespeare  
 ENG 320L. Shakespeare on the Page and Stage in London  
 ENG 321. Restoration and Eighteenth Century British Literature  
 ENG 322. Restoration and Eighteenth Century British Drama  
 ENG 325. Romantic Literature  
 ENG 327. The Gothic  
 ENG 329. Victorian Literature  
 ENG 330. The Nineteenth Century British Novel  
 ENG 342. Early American Literature  
 ENG 343. Antebellum American Literature  
 ENG 344. Late Nineteenth Century American Literature  
 ENG 352. The American Novel to 1914  
 ENG 363. Native American Literature  
 ENG 401. Advanced Studies in Medieval Literature  
 ENG 402. Advanced Studies in British Literature Before 1700

One course from the Identity, Diversity and Power selections:  
 ENG 358. Oral Literature  
 ENG 359. Studies in African-American Literature  
 ENG 360. Introduction to Ethnic American Literature  
 ENG 361. African-American Fiction  
 ENG 362. African-American Poetry  
 ENG 363. Native American Literature  
 ENG 368. Women's Literature  
 ENG 369. Feminist Literary Theory  
 ENG 370. Queer Literature  
 ENG 377. Introduction to African Literature  
 ENG 378. Studies in South Asian Literature  
 ENG 379. Literature and Empire  
 ENG 408. Advanced Studies in African-American Literature  
 ENG 423. Advanced Studies in Gender and Sexuality in Literature  
 ENG 431. Studies in Caribbean Literature  
 ENG 432. Studies in African Literature  
 ENG/SPAN 434. Latin American Literature in Translation  
 ENG 466. Advanced Studies in Women's Literature

Two courses from the 400 level Advanced Studies list:  
 ENG 401. Advanced Studies in Medieval Literature  
 ENG 402. Advanced Studies in British Literature Before 1700  
 ENG 403. Advanced Studies in British Literature After 1700  
 ENG 405. Advanced Studies in Anglophone Literature  
 ENG 407. Advanced Studies in American Literature  
 ENG 408. Advanced Studies in African-American Literature  
 ENG 410. Advanced Studies in Author

ENG 413. Advanced Studies in Literature and Ideas  
 ENG 414. Advanced Studies in Genre  
 ENG 415. Advanced Studies in Textuality and the History of the Book  
 ENG 417. Advanced Studies in Linguistics and the English Language  
 ENG 420. Advanced Studies in Theory and Cultural Studies  
 ENG 423. Advanced Studies in Gender and Sexuality in Literature  
 ENG 430. Advanced Studies in Comparative Literature  
 ENG 431. Advanced Studies in Caribbean Literature  
 ENG 432. Advanced Studies in African Literature  
 ENG 434. Advanced Studies in Latin American Literature in Translation  
 ENG 439. Advanced Studies in Major Authors of Literature in Spanish  
 ENG 466. Advanced Studies in Women's Literature

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

Other courses may be applied to these requirements via course directive. Students should consult advisers and the departmental semesterly list about other options.

## Recommended Schedule for Majors

First Year	Credit Hours
Foreign language courses	6-8
General Education courses	23
	29-31

Second Year	Credit Hours
Two of three required courses from among ENG 221-ENG 260	6
ENG 299. Writing About Literature	3
General Education courses	15
Foreign language courses	6
	30

Third Year	Credit Hours
Remaining requirement from General Education	3
English 300-level courses	12-15
Other electives	15
	30

Fourth Year	Credit Hours
English 300-400 level courses	12-15
Other electives	15-18
	30

## Concentrations

Majors may use their electives to concentrate in British, American, or world literature or creative writing.

### British or American Literatures

In consultation with their advisers, students may choose nine credit hours of courses beyond the core offerings that lead to a coherent view of the scope and development of British or American literature.

### World Literature

In consultation with their advisers, students may choose nine credit hours of courses beyond the core offerings that acquaint them with the scope of world literature.

Courses	Credit Hours
Choose three of the following:	
ENG 305. Mythology	
ENG 306. The Bible as Literature	
ENG 430. Advanced Studies in Comparative Literature	
ENG 431. Advanced Studies in Caribbean Literature	
ENG 432. Advanced Studies in African Literature	
ENG 433. Studies in Arabic Literature	
ENG/FR 435. Studies in French Literature	
ENG/GER 436. Studies in German Literature	
ENG/ITAL 437. Studies in Italian Literature	
ENG/RUS 438. Studies in Russian Literature.	
ENG 302 and ENG 412 may also satisfy these requirements when content of the courses is appropriate	

9

## Creative Writing

Students with a strong interest in developing various writing skills should include in their program nine credit hours of electives from the following courses.

Courses	Credit Hours
Choose three of the following:	
ENG/THEA 347. Playwriting	
ENG 390. The Environmental Imagination	
ENG 391. Introduction to Creative Writing: Nonfiction	
ENG 392. Introduction to Creative Writing: Poetry	
ENG 393. Introduction to Creative Writing: Fiction	
ENG 483. Narrative Form	
ENG 484. Poetic Craft and Creativity	
ENG 493. Advanced Creative Non-Fiction	
ENG 494. Advanced Poetry Writing	
ENG 495. Advanced Fiction Writing	
ENG 496. Advanced Topics in Creative Writing	

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## Minor Requirements

### English Minor

The minimum requirement for a minor in English is 18 credit hours. At least nine hours must be taken in courses at the 300 level or above. A minor in English does not meet requirements for the Secondary Teaching License.

### Cross Disciplinary Minors

English participates in the following cross disciplinary minors:

- Africana Studies
- American Studies
- Book Arts
- Classical Studies
- Creative Writing
- Environmental Studies
- Film Studies
- Latin American and Caribbean Studies
- Medical Humanities
- Medieval and Renaissance Studies
- Modern European Studies
- Women's and Gender Studies
- World Literature

## Teaching Licensure

Students interested in becoming teachers must meet specific curriculum requirements in their major as part of the undergraduate academic degree. English majors desiring secondary teacher licensure must complete READ 254, include among their core courses the surveys of both English and American literature (ENG 235, ENG 236, ENG 247 and ENG 248), and include among their electives the following:

Choose one of the following:

ENG 309. Traditional English Grammar

ENG 310. Modern English Grammar

Choose one of the following:

ENG 317. Shakespeare's Tragedies and Romances

ENG 318. Shakespeare's Comedies and Histories

ENG 319. Teaching Shakespeare

ENG 320L. Shakespeare on the Page and Stage in London

At least one course at any level in American literature

At least one course at any level in British literature

At least one course at any level in world literature

In addition to the general education and academic major requirements, English majors desiring secondary teacher licensure must be admitted to teacher education, complete the pre-professional program in secondary education at the undergraduate level and complete the graduate level Master of Arts in Teaching degree.

It is critical that students seeking licensure consult regularly with both their education adviser and their major adviser to support their progression through the programs. For a full description of the program in secondary teaching, refer to the Department of Middle, Secondary and Mathematics Education, in addition to the College of Education section of the catalog.

## Teaching English as a Second Language

For a description of the TESOL program, refer to the College of Education section of the catalog.

# Department of Finance and Business Law

*Dr. Hui Sono, Department Head*

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## Professors

P. Drake, J. Fink, K. Fink, A. Hamilton, Q. Liu, D. Thomas

## Associate Professors

J. Chowdhury, E. Semaan, H. Sono, C. Ullrich,

## Assistant Professors

C. Larsson, K. Schumann, A. Usman

## Lecturers

M. Graham, D. Parker, R. Rubin

## Mission

The Department of Finance and Business Law, together with our partners in the business community, is committed to preparing students to be principled, productive contributors to business and society.

## Values

To support its mission, the Department of Finance and Business Law is committed to the following values.

- **Ethics:** Develop decision makers who are respectful of stakeholders and the rule of law.
- **Engagement:** Connect students and faculty with stakeholders in the local and global communities.
- **Critical Thinking:** Foster intellectual curiosity and analytical skills to enable an understanding of the role of finance and business law in the global economy.
- **Innovation:** Challenge students to develop their own solutions to financial issues in a dynamic economy.

## Career Opportunities

The finance major is designed to prepare students for careers in the financial management of industrial and commercial enterprises; commercial, retail and mortgage banking; investment analysis and portfolio management; real estate; insurance; finance positions in federal, state and local governments; and graduate study.

Job titles held by graduates of the programs include:

- Analyst, Real Estate Development
- Analyst, Structured Finance
- Assistant Treasurer
- Associate, Forensic Technology
- Business Systems Analyst
- Consultant
- Consultant/Engineer Analytics
- Corporate Model Analyst
- Credit Manager
- Director of Risk Management
- Director, Investor Relations
- Financial Planner

- Financial Analyst
- Financial Engineer
- Financial Management Analyst
- Internal Auditor
- Junior Analyst
- Lending Officer
- Loan Analyst
- Manager, Capital Budgeting
- Manager, Pension Fund Investments
- Manager, Project Finance
- Mortgage Analyst
- Operations Analyst
- Portfolio Analyst
- Pricing Analyst
- REIT Analyst
- Securities Analyst

## Co-curricular Activities and Organizations

- Financial Management Association
- Madison Investment Fund
- Global Association of Risk Professionals

## Degree and Major Requirements

The Department of Finance and Business Law offers programs leading to the Bachelor of Business Administration degree in finance and the Bachelor of Science degree in quantitative finance. As part of the JMU assessment program, graduating seniors are required to participate in assessment activities. Assessment information is used to assist the College of Business and department faculty in curricula.

## Bachelor of Business Administration in Finance

The B.B.A. degree with a major in finance requires a minimum of 120 credit hours of undergraduate course work. Fifty percent of this work, or 60 credit hours, must be taken outside of the College of Business. In counting the 60 credit hours of non-business

courses, students may include all hours taken in General Education, up to a total of nine hours in economics, and three hours of COB 191. Business Statistics. The remaining hours, to bring the total to 60, must be taken from any department outside the College of Business. Students should carefully select these non-business electives to help them gain additional knowledge and expertise for their careers and personal lives.

Students enrolled at James Madison University who wish to change their major to finance must first complete the change of major form, available from the Registrar's Office website, signed by either the Department of Finance and Business Law department head or the finance major adviser. Further, students must be in good academic standing to change their major to finance and, if they have taken any FIN prefix courses at the time of the change request, must meet the prerequisites for the required courses in the finance major.

Students who plan to major in finance and earn a score on the Math Placement Exam sufficient for placement into MATH 235 are strongly encouraged to enroll in MATH 235.

Required major courses provide finance majors with a foundation in financial management, investments and institutions. Electives within the major permit students to obtain an additional emphasis and explore other areas within the field of finance.

## Degree Requirements

Courses	Credit Hours
B.B.A. core courses <sup>1</sup>	45-46
Finance major requirements	24
General Education courses <sup>3</sup>	41
Non-business electives	6-7
	120

1 Up to seven hours of core requirements in economics and calculus may also be taken for General Education credit.

2 Any course offered by the university.

3 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major Requirements

### Finance Major Core Courses

- FIN 360. Analytical Methods in Finance
- FIN 365. Intermediate Financial Management
- FIN 371. Principles of Investments
- FIN 488. Advanced Financial Policy

In addition to these core courses, the student majoring in finance must successfully complete 12 credit hours of finance elective courses. Finance electives include any 300-level or 400-level finance course other than FIN 301, FIN 345, FIN 499 and the finance major core courses.

A student may choose up to one of the following courses to satisfy the finance elective credit hours: ACTG 313, ACTG 343, ACTG 344, ACTG 377, BLAW 470, BLAW 494, BLAW 496, BLAW 497, BLAW 498, and CIS 330. A finance major cannot take more than 10 Credit Hours of FIN-prefix courses in any one semester.

## Recommended Schedule for Majors

### First Two Years

Students planning to major in finance must complete the 30-31 hour, lower-division B.B.A. core curriculum prior to enrolling in upper-division core courses, normally taken in the first semester

of the junior year. It is expected that the lower-division core curriculum will be completed during the first two years of study along with most of the university General Education curriculum. Failing to complete all lower-division B.B.A. core requirements on time will delay enrollment in upper-division core and major courses.

## Third and Fourth Years

Finance majors will follow the course schedule below to complete the final two years of their program. It is possible to deviate from this program, but care must be taken to ensure that all course prerequisites are met. Finance majors are encouraged to enroll in FIN 360 during the same semester as COB 300 or during the semester following completion of COB 300. Note that students taking FIN 360 concurrently with COB 300 will have more choices in finance electives in subsequent semesters because FIN 360 is a prerequisite for most finance courses. It is anticipated that students will complete the finance requirements in three semesters following COB 300.

### Third Year

First Semester	Credit Hours
COB 300A. Integrated Business: Management	3
COB 300B. Integrated Business: Finance	3
COB 300C. Integrated Business: Operations	3
COB 300D. Integrated Business: Marketing	3
FIN 360. Analytical Methods in Finance	3

### Second Semester

Second Semester	Credit Hours
FIN 365. Intermediate Financial Management	3
FIN 371. Principles of Investments	3
Finance elective	3

### Fourth Year<sup>1</sup>

First Semester	Credit Hours
Finance electives	6

### Second Semester

Second Semester	Credit Hours
COB 487. Strategic Management	3
FIN 488. Advanced Financial Policy	3
Finance elective	3

<sup>1</sup> COB 487 is required during a student's senior year but may be taken either semester.

## Concentrations

Though not required, finance majors may elect a concentration. The concentrations are financial analysis and risk management. Students electing these concentrations will be taking specific electives in place of the required four electives for the major. Finance majors who wish to declare a concentration may do so once accepted into COB 300 or during any semester following. A student must earn a 2.0 in the courses designated for a concentration in order to have successfully completed the concentration.

### Financial Analysis Concentration

Many James Madison University finance graduates go on to careers in financial analysis, and the need for financial analysts remains strong. The financial analysis concentration helps prepare students for these careers and also Levels I and II of the Chartered Financial Analyst exam.

Students wishing to declare and complete the financial analysis concentration must have a minimum of a "B" in COB 241 and COB 242.

Required Courses	Credit Hours
FIN 362. Financial Analysis	3
FIN 378. Fixed Income Analysis	3
FIN 380. Elemental and Derivative Securities Analysis	3
Choose one of the following:	3
FIN 475. Financial Modeling and Risk Analysis	
ACTG 343. Corporate Financial Reporting I	
	12

## Risk Management Concentration

A focus in risk management is designed for finance majors pursuing a more in-depth review of the issues facing organizations and the tools needed to address those uncertainties. In the risk management concentration, students focus on the theory of risk management, risk identification, risk measurement and applications in the form of risk modeling techniques such as Value-at-Risk and Monte Carlo simulations.

Required Courses	Credit Hours
FIN 380. Elemental and Derivative Securities Analysis	3
FIN 450. Financial Risk Management	3
FIN 451. Risk Management II	3
FIN 475. Financial Modeling and Risk Analysis	3
	12

## Bachelor of Science in Quantitative Finance

The B.S. degree with a major in quantitative finance is designed to prepare students for careers in financial engineering, structured finance, financial modeling, securitization, actuarial science, financial analysis and portfolio management. The focus of this major is on problem solving in the quantitative areas of finance with an added emphasis on the application of complex securities to a variety of financial situations.

The quantitative finance program, which is a cross disciplinary major with many courses co-listed with the math department, is a highly structured program requiring minor fields in both mathematics and economics, though many students choose to double major in mathematics and quantitative finance. If the double major is selected, students are required to take ECON 200, ECON 201 and ECON 331, but are not required to complete the economics minor. Students electing this program should consult with their major adviser as early as possible to identify the appropriate course sequencing. Students electing to double major in mathematics and quantitative finance should also consult with a mathematics adviser as soon as possible.

Students enrolled in James Madison University who wish to change their major to quantitative finance must first complete the change of major form, available from the Registrar's Office website, signed by either the Department of Finance and Business Law department head or the quantitative finance major adviser.

## Degree and Major Requirements

### Quantitative Finance Major with a minor in Economics and Mathematics

Degree Requirements	Credit Hours
General Education <sup>1</sup>	41
Scientific Literacy requirement <sup>2</sup>	3
Electives	11
Major requirements (listed below)	65

120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

Major Requirements	Credit Hours
General Required Course	3
COB 241. Financial Accounting	
Finance Courses	27

FIN 250. Principles of Quantitative Finance  
 FIN 365. Intermediate Financial Management  
 FIN 371. Principles of Investments  
 FIN 380. Elemental and Derivative Securities Analysis  
 FIN/MATH 395. Mathematical Finance  
 FIN/MATH 405. Securities Pricing  
 FIN 450. Financial Risk Management  
 FIN 480. Seminar in Financial Engineering  
 Plus one of the following:  
 FIN/MATH 328. Time Series Analysis  
 FIN/ECON 372. International Finance and Payments  
 FIN 451. Risk Management II  
 FIN 455. Advanced International Financial Management  
 FIN 471. Advanced Topics in Investments  
 FIN 475. Financial Modeling and Risk Analysis

Mathematics Courses 27

(Four of the 27 credits count for General Education)  
 MATH 235. Calculus I<sup>1</sup>  
 MATH 236. Calculus II  
 MATH 237. Calculus III  
 MATH 238. Linear Algebra with Differential Equations  
 MATH 248. Computers and Numerical Algorithms  
 MATH 318. Introduction to Probability and Statistics  
 One of the following recommended MATH electives  
 MATH 423 Stochastic Process  
 MATH 426 Probability and Mathematical Statistics I  
 MATH 440 Fourier Analysis and Partial Differential Equations

Economics Courses 18

(Six of the 18 credits count for General Education)  
 ECON 200. Introduction to Macroeconomics<sup>2</sup>  
 ECON 201. Principles of Economics (Micro)<sup>3</sup>  
 ECON 331. Intermediate Microeconomic Theory  
 ECON 332. Intermediate Macroeconomic Theory  
 or MATH 322. Applied Linear Regression  
 ECON 385. Econometrics  
 One upper-level economics elective

75

1 General Education requirement Cluster Three.

2 General Education requirement Cluster Four.

3 Satisfies the scientific literacy requirement.

## Quantitative Finance/Mathematics Double Major

Degree Requirements	Credit Hours
General Education <sup>1</sup>	41
Scientific Literacy requirement <sup>2</sup>	3
Free electives	0-1
Major requirements (listed below) and electives	75-76
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

Major Requirements	Credit Hours
General Required Course	3
COB 241. Financial Accounting	
Finance Courses	27
FIN 250. Principles of Quantitative Finance	
FIN 365. Intermediate Financial Management	
FIN 371. Principles of Investments	
FIN 380. Elemental and Derivative Securities Analysis	
FIN/MATH 395. Mathematical Finance	
FIN/MATH 405. Securities Pricing	
FIN 450. Financial Risk Management	
FIN 480. Seminar in Financial Engineering	
Plus one of the following:	
FIN/MATH 328. Time Series Analysis	
FIN/ECON 372. International Finance and Payments	
FIN 451. Risk Management II	
FIN 455. Advanced International Financial Management	
FIN 471. Advanced Topics in Investments	
FIN 475. Financial Modeling and Risk Analysis	
Economics Courses	9
(Three of which count for General Education and three of which count for the B.S. scientific literacy requirement)	
ECON 200. Introduction to Macroeconomics <sup>2</sup>	
ECON 201. Principles of Economics (Micro) <sup>3</sup>	
ECON 331. Intermediate Microeconomic Theory	
Mathematics Courses	42-43
(Four of which count for General Education)	
MATH 235. Calculus I <sup>1</sup>	
MATH 236. Calculus II	
MATH 237. Calculus III	
MATH 238. Linear Algebra with Differential Equations	
MATH 245. Discrete Mathematics	
MATH 248. Computers and Numerical Algorithms	
MATH 318. Introduction to Probability and Statistics	
MATH 410. Advanced Calculus	
MATH 430. Abstract Algebra I	
One of the following mathematics electives:	
MATH 411. Advanced Calculus II	
MATH 431. Abstract Algebra II	
MATH 434. Advanced Linear Algebra	
MATH 435. Introduction to Topology	
One of the following recommended mathematics electives:	
MATH 322. Applied Linear Regression	
MATH 423. Stochastic Processes	
MATH 426. Probability and Mathematical Statistics I	
MATH 440. Fourier Analysis and Partial Differential Equations	

81-82

1 General Education requirement Cluster Three.

2 General Education requirement Cluster Four.

3 Satisfies the scientific literacy requirement.

## Risk Management Concentration

Though not required, quantitative finance majors may elect the risk management concentration. Student electing this concentration will be taking specific electives and two additional electives. Students may add this concentration to their program when they progress to FIN 380.

Quantitative finance majors who wish to declare the risk management concentration may do so after successfully completing FIN 250 or any semester following.

A focus in risk management is designed for qualitative finance majors pursuing a more in-depth review of the issues facing organizations and the tools needed to address those uncertainties. In the risk management concentration, students focus on the theory of risk management, risk identification, risk measurement and applications in the form of risk modeling techniques such as Value-at-Risk and Monte Carlo simulations.

Required Courses	Credit Hours
FIN 380. Elemental and Derivative Securities Analysis	3
FIN 450. Financial Risk Management	3
FIN 451. Risk Management II	3
FIN 475. Financial Modeling and Risk Analysis	3

12

FIN 450 is a requirement for quantitative finance majors and FIN 451 and FIN 475 are possible electives for this major. Students electing this concentration take two courses beyond the typical quantitative finance major.

## Transfer Credit

In general, all finance course work must be completed at JMU. Transfer credit for finance courses is awarded only in certain circumstances. In no case will transfer credit be awarded for FIN 488, Advanced Financial Policy. Contact the department head for more information on transfer credit.

# Department of Foreign Languages, Literatures and Cultures

*Dr. Giuliana Fazzion, Department Head*

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## Associate Professors

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## Assistant Professors

G. Cardillo, D. Galarreta-Aima, J. Lang-Rigal, M. Mason, Y. Montes de Oca, D. Polanz, H. Yanacek

## Lecturers

L. Cangiano, E. Castro, V. Haun, K. Kline-Gabel, L. Morris, J. Tkac, B. Warden

## Instructors

G. Danielli, E. Guolo, V. Gutiérrez, I. Haseloff, S. Hernández, H. Moreira, C. Obino, V. Riso

## Mission

The Department of Foreign Languages, Literatures and Cultures (FLLC) is a central site on campus for the implementation of James Madison University internationalization efforts. Through its course offerings, study abroad programs, organizations and clubs, and the presence of faculty with research areas in diverse foreign cultures, the department embodies cultural diversity, particularly international diversity, at JMU. The strong presence of international students and faculty on campus is a critical indicator of this recognition of international diversity.

The Department of Foreign Languages, Literatures and Cultures offers students and the community a broad range of educational courses and programs that help develop foreign language competence, a global perspective, and an understanding of foreign cultures both ancient and modern.

The department's mission is to ensure that all graduates with a B.A. have sufficient knowledge of a modern foreign language to build fluency in that language when future personal or professional needs require it; prepare language majors for success as professionals in language-related career fields; enhance the education of non-language majors by providing them foreign language skills that complement their chosen major; teach understanding and appreciation of foreign cultures and provide basic knowledge about the literature, culture, and intellectual achievements of countries other than the U.S.; play a leading role in internationalizing the college curriculum; provide opportunities for language and cultural study abroad; support cross-listed courses for the departments of English and History as part of their major requirements, and the General Education program with courses for the Cluster Two requirements.

The department also plays an important role in the university cross disciplinary minors by offering courses for Russian studies, Latin and Caribbean studies, world literature and classical studies.

## Goals and Objectives

The department strives to fulfill this mission by pursuing the following goals. Within each area, students should:

### Knowledge

- Be familiar with a variety of linguistic principles in both the target language and their own.
- Understand the major literary movements of the target culture and be familiar with selected major literary texts of the target culture.
- Be familiar with the great ideas of humanity and of Western civilization in particular, especially as they have originated in or influenced the target culture.
- Understand the institutions and history of the target culture.
- Understand similarities and differences between the target culture and their own.

### Skills

- Demonstrate reading, writing, listening and speaking skills in both English and the target language.
- Think critically, analytically and objectively.
- Make and formulate informed aesthetic and linguistic judgments.
- Research a topic thoroughly using both traditional and online sources.
- Use computers effectively for a variety of purposes, from word processors and spell checkers in the target language to terminological databases and machine-aided translation tools.

### Experiences

- Ponder what it means to be human in response to literary and cultural studies.
- Engage great texts and great ideas.
- Realize what it is like to be a foreigner with incomplete cultural and linguistic competence.
- See the world through the filter of another language and culture.

- Realize that every language is an imperfect vehicle, riddled with traps and ambiguities.

## Attitudes

- Embrace life-long learning.
- Approach issues from cross disciplinary, global and historical perspectives.
- Respect diversity among cultures and within any given culture.
- Respect the opinions and beliefs of other people – and other peoples – while defining and advancing their own.
- Recognize the contingent nature of knowledge.

## Program

The department offerings address a wide spectrum of student needs. Our program seeks to:

- Offer a minor and a major in a specific language.
- Strongly recommend a second major and/or minor in another discipline.
- Offer advanced courses for cross disciplinary programs.
- Offer basic courses required for Bachelor of Arts candidates.
- Organize and participate in Honors courses.
- Provide General Education courses in Cluster Two and reinforce Cluster One goals in all courses.

## Faculty

The faculty members of the department strive to:

- Meet the ever-evolving needs of the students.
- Develop innovative teaching techniques, courses and programs while preserving a traditional core.
- Engage consistently in scholarship.
- Provide dutiful service to the college, the university and the profession.
- Be a role model for students as educators and as human beings.

## General Objectives

All language majors are expected to acquire:

- Knowledge of critical thinking methods and the ability to apply them.
- Know-how with regard to computers, including word processing skills and the ability to use software devoted to grammar exercises, vocabulary development, literature and culture.
- An appreciation and affective feel for other cultures in addition to an intellectual perspective.

## Specific Objectives

The Foreign Languages, Literatures and Cultures offers programs designed to:

- Teach students to understand and speak a language with relative ease.
- Develop skills in reading and writing.
- Provide an acquaintance with foreign literatures.
- Develop an appreciation of foreign cultures.
- Prepare students for professions in education, government work and international trade or for research leading to advanced degrees.

## Career Opportunities

- Banking
- Criminal Justice

- Education
- Foreign Service
- Imports/Exports
- Law
- Management
- Marketing
- Medicine
- Ministry
- Museum work
- Public Relations
- Social work
- Translation

## Co-curricular Organizations

The department supports the following organizations:

- Le Cercle Francophone
- Dobro Slovo
- German Club
- Il Circolo Culturale Italiano
- Phi Sigma Iota
- Russian Club
- El Club de Español
- Sigma Delta Pi

## Minimum Grades

A student must receive a minimum grade of "C-" for course credits to count toward any major or minor in the Department of FLLC. Students enrolled in the Teaching Licensure program must receive a minimum grade of "C" for course credits to count towards the Teaching Licensure program.

## Degree and Major Requirements Bachelor of Arts in Modern Foreign Languages

Students can earn both a B.A. in Modern Foreign Languages and a minor in a specific language. The department provides:

- Four years of instruction in Arabic, French, German, Italian and Spanish.
- Three years of instruction Chinese and Japanese.
- Two years of instruction in Ancient Greek, Latin, Korean, Persian, Portuguese, and Russian .

The minimum requirement for a major in languages is 33 upper-division credit hours in a specific language.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign language classes (intermediate level required) <sup>2</sup>	0-14
Second Foreign Language (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives <sup>3</sup>	15-43
Major requirements (listed below)	33
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement and the second language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test. The second language is not required of double majors or education minors or of those seeking teaching licensure.

3 The number of university electives varies depending on the number of actual credits earned with the first and second language requirements. These language requirements may be fully or partly satisfied through the Department of Foreign Languages, Literatures and Cultures' placement tests, but these tests do not confer actual credits and subsequently the number of university electives students take will vary.

## Major Requirements

All language sections share certain core requirements.

Courses	Credit Hours
Two language courses (300 and 320) <sup>1</sup>	6
Two civilization courses (307 and 308)	6
Literature courses in the target language	6-12
Other courses as specified by the section <sup>2</sup>	9-15
	33

1 These courses fulfill the College of Arts and Letters writing-intensive requirement for the major.

2 The courses required for Spanish majors are different, as shown in the Spanish listing.

## Arabic

Courses	Credit Hours
ARAB 300. Arabic Grammar and Communication <sup>1</sup>	3
ARAB 307. History of Islamic Civilization 600-1600	3
ARAB 308. Contemporary Islamic Civilization	3
ARAB 320. Arabic Oral and Written Communication	3
ARAB 371. Advanced Arabic Grammar and Translation	3
Choose one	
ARAB 400. Advanced Arabic Writing and Conversation	3
ARAB 411. Colloquial Egyptian Arabic I	
ARAB 412. Colloquial Egyptian Arabic II	
ARAB 413. Colloquial Levantine Arabic I (Jordanian/Palestinian)	
ARAB 414. Colloquial Levantine Arabic II (Syrian/Lebanese)	
Two 300- or 400-level ARAB literature courses	6
Three other 300- or 400-level ARAB courses	9
	33

## French

Courses	Credit Hours
FR 300. French Grammar and Communication <sup>1</sup>	3
FR 307. History of French Civilization	3
FR 308. Contemporary French Civilization	3
FR 320. French Oral and Written Communication	3
FR 335. Introduction to French Literature	3
Three 300- or 400-level FR literature courses	9
Three other 300- or 400-level FR courses	9
	33

## German

Courses	Credit Hours
GER 300. German Grammar and Communication <sup>1</sup>	3
GER 307. History of German Civilization	3
GER 308. Contemporary German Civilization	3
GER 320. German Oral and Written Communication	3
GER 341. German-English Technical/Commercial Translation	3
Two 400-level GER literature courses	6
Four more courses (see following list)	12
Group 1:	
GER 308. Contemporary German Civilization (may be repeated)	
GER 330. Business German	
GER 341. German-English Technical/Commercial Translation (may be repeated)	
Any 400-level GER literature courses	

Group 2 (no more than one):

ENG/GER 436. Studies in German Literature  
HUM 200. Great Works (German works in translation)  
HIST 388. Germany Since 1871

33

## Italian

Courses	Credit Hours
ITAL 300. Italian Grammar and Communication <sup>1</sup>	3
ITAL 307. Italian Civilization	3
ITAL 308. Contemporary Italian Civilization	3
ITAL 320. Italian Oral and Written Communication	3
Three 300- or 400-level ITAL literature courses	9
Three other 300- or 400-level ITAL courses	9
	33

## Russian

(not available in 2017-2018 academic year)

## Spanish

Courses	Credit Hours
SPAN 300. Grammar and Communication <sup>1</sup>	3
SPAN 307. Spanish Civilization	3
SPAN 308. Latin American Civilization	3
SPAN 320. Oral and Written Communication	3
SPAN 335. Introduction to Spanish Literature	3
Three SPAN literature courses	9
Three other 300- or 400-level SPAN courses	9
	33

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

## Additional Language

Students majoring in modern foreign languages must complete the intermediate level of a second language unless they are:

- Completing a second major.
- Completing a teaching licensure or an education minor.
- Completing two degrees.
- Completing a pre-professional health program.

If the student has a previous background in a second language, the second language requirement may also be satisfied by placing out of it through the Department of Foreign Languages, Literatures and Cultures' placement test. However, in this case, the student must proportionally increase the number of university electives as indicated in the B.A. degree requirements.

## Teaching Licensure

*Coordinator: Mary O'Donnell*

Phone: (540) 568-5110

In conjunction with the College of Education, the department offers programs leading to the teaching license in French, German, Italian and Spanish. In addition to the General Education and academic major requirements, students desiring preK-12 teaching licensure in French, German, Italian or Spanish must be accepted for admission to the teacher education program offered by the College of Education prior to enrolling in professional education courses. In addition to the 33 foreign language credits, an additional 39 credits are required for teaching licensure.

Students interested in teacher licensure in French, German, Italian or Spanish must also meet the specific curriculum requirements of their foreign language major as part of the undergraduate academic degree.

For a complete description of admission and retention policies and procedures for teacher education, refer to the College of Education. Students seeking licensure are encouraged to consult regularly with the teaching licensure coordinator.

Required Courses	Credit Hours
PSYC 160. Life Span and Human Development	3
EDUC 300. Foundations of American Education	3
EXED 440. Classroom Management and Professional Collaboration	3
MSSE 370. General Instructional Methods for Grades 6-12	3
MSSE 371. Clinical Experience in Adolescent Education	1
FLED 370. Modern Foreign Language Assessment	3
FLED 470. Methods of Modern Foreign Language Teaching	3
FLED 471. Modern Foreign Language Field Experience	3
FLED 475. Supervised Student Teaching Experience	12
FLED 476. Student Teaching Seminar	3
READ 420. Content Area Literacy, K-12	2
	<hr/> 39

## Minor Requirements

### Modern Foreign Language Minor

A minor in a modern foreign language consists of the specified upper-division courses in a specific language.

#### Arabic

Courses	Credit Hours
ARAB 300. Arabic Grammar and Communication	3
ARAB 320. Arabic Oral and Written Communication	3
One 300 or 400-level ARAB literature course	3
Three other 300 or 400-level ARAB courses	9
	<hr/> 18

#### Chinese

Courses	Credit Hours
CHIN 300. Chinese Grammar and Communication	3
CHIN 320. Chinese Oral and Written Communication	3
One 300 or 400-level CHIN literature course	3
Three other 300 or 400-level CHIN courses	9
	<hr/> 18

#### French

Courses	Credit Hours
FR 300. French Grammar and Communication	3
FR 320. French Oral and Written Communication	3
One 300 or 400-level FR literature course	3
Three 300 or 400-level FR courses	9
	<hr/> 18

#### German

Courses	Credit Hours
GER 300. German Grammar and Communication	3
GER 320. German Oral and Written Communication	3
One 300 or 400-level GER literature course	3
Three other 300 or 400-level GER courses	9
	<hr/> 18

#### Italian

Courses	Credit Hours
ITAL 300. Italian Grammar and Communication	3
ITAL 320. Italian Oral and Written Communication	3
One 300 or 400-level ITAL literature course	3
Three other 300 or 400-level ITAL courses	9
	<hr/> 18

## Russian

Courses	Credit Hours
RUS 300. Russian Grammar and Communication	3
RUS 320. Russian Oral and Written Communication	3
One 300 or 400-level RUS literature course	3
Three 300 or 400-level RUS courses	9
	<hr/> 18

## Spanish

Courses	Credit Hours
SPAN 300. Grammar and Communication	3
SPAN 320. Spanish Oral and Written Communication	3
SPAN 335. Introduction to Spanish Literature	3
Three other 300 or 400-level SPAN courses	9
	<hr/> 18

## Professional Minors

### Business French

Courses	Credit Hours
FR 300. Grammar and Communication	3
FR 308. Contemporary French Civilization	3
FR 320. French Oral and Written Communication	3
FR 330. Business French	3
FR 351. French/English Translation	3
One 300 or 400-level FR course	3
	<hr/> 18

### Business German

Courses	Credit Hours
GER 300. German Grammar and Communication	3
GER 308. Contemporary German Civilization	3
GER 320. German Oral and Written Communication	3
GER 330. Business German	3
GER 341. German-English Technical/Commercial Translation	3
GER 375 Business and Society in Germany	3
	<hr/> 18

### Business Italian

Courses	Credit Hours
ITAL 300. Italian Grammar and Communication	3
ITAL 308. Contemporary Italian Civilization	3
ITAL 320. Italian Oral and Written Communication	3
ITAL 330. Business Italian	3
ITAL 375. Business and Society in Italy	3
ITAL 435. Translation Competencies	3
	<hr/> 18

### Business Spanish

*Adviser: Veronica Haun*

Phone: (540) 568- 6128

The professional minor in business Spanish is intended for students who wish to consolidate and improve their knowledge of Spanish in several business areas. The main aim of the minor is to teach students how to use specific business terms in Spanish and to handle selling techniques, negotiation strategies, product presentations, commercial activities, marketing, and business correspondence in Spanish. Students acquire a greater knowledge of Spanish as well as deeper understanding of Spanish or Hispanic societies and their business cultures.

The minor comprises one linguistic component, one elective component, one translation/interpretation component and three profession-specific linguistic components.

Required Courses	Credit Hours
SPAN 300. Grammar and Communication	3
One elective Spanish course from: SPAN 307, SPAN 308, SPAN 320, SPAN 407, SPAN 408, or SPAN 447.	3
SPAN 330. Business Spanish	3
SPAN 430. Advance Business Spanish	3
Choose one:	3
SPAN 485. Business and Society in Latin America	
SPAN 486. Business and Society in Spain	
Choose one:	3
SPAN/TR 435. Spanish-English Translation Strategies	
SPAN/TR 436. Introduction to Interpretation	

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## Legal Spanish

*Adviser: Veronica Haur*

Phone: (540) 568- 6128

The minor in legal Spanish is designed for students who wish to improve and consolidate their knowledge of Spanish in several legal areas. Students acquire a basic understanding of the differences between common law and Roman law and investigate several branches of law such as civil law, labor law, criminal law and commercial law in Spanish-speaking countries. The main aims of the minor are to teach students how to use specific legal terms in Spanish and to manage legal documents such as contracts, as well as to prepare students to understand cultural differences and to identify and communicate terminology and phraseology needed for effective cross-cultural communication in the public safety arena. The minor provides a framework for learning the appropriate Spanish usage for thematic areas such as victim reporting, field interviews, investigations, traffic stops, armed and dangerous calls, medical emergencies, and public safety situations.

Required Courses	Credit Hours
SPAN 300. Grammar and Communication	3
SPAN 360. Spanish for Public Safety	3
SPAN 370. Legal Spanish	3
SPAN/TR 436. Introduction to Interpretation	3
SPAN 470. Advanced Legal Spanish	3
SPAN 495. Practical Spanish for Public Safety/Legal Spanish	3

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## Medical Spanish

*Adviser: Diana Galarreta*

Phone: (540) 568- 6128

For health service professionals, knowledge of medical Spanish is no longer an option but a necessity. Unless they have a reasonable level of Spanish, communication with patients whose only language is Spanish will be difficult. Courses in medical Spanish are therefore hugely relevant today. The minor in medical Spanish is intended for all future health service professionals, including physicians and their assistants, nurses, pharmacists, dentists, physical therapists, occupational therapists, medical laboratory technicians, emergency medical technicians, medical aides, medical interpreters, healthcare industry professionals and psychologists.

The minor comprises one linguistic component, one elective component, one translation/interpretation component and three profession-specific linguistic components.

Required Courses	Credit Hours
SPAN 300. Grammar and Communication	3
One elective Spanish course from: SPAN 307, SPAN 308, SPAN 320, SPAN 407, SPAN 408, or SPAN 447	3
SPAN 365. Medical Spanish	3
SPAN 475. Advanced Medical Spanish	3
Choose one:	3
SPAN 476. Culture and Medicine in Latin America	
SPAN 477. Culture and Medicine in Spain	
Choose one:	3
SPAN/TR 435. Spanish-English Translation Strategies	
SPAN/TR 436. Introduction to Interpretation	
SPAN 494. Practical Medical Spanish	

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## Spanish-English Translation and Interpretation

*Interim Adviser: Marianne Mason*

Phone: (540) 568- 6327

Translation and interpretation are two of today's fastest-growing professions. An obvious requirement for anyone wishing to enter these professions is the ability to speak two languages fluently. Students who wish to make a positive impact as a translator or interpreter, however, require more than just the ability to speak two languages well. What they need is the linguistic, cultural and technical expertise they can only get from courses designed specifically to prepare them for the demands of these challenging professions. In the minor in translation and interpretation, students take their first steps toward acquiring this expertise.

The minor comprises one linguistic component, one elective component and four profession-specific linguistic components for a total of 18 credit hours.

Required Courses	Credit Hours
SPAN 300. Grammar and Communication	3
One elective Spanish course from: SPAN 307, SPAN 308, SPAN 320, SPAN 407, SPAN 408, SPAN 447 or SPAN/TR 496	3
SPAN/TR 311. Spanish-English Contrastive Linguistics	3
SPAN/TR 312. Spanish-English Translation Competences	3
SPAN/TR 435. Spanish-English Translation Strategies	3
SPAN/TR 436. Introduction to Interpretation	3

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## International Education and Studies Abroad

The department strongly supports – and greatly benefits from – the university's excellent Studies Abroad programs. Majors are strongly encouraged to spend a significant amount of time abroad and teaching licensure candidates must either spend a semester abroad and/or demonstrate an advanced level of foreign language proficiency. Students are urged to check with their language advisers to see which courses taken abroad count toward the language major. Majors in modern foreign languages must take 33 credit hours of foreign language courses specified by the department. Students are required to take 18 of those in

courses taught in the Department of Foreign Languages, Literatures and Cultures based on the main JMU campus.

Minors in modern foreign languages must take 18 credit hours of foreign language courses specified by the department. Students are required to take nine of those in courses taught in the Department of Foreign Languages, Literatures and Cultures based on the main JMU campus.

## Placement Tests

The score a student receives from the online placement test will be valid for registering in a language class that takes place up to and including the second semester of the sophomore year at JMU. A student who chooses to wait until his/her junior year to begin language study will be required to repeat the online placement test. Students will be placed in a class according to the new score, even if this means starting in a lower-level class than was indicated by the first placement test. In this circumstance, the student will take more classes to fulfill the language requirement for the B.A. degree.

The faculty of the Department of Foreign Languages, Literatures and Cultures strongly recommend that students begin their required language classes no later than the second semester of the sophomore year, and ideally as soon as possible after taking the online placement exam.

Semester Registering	Accepted Placement Score
Fall, first year.....	First year test
Spring, first year.....	First year test
Fall, sophomore year .....	First year test
Spring, sophomore year.....	First year test
Fall, junior year .....	Must retake test in spring of
(and all later semesters)	sophomore year or later
	in order to register
	for language classes for
	this semester
	and all later semesters

## Heritage Speakers and International Students

Heritage speakers who would like to pursue a major or minor in FLLC studies in their heritage language must take the JMU Foreign Language placement test. Placement into level 300 is required in order to qualify to take the examination for credit for 300. Students who pass the examination for credit for 300 are entitled to register in other FLLC courses that have 300 as a prerequisite or to proceed to take the examination for credit for 320.

International students who are admitted to JMU and would like to pursue a major or minor in FLLC studies in their native language(s) need to take the examination for credit for 300 and 320 and then register for more advanced courses.

Heritage Speakers and international students who need to satisfy a language requirement need to complete a waiver form after being tested for proficiency.

Heritage Speakers and international students who wish to take elective credits in their language need to be tested for proficiency.

For testing of languages not offered by FLLC department, contact the department.

# Department of Geology and Environmental Science

*Dr. Stephen A. Leslie, Department Head*

Phone: (540) 568-6130

Location: Memorial Hall, Room 7335

Email: [lesliesa@jmu.edu](mailto:lesliesa@jmu.edu)

Website: <https://www.jmu.edu/geology/>

## Professors

S. Baedke, L. Eaton, L. Fichter, L. Kearns, S. Leslie, E. Pyle, K. St. John, S. Ulanski, S. Whitmeyer

## Associate Professors

J. Haynes, E. Johnson

## Assistant Professors

Y. Admassu, R. McGary

## Instructors

C. Kearns, S. Whitmeyer

## Mission

Our mission is to serve two vital needs of the JMU students. First, the majors in geology present high-quality programs of specialized study focusing on Earth materials, internal and external Earth processes, analysis of Earth history and application of geology to environmental and engineering issues. In support of this mission is a commitment to foster the ability to think analytically and to communicate both within the discipline and with non-scientists. Course work and research experiences prepare the student for postgraduate study or professional careers that are subject to rapidly changing societal needs. Second, our department strives to enhance the university's general education program by offering timely and challenging courses that provide insight into Earth processes and human-environment interactions. These courses promote life-long liberal learning by fostering critical thinking and an awareness of natural science.

## Goals

Provide a stimulating, intellectual environment for students in geology and environmental science that will generate interest and enthusiasm for learning and will provide a solid foundation for graduate work and careers in geology and environmental science.

Teach science as science is practiced. Since the advancement of scientific knowledge often occurs within a social context – collaboration among scientists, conferences, seminars – the goal is to develop a similar mode of operation for the geology program.

Provide high-quality, relevant general studies courses within the discipline that focus on the fundamental science in the societal context (e.g., environmental change, climate change, hazards). These courses will incorporate critical thinking and an appreciation of human-environment interactions.

## Career Opportunities

- Earth Science Teacher
- Engineering Geologist
- Environmental Geologist
- Environmental Scientist/Specialist

- Geochemist
- Government or Industry Geologist
- Geological Oceanographer
- Geomorphologist
- Geophysicist
- Hydrogeologist
- Meteorologist
- Science Museum Curator
- Paleoclimatologist/paleoceanographer
- Paleontologist
- Petroleum Geologist
- Soil Scientist

## Co-curricular Activities and Organization

The department encourages majors and minors to participate in the student Geology Club, which sponsors field trips, camping excursions, and hosts educational activities for elementary school students. Geology majors are encouraged to apply to be laboratory teaching assistants and research assistants for faculty in the department. Majors and minors are also strongly encouraged to become members of one or more of the following geoscience organizations and to present their research at the affiliated regional or national meetings:

- Geological Society of America (GSA)
- American Association of Petroleum Geologists (AAPG)
- American Geophysical Union (AGU)
- National Association of Geoscience Teachers (NAGT)

## Degree and Major Requirements

There are two bachelor degrees offered in the Department of Geology and Environmental Science, a B.S. in geology and a B.A. in Earth science. Both degree options have a research requirement that includes a formal presentation. The B.S. degree has two concentrations: a general geology concentration designed for students who want to take a wider range of geology elective courses and an environmental and engineering geology concentration designed for students who want to focus their geology electives toward applied environmental science.

The B.A. in Earth science prepares individuals to work in a wide range of professional public sector service careers where preparation in Earth science and communication of science to nonscientific audiences is a requirement or an asset. This includes the preparation of Earth science teachers.

## Bachelor of Science in Geology

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education) <sup>2</sup>	3
Scientific Literacy requirement (in addition to General Education) <sup>2</sup>	3-4
Major requirements (listed below)	68-76
General Electives	2-11
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The quantitative and scientific literacy requirements are met by courses required by the major.

### Major Requirements

Core Requirements	Credit Hours
Choose one of the following:	3
GEOL 110. Physical Geology	
GEOL 102. Environmental Earth	
GEOL 115. Earth Systems and Climate Change	
GEOL 210. Applied Physical Geology	
GEOL 110L. Physical Geology Lab	1
GEOL 230. Evolution of Earth	4
GEOL 280. Mineralogy	4
GEOL 291. Geowriting and Communication	1
GEOL 300. Introduction to Petrology	4
GEOL 387. Stratigraphy, Structure, and Tectonics	4
GEOL 388. Advanced Structure, Stratigraphy, Tectonics	4
GEOL 399. Field Geology	6
Research Requirements	2-6
In addition to GEOL 291, choose from the following to complete the research requirement. All majors must complete a minimum of two credits. Students conducting research with faculty should select GEOL 497; Honors students doing research with faculty must complete a minimum of six credits in GEOL 499. All students must give a formal presentation to fulfill this requirement.	
GEOL 491. Geological Literature Research	
GEOL 494. Internship	
GEOL 497. Problems in Geology	
GEOL 499. Honors in Geology	
	33-37

The B.S. degree in geology is designed for students who plan to obtain professional employment in geology or enter graduate school upon graduation. It is recommended that incoming B.S. degree students complete the following courses prior to enrolling in required geology courses numbered 300 and higher.

Courses	Credit Hours
CHEM 131-131L; 132-132L. General Chemistry I-II	8
MATH 235. Calculus I	4-6
or MATH 231-232. Calculus with Functions I-II	
MATH 220. Elementary Statistics	3-4
or MATH 236. Calculus-II	
Choose one of the following two sequences:	8
PHYS 140-140L; PHYS 150-150L. College Physics I-II with Labs	

Students planning graduate study in some areas of the geosciences should consider courses in mathematics, physics or chemistry beyond those required for the B.S. major.

### Concentrations

The B.S. degree option requires that each student complete at least 12 credit hours chosen from one of the two concentrations.

#### General Geology Concentration

- GEOL 302. Sedimentary Petrology
- GEOL 380. Genetic Mineralogy
- GEOL 340. Environmental Soil Science
- GEOL 350. Paleobiology
- GEOL 355. Geochemistry of Natural Waters
- GEOL 377. Earth Surface Processes
- GEOL 390. Laboratory Techniques in Geology
- GEOL 395. Geological Perspectives in Materials Science and Engineering
- GEOL 398. Topics in Field Geology (must be approved by adviser)
- GEOL 400. Geology and Ecology of the Bahamas
- GEOL 405. Vertebrate Paleontology
- GEOL 406. Paleoclimatology and Paleooceanography
- GEOL 410. Engineering Geology
- GEOL 415. Geological Evolution of North America
- GEOL 440. Geophysics
- GEOL 442. Field Geophysics
- GEOL 460. Hydrogeology
- GEOL 489. Quantitative Methods in Geology

#### Environmental and Engineering Geology Concentration

- GEOL 340. Environmental Soil Science
- GEOL 355. Geochemistry of Natural Waters
- GEOL 377. Earth Surface Processes
- GEOL 390. Laboratory Techniques in Geology
- GEOL 395. Geological Perspectives in Materials Science and Engineering
- GEOL 398. Topics in Field Geology (must be approved by adviser)
- GEOL 410. Engineering Geology
- GEOL 440. Geophysics
- GEOL 442. Field Geophysics
- GEOL 460. Hydrogeology
- GEOL 489. Quantitative Methods in Geology

### Recommended Schedule for B.S. Degree in Geology

First Year	Credit Hours
CHEM 131-131L; 132-132L. General Chemistry I-II	8
GEOL 110. Physical Geology and GEOL 110L. Physical Geology Lab	4
GEOL 230. Evolution of Earth	4
Choose one of the following:	6-8
MATH 231-232. Calculus with Functions I-II (six credits)	
MATH 235-236. Calculus I-II (eight credits)	
General Education Courses	12
	34-36

Second Year	Credit Hours
GEOL 280. Mineralogy	4
GEOL 291. Geowriting and Communication	1
GEOL 387. Stratigraphy, Structure, and Tectonics	4
Geology elective	3
Choose one of the following:	8
PHYS 140-140L; PHYS 150-150L. College Physics I-II with Lab	

PHYS 240-140L; PHYS 250-150L. University Physics I-II with Lab	
General Education courses	11
31	
<b>Third Year</b>	<b>Credit Hours</b>
GEOL 300. Introduction to Petrology	4
GEOL 388. Advanced Stratigraphy, Structure, Tectonics	4
GEOL 399. Field Geology (summer session)	6
Geology electives	8
General Education courses	9
General Electives	3
34	
<b>Fourth Year</b>	<b>Credit Hours</b>
Choose from the following:	2-6
GEOL 491. Geological Literature Research (2 credits)	
GEOL 494. Internship (2 credits)	
GEOL 497. Problems in Geology (2 credits)	
GEOL 499. Honors in Geology (6 credits)	
Electives	9-20
11-26	

## Bachelor of Arts in Earth Science

The B.A. in Earth science degree is designed to integrate all the Earth sciences in a systems approach to understanding the Earth. This includes incorporating and integrating subjects such as oceanography, meteorology and astronomy. The emphasis is on the preparation of individuals to work in a wide range of professional public sector service careers where preparation in Earth science and communication of science to non-scientific audiences is a requirement or an asset.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course(s) (in addition to General Education courses) <sup>3</sup>	3
Major requirements (listed below including cognate sciences and math)	59-63
General Electives	0-17
120	

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232), or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement exam.

3 100, 200, 300 or 400-level course acceptable or consult the list of courses satisfying B.A. degree requirements at <http://www/jmu.edu/registrar>.

### Major Requirements

B.A. degree students are expected to complete CHEM 131-131L before enrolling in geology courses numbered 300 and higher.

Core Requirements	Credit Hours
Choose one of the following:	3
GEOL 102. Environmental Earth	
GEOL 110. Physical Geology	
GEOL 115. Earth Systems and Climate Change	
GEOL 210. Applied Physical Geology	
GEOL 110L. Physical Geology Lab	1
GEOL 167. History and Philosophy of the Geosciences	3
GEOL 211. Introduction to Oceanography or	3
GEOL 230. Evolution of Earth	4

GEOL 291. Geowriting and Communication	1
GEOL 320. Meteorology	3
GEOL 367. Genesis of Solid Earth Materials	4
GEOL 377. Earth Surface Processes	3
GEOL 387. Stratigraphy, Structure, and Tectonics	4
GEOL 401. Oceanography for Teachers	3
GEOL 477. Contemporary Issues in the Geosciences	3
Choose one of the following:	3
ASTR 200. General Astronomy I	
GEOL 272. Planetary Geology	
Research Requirements	2-6
In addition to GEOL 291, choose from the following to complete the research requirement. All majors must complete a minimum of two credits. Students conducting research with faculty should select GEOL 497; Honors students doing research with faculty must complete a minimum of six credits in GEOL 499. All students must give a formal presentation to fulfill this requirement.	
GEOL 491. Geological Literature Research	
GEOL 494. Internship	
GEOL 497. Problems in Geology	
GEOL 499. Honors in Geology	
37-41	

The B.A. degree option requires that each student complete at least 16 hours of cognate science credit hours with at least one course from biology, physics and chemistry chosen from:

Cognate Science and Mathematics Area	Credit Hours
Biology	4
BIO 140. Foundations of Biology I	
BIO 350. Paleobiology	
Chemistry	4
CHEM 131-131L. General Chemistry I	
CHEM 132-132L. General Chemistry II	
Physics	3-4
PHYS 140-140L. College Physics I	
PHYS 150-150L. College Physics II or GEOL 440. Geophysics	
Math	3-4
The B.A. option requires that each student complete at least six credit hours of mathematics, including one of:	
MATH 205. Introductory Calculus I	
MATH 232. Calculus with Functions II	
MATH 235. Calculus I	
20-22	

### Recommended Minors for the Bachelor of Arts in Earth Science

The B.A. Earth science degree recommends (but does not require) that students complete a minor in a complementary program, suitable toward the career goals of the student. Approved minors include:

Minor	Credit Hours
Astronomy	12 <sup>1</sup>
Biology	12-16 <sup>1</sup>
Business Analytics	18-19
Chemistry	20 <sup>1</sup>
Economics	18
Environmental Information Systems	24
Environmental Management	19 <sup>1</sup>
Environmental Science	15 <sup>1</sup>
Environmental Studies	18 <sup>1</sup>
Humanitarian Affairs	18
Geographic Science	19
Mathematics	14-18 <sup>1</sup>
Nonprofit Studies	19-21

Physics	14-22 <sup>1</sup>
Political Science	19
Public Policy and Administration	19
Science, Technology and Society	18
Secondary Education	22-24
Sociology	18
Statistics	15-16 <sup>1</sup>
Urban and Regional Studies	24
Writing, Rhetoric and Technical Communication	18

<sup>1</sup> Credit hours for courses in the minor that are already required courses for the B.A. in Earth Science major have been subtracted from the total hours listed here. Students may also propose a minor that is not listed above to their adviser for approval.

## Recommended Schedule for B.A. Degree in Earth Science

First Year	Credit Hours
Cluster One: Skills for the 21st Century	9-12
GEOL 110. Physical Geology and GEOL 110L. Physical Geology Lab	4
GEOL 167. History and Philosophy of the Geosciences	3
GEOL 230. Evolution of Earth	4
MATH 205. Introductory Calculus I	3
CHEM 131-131L. General Chemistry I	4
	27-30
Second Year	Credit Hours
GEOL 211. Introduction to Oceanography	3
GEOL 291. Geowriting and Communication	1
GEOL 320. Meteorology	3
GEOL 367. Genesis of Solid Earth Materials	4
GEOL 377. Earth Surface Processes	3
Foreign language courses <sup>1</sup>	1-8
General Education courses	12
	27-34
Third Year	Credit Hours
GEOL 387. Stratigraphy, Structure and Tectonics	4
Choose one of the following:	3
ASTR 220. Astronomy	
GEOL 272. Planetary Geology	
Cognate science and mathematics	9-12
General Education courses	9
	25-28
Fourth Year	Credit Hours
GEOL 477. Contemporary Issues in the Geosciences	3
Cognate science	3-4
Choose one from the following:	2-6
GEOL 491. Geological Research Literature	
GEOL 494. Internship	
GEOL 497. Problems in Geology	
GEOL 499. Honors in Geology	
Geology electives	4-6
Electives	12-20
	24-39

<sup>1</sup> Foreign language at the intermediate level.

## Teaching Licensure

Students interested in becoming teachers must meet specific curriculum requirements in their major as part of the

undergraduate academic degree. The B.A. in Earth science includes state course requirements in astronomy, meteorology and oceanography, to total no less than 32 hours in the Earth sciences (including geology) and a minimum of 16 hours total in physics, chemistry and biology.

In addition to the general education and academic major requirements, Earth science majors desiring secondary teacher licensure must be admitted to the pre-professional program in secondary education at the undergraduate level and complete the graduate level Master of Arts in Teaching degree.

It is critical that students seeking teaching licensure consult regularly with both their education adviser and their major adviser to support their progression through the programs.

For a full description of the program in secondary teaching, refer to the Department of Middle, Secondary and Mathematics Education, in addition to the College of Education.

## Minor Requirements

### Geology Minor

The requirement for a minor in geology is a minimum of 18 credit hours of geology approved by the student's geology adviser.

### Geophysics Minor

The minor in geophysics is designed to provide adequate training for professional work or graduate school in geophysics in the broad sense. No more than 10 credits from the geophysics minor may be used to double count with a major. The requirements for the geophysics minor are a minimum of 21 credits, including at least one semester each of geology, mathematics and physics, distributed as follows:

Required Courses	Credit Hours
Choose one of the following:	4
GEOL 110 and GEOL 110L. Physical Geology and Lab	
GEOL 210. and GEOL 110L. Applied Physical Geology and Lab	
PHYS 140. and 140L. College Physics I and Lab	
PHYS 240. and 140L. University Physics I and Lab	
Complete all of the following:	
GEOL 440. Geophysics	4
GEOL 442. Field Geophysics	3
MATH 238. Linear Algebra with Differential Equations	4
MATH 248. Computers & Numerical Algorithms	4
Choose one of the following elective courses: <sup>1</sup>	3-4
ASTR 220. General Astronomy I	
CHEM 331. Physical Chemistry I	
GEOL 410. Engineering Geology	
GEOL 460. Hydrogeology	
MATH 237. Calculus III	
PHYS 260. University Physics III	

22-23

<sup>1</sup> Additional elective courses permitted upon approval from minor adviser.

Note for geology majors: The geology major requires a sequence of math and physics courses (see major program for details). The following sequence of courses will satisfy the major requirements and is strongly recommended for students interested in geophysics. In particular, MATH 236 is a prerequisite for several courses included in the geophysics minor.

- MATH 235-236. Calculus I & II
- PHYS 240-250. Physics I & II (and Lab)

# Department of Health Professions

*Dr. Özlem Ersin, Interim Department Head*

Phone: (540) 568-4434

Location: Health and Behavioral Studies, Room 5050

Email: [ersinoh@jmu.edu](mailto:ersinoh@jmu.edu)

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## Professors

J. Gloeckner, D. Wenos

## Associate Professors

J. Akers, D. Cockley, J. Frye, S. Maiewski, C. Peterson, A. Temple, D. Torisky

## Assistant Professors

A. Dengo, M. Hesse, E. Kancler, T. Kirchen, K. Liskey, A. Russell Yun, A. Skelly, J. Walsh, G. Weniger, J. Wenos

## Instructor

E. Richardson

## Lecturer

M. Michalik

## Mission

The purpose of the Department of Health Professions is to contribute to the liberal arts education of all students and prepare students for professional careers in the health professions and/or for entry into professional programs.

## Goals

The goals of the Department of Health Professions are to:

- Promote the health and well-being of the JMU community.
- Support the General Education program.
- Educate health professionals.
- Provide service to the community, the state, the region and the nation.
- Conduct, disseminate and publish research/scholarship in health professions.

## Career Opportunities

- Athletic Trainer
- Registered Dietitian
- Health Administrator
- Health Assessment and Promotion Specialist
- Health Fitness Specialist
- Occupational Therapist (Graduate Program)
- Physician Assistant (Graduate Program)

## Co-curricular Organizations

- American College of Sports Medicine
- Madison Athletic Training Student Association
- Eta Sigma Gamma (Health Sciences Honor Society)
- Health Administration Student Association
- JMU Dietetic Association
- JMU Physician Assistant Student Society
- JMU Student Occupational Therapy Association
- Pre-Occupational Therapy Association
- Pre-Physical Therapy Society
- Pre-Physician Assistant Club

## Special Admission Requirements

Admission to JMU does not guarantee admission to all academic majors and minors. Special applications are required for admission to the clinical portions of the athletic training program and the dietetics program.

## Deadline for Change or Declaration of Majors

Deadlines for change or declaration of major forms are:

Semester	Deadline
Summer	February 15
Fall	February 15
Spring	September 15 of the previous year

Forms received in the health professions office after the deadline will be processed the following semester. Students changing their major to health professions after February 15 of the sophomore year should expect an additional semester(s) to complete the program. The number of additional semesters required to complete the program will depend on the timing of the change to health professions and the number of summer courses completed.

## Degree and Major Requirements

The Department of Health Professions offers the following degrees:

- Bachelor of Science in Athletic Training
- Bachelor of Science in Dietetics
- Bachelor of Science in Health Services Administration
- Master of Occupational Therapy
- Master of Physician Assistant Studies

The department also offers a minor in health assessment and promotion.

## Bachelor of Science in Athletic Training

This major prepares students to sit for the national certification examination through the Board of Certification. Areas of study include injury prevention, clinical examination and diagnosis,

acute care of injuries and illnesses, therapeutic interventions, psychosocial strategies and referrals, healthcare administration, evidence-based practice, and professional development and responsibility. The Athletic Training Education Program is accredited by the Commission on Accreditation of Athletic Training Education (CAATE). This program is comprised of both academic and clinical requirements

Any student may declare athletic training as his/her major upon entering JMU and enroll in the pre-professional phase of the program. Students must apply to the professional phase of the program for a limited number of seats at the end of their sophomore year or upon completion of required prerequisite courses. Performance in the prerequisite courses is a strong consideration in the admission process. In order to make a formal application, students must have completed the following courses with a grade of "C" or better, or be currently enrolled or planning to enroll in May:

BIO 290. Human Anatomy	
ATEP 205. Introduction to Athletic Training	
ATEP 206. Recognition and Management of Athletic Injuries	
ATEP 291. Pre-Professional Practicum in Athletic Training	

The athletic training program application and supporting documents are available to students while enrolled in ATEP 291 or by contacting the program director. Applications can be submitted to the program director after January 15, but must be submitted no later than April 1 to be considered for full admission.

Specific program requirements, including academic, clinical and technical standards, may be found on the Athletic Training Curriculum website (<http://www.healthsci.jmu.edu/AT>) or in the Athletic Training Curriculum Handbook, which can also be found on the website.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	4
Major and elective requirements (listed below)	72
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Required Courses/Recommended

### Schedule for Majors

First Year	Credit Hours
MATH 220. Elementary Statistics <sup>1</sup>	3
ATEP 205. Introduction to Athletic Training <sup>2</sup>	3
Electives	5
General Education courses (CHEM 120 or CHEM 131 suggested)	18
	29

Second Year	Credit Hours
BIO 270. Human Physiology <sup>1</sup>	4
BIO 290. Human Anatomy <sup>2</sup>	4
ATEP 206. Recognition and Management of Athletic Injuries <sup>2,3</sup>	3
ATEP 291. Pre-Professional Practicum in Athletic Training <sup>2,3</sup>	2
General Education courses	15-16

28-29

Third Year	Credit Hours
ATEP 304A. Lower Quarter Evaluation <sup>2,4</sup>	3
ATEP 304B. Upper Quarter Evaluation <sup>2,3</sup>	3
ATEP 305. Rehabilitation in Athletic Training: Lower Extremity <sup>2,3</sup>	3
ATEP 306. Therapeutic Modalities <sup>2,4</sup>	4
ATEP 307. Acute Care of Injuries and Illnesses <sup>2,4</sup>	3
ATEP 350. Measurement Techniques in Athletic Training <sup>2,4</sup>	2
ATEP 355. Infectious Disease Control <sup>2,3</sup>	1
ATEP 377. General Medicine in Athletic Training <sup>2,3</sup>	2
ATEP 378. Assessment Skills in Athletic Training <sup>2,3</sup>	1
ATEP 392. Level II Practicum in Athletic Training <sup>2,4</sup>	3
ATEP 393. Level III Practicum in Athletic Training <sup>2,3</sup>	2
HTH 354. U.S. and Global Health Care Systems <sup>2</sup>	3
HTH 441. Rehabilitative Biomechanics <sup>2,3</sup>	3
NUTR 280. Nutrition for Wellness <sup>2</sup>	3
	36

Fourth Year	Credit Hours
ATEP 376. Pharmacology for Athletic Trainers <sup>2,4</sup>	2
ATEP 405. Rehabilitation in Athletic Training: Upper Extremity <sup>2,4</sup>	3
ATEP 406. Organization and Administration in Athletic Training <sup>2,3</sup>	3
ATEP 494. Level IV Practicum in Athletic Training <sup>2,4</sup>	2-3
ATEP 495. Level V Practicum in Athletic Training <sup>2,3</sup>	2
KIN 302. Exercise Physiology <sup>2</sup>	3
KIN 302L. Exercise Physiology/Lab <sup>2</sup>	1
NUTR 382. Sports Nutrition <sup>2,4</sup>	3
General Education courses	7-8

26-28

<sup>1</sup> BIO 270 and MATH 220 may be met by choosing the correct course in General Education and be counted for both General Education and the major.

<sup>2</sup> Grade of "C" or better required.

<sup>3</sup> Offered only in spring semester.

<sup>4</sup> Offered only in fall semester.

## Bachelor of Science in Dietetics

The Bachelor of Science in dietetics is the first step toward registration as a dietitian. The Registered Dietitian (RD) credential is a national credential that requires completion of a Didactic Program in Dietetics (DPD), a Dietetic Internship (DI) and successful completion of the national registration examination. The DPD at James Madison University is currently granted full accreditation by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics, 120 S. Riverside Plaza, Suite 2190, Chicago, IL 60606-6995, (312) 899-4876. The program in dietetics gives the student a wide view of dietetics careers including clinical dietetics, administrative dietetics, community dietetics, food service, education and research.

### Special Admission Requirements

Any student admitted to JMU can declare dietetics as his/her major and will be permitted to enroll in NUTR 280 Nutrition for Wellness and NUTR 295 Foundations of Nutrition Practice. However, to make progress in the major beyond the first few courses students need to apply and be admitted to the professional program.

Students wishing to be admitted to the dietetics program at JMU must apply in the spring semester during which admission requirements will be met by February 15, usually the sophomore year.

Students applying for admission must have a cumulative GPA of at least 3.0 in the following courses, with no grade lower than a "C."

- BIO 270. Human Physiology
- CHEM 131 and 131L. General Chemistry I
- CHEM 132 and 132L. General Chemistry II
- MATH 220. Elementary Statistics
- NUTR 280. Nutrition for Wellness
- NUTR 295. Foundations of Nutrition Practice
- POSC 225. U.S. Government
- PSYC 101. General Psychology or PSYC 160. Life Span and Human Development
- SCOM 121, 122 or 123. Human Communication
- WRTC 103. Critical Reading and Writing

### Retention and Receiving Didactic Program in Dietetics Verification

To remain in the major, students must maintain a GPA of at least 3.0 in the major and earn grades of "C" (2.0) or higher in all remaining required courses. Transfer credit will not be accepted for the following courses: NUTR 363, NUTR 446, NUTR 482, NUTR 484 and NUTR 490. All successful graduates will receive four copies of a signed verification statement from the James Madison University DPD as soon as final transcript verifying all grades and degree confirmation is available.

### Required Courses/Recommended Schedule for Majors

First Year	Credit Hours
CHEM 131–131L. General Chemistry I with Laboratory <sup>3</sup>	4
CHEM 132–132L. General Chemistry II with Laboratory	4
NUTR 295. Foundations of Nutrition Practice	2
Quantitative requirement (B.S. degree requirement)	3
General Education courses	18
	31

Second Year	Credit Hours
BIO 270. Human Physiology <sup>3</sup>	4
PSYC 101. General Psychology <sup>3</sup> or PSYC 160. Life Span Human Development <sup>3</sup>	3
POSC 225. U.S. Government <sup>3</sup>	4
MATH 220. Elementary Statistics <sup>3</sup>	3
NUTR 280. Nutrition for Wellness	3
General Education courses	12
Elective	3
	32

Third Year	Credit Hours
CHEM 241-241L. Concepts of Organic Chemistry with Lab <sup>2</sup>	4
CHEM 260-260L. Concepts of Biochemistry with Lab <sup>1</sup>	4
HTH 210. Medical Terminology	3
HTH 354. U.S. and Global Health Care Systems	3
NUTR 340. Science of Food Preparation <sup>2</sup>	3
NUTR 362. Food Service Systems <sup>1</sup>	3
NUTR 380. Global Nutrition	3
NUTR 384. Clinical Nutrition I <sup>1</sup>	3
NUTR 385. Nutrition throughout the Life Cycle <sup>1</sup>	3
NUTR 395. Introduction to Patient Care in Dietetics <sup>2</sup>	2
	31

Fourth Year	Credit Hours
BIO 280. Allied Health Microbiology	4
BIO 290. Human Anatomy	4
NUTR 360. Management in Dietetics <sup>1</sup>	3

NUTR 363. Quantity Food Production	3
NUTR 446. Experimental Foods <sup>1</sup>	3
NUTR 482. Nutrition and Metabolism <sup>2</sup>	3
NUTR 484. Clinical Nutrition II <sup>1</sup>	3
NUTR 485. Community Nutrition <sup>2</sup>	3
NUTR 490. Field Experiences in Dietetics <sup>4</sup>	3
NUTR 495. Senior Seminar in Dietetics <sup>2</sup>	2

31

1 Offered only in spring semester.

2 Offered only in fall semester.

3 These courses may count for both General Education and the major depending on General Education course choice.

4 Field experience practicum should be completed the summer between junior and senior years.

## Bachelor of Science in Health Services Administration

The program in health services administration prepares the student for entry-level administrative positions, and staff positions requiring administrative skills, in various health services organizations including hospitals, hospital systems, managed care organizations, retirement and long term care facilities, ambulatory care organizations, and public health organizations. The student is prepared to plan, organize, direct and control health programs and/or facilities. In addition, the program provides the foundation for graduate study in health services administration and related fields.

The health services administration program is approved as a Full Certified undergraduate program by the Association of University Programs in Health Administration (AUPHA).

Upon completion of all JMU and program requirements, the student is awarded the B.S. in Health Services Administration.

No more than 30 hours may be taken in the College of Business.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	40
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3
Major requirements	74
	120

### Required Courses/Recommended Schedule for Majors

First Year	Credit Hours
General Education courses	31
	31

Second Year	Credit Hours
ACTG 244. Accounting for Non-Business Majors	3
CIS 204. Computer Information Systems	3
ECON 201. Principles of Economics (Micro)	3
HSA 290. Gerontology for Health Services Administration	3
HSA 385. Health Services Administration Career Seminar	1
HTH 354. U.S. and Global Health Care Systems	3
MATH 220. Elementary Statistics	3
General Education courses	9

28

Third Year	Credit Hours
FIN 345. Finance for the Non-Financial Manager	3
HTH 320. Statistical Methods for Health Science Research (B.S. degree requirement)	3
HSA 358. Health Administration <sup>2</sup>	3
HSA 363. Health Economics <sup>2</sup>	3
HSA 365. Values in Health Care	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3
HSA 463. Quality Management in Health Care <sup>3</sup>	3
Program electives	6
	30
Fourth Year	Credit Hours
HTH 450. Epidemiology	3
HSA 454. Internship in Health Organizations	3
HTH 458. Health Program Planning and Evaluation	3
HSA 466. Health Politics and Policy (B.S. degree requirement)	3
HSA 462. Managed Care <sup>3</sup>	3
Choose two of the following:	6
HSA 452. Hospital Organization and Administration <sup>3</sup>	
HSA 455. Long Term Care Organization and Administration <sup>3</sup>	
HSA 456. Ambulatory Care Services: Organization and Administration <sup>2</sup>	
HSA 464. Funding in Health Care <sup>3</sup>	3
Electives	7
	31

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 Offered only in fall semester.

3 Offered only in spring semester.

## Minor

### Health Assessment and Promotion Minor

This concentration prepares students for positions in wellness, hospital, and corporate-based health promotion and assessment programs. Students are trained to develop and implement comprehensive health promotion activities by combining health education, assessment techniques and physical activity concepts. Health assessment and promotion students master a variety of clinical assessments and can begin to develop health communication skills prior to graduation.

The concentration includes 12-15 hours of electives which can be used to complete any minor requirements or which pre-professional students can use to finish prerequisites for their selected professional program. Additionally, this broad-based program provides a strong foundation for related graduate studies. Upon completion, students are prepared to enroll in the Health Fitness Specialist and/or the Physical Activity in Public Health Specialist certifications sponsored by the American College of Sports Medicine.

### Concentration Requirements

Students must complete the General Education requirements, the B.S. degree requirements, the health sciences core and the health assessment and promotion core requirements.

Course Requirements	Credit Hours
Health Sciences Core	32-37
ATEP 205. Introduction to Athletic Training	3
BIO 290. Human Anatomy	4
NUTR 280. Nutrition for Wellness	3
NUTR 382. Sports Nutrition	3
HTH 150. Introduction to Health Sciences	1
HTH 210. Medical Terminology	3
HTH 308. Physiological Responses to Human Movement	3
HTH 320. Statistical Methods for Health Science Research	3
HTH 389. Practicum in Health Education	3
HTH 441. Rehabilitative Biomechanics	3
HTH 442. Chronic Diseases	3
HTH 458. Health Program Planning and Evaluation	3
HTH 471. Health Aspects of Gerontology	3
HTH 480. Health Assessment Techniques	3
HTH 482. Advanced Health Assessment Techniques	3
HTH 495. Internship in Health Organizations	3

79-84

## Master Level Degrees

In addition to undergraduate programs, the Department of Health Professions offers several advanced degrees. For more information about any of the programs listed, refer to the JMU Graduate Catalog or gain access through the website.

- Master of Occupational Therapy
- Master of Physician Assistant Studies

## Physical and Health Education

### Teacher Education Certification

This program is housed in the Department of Kinesiology and culminates in a Master of Arts in Teaching degree.

## Credit by Examination

The Department of Health Professions offers credit by examination for a limited number of the courses taught in the department. Students who want permission to take an examination must apply to the department head during the regular registration period. Students will receive details regarding approval and examination dates after they apply. Examinations will be given only in courses offered during the semester.

# Department of Health Sciences

*Dr. Andrew A. Peachey, Acting Head*

Phone: (540) 568-5053

Location: Health and Behavioral Studies, Room 3091

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## Professors

H. Amato, R. Koslow, K. Lewis, P. Maxwell, M. Warner, M. Wessel

## Associate Professors

S. Baller, A. Burnett, B. Diduch, T. Enyeart Smith, O. Ersin, K. Ott Walter, D. Sutton

## Assistant Professors

S. Blackstone, E. Collazo-Vargas, J. Goodman, D. Henry, L. Merrell, S. Rush

## Instructors

L. Blosser, E. Richardson

## Lecturers

L. Eicher, T. Howley, R. Prodoehl, M. Stickney

## Mission

The purpose of the Department of Health Sciences is to contribute to the liberal arts education of all students and prepare students for professional careers in the health sciences and/or for entry into professional programs.

## Goals

The goals of the Department of Health Sciences are to:

- Promote the health and well-being of the JMU community.
- Support the General Education program.
- Educate health professionals.
- Provide service to the community, the state, the region and the nation.
- Conduct, disseminate and publish research/scholarship in health sciences.

## Career Opportunities

- Athletic Trainer
- Registered Dietitian
- Health Administrator
- Health Assessment and Promotion Specialist
- Health Fitness Specialist
- Occupational Therapist (Graduate Program)
- Physician Assistant (Graduate Program)
- Public Health Educator
- Substance Abuse Prevention Professional

## Co-curricular Organizations

- American College of Sports Medicine
- Madison Athletic Training Student Association
- Eta Sigma Gamma (Health Sciences Honor Society)
- Health Administration Student Association
- JMU Dietetic Association
- JMU Physician Assistant Student Society
- JMU Student Occupational Therapy Association
- Pre-Occupational Therapy Association
- Pre-Physical Therapy Society

## Special Admission Requirements

Admission to JMU does not guarantee admission to all academic majors and minors.

## Deadline for Change or Declaration of Majors

Deadlines for change or declaration of major forms are:

Semester	Deadline
Summer	February 15
Fall	February 15
Spring	September 15 of the previous year

Forms received in the health sciences office after the deadline will be processed the following semester. Students changing their major to health sciences after February 15 of the sophomore year should expect an additional semester(s) to complete the program. The number of additional semesters required to complete the program will depend on the timing of the change to health sciences and the number of summer courses completed.

## Degree and Major Requirements

The Department of Health Sciences offers the following degrees:

- Bachelor of Science in Health Sciences with concentrations in:
  - Health Assessment and Promotion
  - Health Studies
  - Public Health Education

## Bachelor of Science in Health Sciences

The B.S. degree with a major in health sciences consists of health science course requirements in addition to General Education requirements and B.S. requirements. For specialization in a professional area, concentrations are available in health assessment and promotion, health studies, and public health education.

## Health Science Core

All students pursuing the B.S. in Health Science must complete the following core courses:

Health Sciences Core Courses	Credit Hours
CHEM 120. Concepts of Chemistry or CHEM 131/ 132+L. General Chemistry	3-8
MATH 220. Elementary Statistics	3
HTH 100. Personal Wellness	3
HTH 245. Foundations of Infectious Disease	3
HTH 320. Statistical Methods for Health Science Research (B.S. degree requirement)	3
HTH 351. Health Behavior Change	3
HTH 408. Health Research Methods	3
HTH 450. Epidemiology	3
Select two of the following:	8
BIO 270. Human Physiology	
BIO 280. Allied Health Microbiology	
BIO 290. Human Anatomy	
	32-37

## Health Assessment and Promotion Concentration

This concentration prepares students for positions in wellness, hospital, and corporate-based health promotion and assessment programs. Students are trained to develop and implement comprehensive health promotion activities by combining health education, assessment techniques and physical activity concepts. Health assessment and promotion students master a variety of clinical assessments and can begin to develop health communication skills prior to graduation.

The concentration includes 12-15 hours of electives which can be used to complete any minor requirements or which pre-professional students can use to finish prerequisites for their selected professional program. Additionally, this broad-based program provides a strong foundation for related graduate studies. Upon completion, students are prepared to enroll in the Health Fitness Specialist and/or the Physical Activity in Public Health Specialist certifications sponsored by the American College of Sports Medicine.

### Concentration Requirements

Students must complete the General Education requirements, the B.S. degree requirements, the health sciences core and the health assessment and promotion core requirements.

Course Requirements	Credit Hours
Health Sciences Core	32-37
ATEP 205. Introduction to Athletic Training	3
BIO 290. Human Anatomy	4
NUTR 280. Nutrition for Wellness	3
NUTR 382. Sports Nutrition	3
HTH 150. Introduction to Health Sciences	1
HTH 210. Medical Terminology	3
HTH 308. Physiological Responses to Human Movement	3
HTH 320. Statistical Methods for Health Science Research	3
HTH 389. Practicum in Health Education	3
HTH 441. Rehabilitative Biomechanics	3
HTH 442. Chronic Diseases	3
HTH 458. Health Program Planning and Evaluation	3
HTH 471. Health Aspects of Gerontology	3
HTH 480. Health Assessment Techniques	3
HTH 482. Advanced Health Assessment Techniques	3
HTH 495. Internship in Health Organizations	3

## Required Courses/Recommended Schedule for Health Assessment and Promotion Concentration

Evidence of CPR/First-Aid certification must be presented for graduation.

First Year	Credit Hours
CHEM 120. Concepts of Chemistry <sup>1</sup>	3
HTH 100. Personal Wellness	3
HTH 150. Introduction to Health Sciences	1
HTH 210. Medical Terminology	3
MATH 220. Elementary Statistics <sup>1</sup>	3
General Education courses	15-17
	28-30
Second Year	Credit Hours
BIO 270. Human Physiology <sup>1</sup>	4
BIO 290. Human Anatomy	4
ATEP 205. Introduction to Athletic Training	3
NUTR 280. Nutrition for Wellness	3
General Education courses	15-18
	30
Third Year	Credit Hours
HTH 308. Physiological Responses to Human Movement <sup>2</sup>	3
HTH 245. Foundations of Infectious Disease	3
HTH 320. Statistical Methods for Health Science Research	3
HTH 351. Health Behavior Change	3
HTH 389. Practicum in Health Education	3
HTH 471. Health Aspects of Gerontology	3
NUTR 382. Sports Nutrition <sup>3</sup>	3
General Education courses	3-4
Core and elective courses	6
	30-31
Fourth Year	Credit Hours
HTH 408. Health Research Methods	3
HTH 441. Rehabilitative Biomechanics	3
HTH 442. Chronic Diseases <sup>3</sup>	3
HTH 450. Epidemiology	3
HTH 458. Health Program Planning and Evaluation	3
HTH 480. Health Assessment Techniques <sup>3</sup>	3
HTH 482. Advanced Health Assessment Techniques <sup>2</sup>	3
Core and elective courses	6
HTH 495. Internship in Health Organizations	3
	30

<sup>1</sup> CHEM 120, MATH 220, and BIO 270 may be counted for both General Education and the major.

<sup>2</sup> Offered only in spring semester.

<sup>3</sup> Offered only in fall semester.

## Health Studies Concentration

The health studies concentration is designed for students interested in understanding the causes of disease, strategies for promoting wellness, and the scientific basis and methodologies for analysis of health concerns. The health studies concentration combines a broad foundation of health-related course work with a choice of preparatory courses suitable for entry into graduate programs in medicine, dentistry, optometry, occupational therapy, physical therapy, pharmacy, physician assistant and veterinary medicine.

Students must complete the core course requirements for a major in health sciences and the requirements for the concentration in health studies. Students are encouraged to identify individual professional program requirements to select courses within the concentration requirements that will be most suitable for the graduate program of their choice.

<b>Health Studies Concentration</b>	<b>Credit Hours</b>
Health Sciences Core (see previous core requirements)	32-37
Required Courses	19
HTH 150. Introduction to Health Sciences	
HTH 210. Medical Terminology	
HTH 231. Population Health Determinants	
HTH 320. Statistical Methods for Health Science Research	
HTH 340. Chronic Disease and Disabilities	
HTH 354. U.S. and Global Health Care Systems	
HTH 423. Ethics and Critical Thinking in Health	
Select 16 credits from these pre-professional courses: (check with pre-professional adviser prior to course selection)	16
BIO 114. Organisms	
BIO 214. Cell and Molecular Biology	
BIO 224. Genetics and Development	
BIO 280. Allied Health Microbiology <sup>1</sup>	
BIO 324. Human Genetics	
BIO 370. Animal Physiology	
CHEM 241-241L. Organic Chemistry	
CHEM 260. Concepts of Biochemistry	
CHEM 242-242L. Organic Chemistry II	
HTH 441. Rehabilitative Biomechanics	
NUTR 280. Nutrition for Wellness	
PHYS 140-140L. College Physics I	
PHYS 150-150L. College Physics II	
PSYC 101. General Psychology	
PSYC 160. Life Span Human Development	
PSYC 250. Introduction to Abnormal Psychology	

67-72

<sup>1</sup> Will not count for the 16 credits in this category unless students also take BIO 270 and BIO 290.

### Recommended Schedule for Health Studies Concentration

<b>First Year</b>	<b>Credit Hours</b>
HTH 100. Personal Wellness	3
MATH 220. Elementary Statistics	3
HTH 150. Introduction to Health Sciences	1
Pre-professional courses	4-8
General Education courses	13-17

30-32

<b>Second Year</b>	<b>Credit Hours</b>
CHEM 120. Concepts of Chemistry or CHEM 131-131L and CHEM 132-132L	3-8
Choose one of the following:	4
BIO 270. Human Physiology	
BIO 280. Allied Health Microbiology	
BIO 290. Human Anatomy	
HTH 210. Medical Terminology	3
HTH 231. Population Health Determinants	3
HTH 245. Foundations of Infectious Disease	3
General Education, pre-professional courses and electives	9-17

30

<b>Third Year</b>	<b>Credit Hours</b>
Choose one of the following:	4
BIO 270. Human Physiology	
BIO 280. Allied Health Microbiology	
BIO 290. Human Anatomy	
HTH 320. Statistical Methods for Health Science Research	3
HTH 340. Chronic Disease and Disabilities	3
HTH 351. Health Behavior Change	3
HTH 354. U.S. and Global Health Care System	3
General Education, pre-professional courses and electives	11

27

<b>Fourth Year</b>	<b>Credit Hours</b>
HTH 408. Health Research Methods	3
HTH 423. Ethics and Critical Thinking in Health	3
HTH 450. Epidemiology	3
General Education, pre-professional courses and electives	21

30

## Public Health Education Concentration

This concentration prepares the student for entry-level public health education positions or health-related positions in a wide variety of government, community and voluntary health agencies, such as health departments and community-based health programs. This concentration also provides a strong foundation for students to pursue a Master of Public Health degree. Students completing this concentration are eligible to sit for the Certified Health Education Specialist (CHES) exam.

### Concentration Requirements

Students must complete the General Education requirements, the B.S. degree requirements, health sciences core and the public health education requirements.

<b>Required Courses</b>	<b>Credit Hours</b>
Health Sciences Core	32-37
HTH 210. Medical Terminology	3
HTH 230. Community Health or HTH 231. Population Health Determinants	3
NUTR 280. Nutrition for Wellness	3
HTH 352. Environmental Health	3
HTH 354. U.S. and Global Health Care Systems	3
HTH 370. Child and Adolescent Health	3
HTH 372. Human Sexuality	3
HTH 378. The Use and Effects of Drugs	3
HTH 423. Ethics and Critical Thinking in Health	3
HTH 453. Public Health Education Methods <sup>1</sup>	3
HTH 458. Health Program Planning and Evaluation	3
HTH 471. Health Aspects of Gerontology	3
HTH 495. Internship in Health Organizations	3

Public health education students are encouraged to have foreign language skills, particularly Spanish. Elective credits may be used for this purpose.

**Recommended Schedule for Public Health Education Concentration**

First Year	Credit Hours
CHEM 120. Concepts of Chemistry <sup>2</sup>	3
MATH 220. Elementary Statistics <sup>2</sup>	3
General Education courses and electives	24
	<hr/> 30

Second Year	Credit Hours
BIO 270. Human Physiology <sup>2</sup> and/or BIO 280. Allied Health Microbiology and/or BIO 290. Human Anatomy	7-8
HTH 210. Medical Terminology	3
HTH 230. Community Health or HTH 231. Population Health Determinants	3
NUTR 280. Nutrition for Wellness	3
General Education courses and electives	11
	<hr/> 30

Third Year	Credit Hours
HTH 351. Health Behavior Change	3
HTH 352. Environmental Health	3
HTH 354. U.S. and Global Health Care Systems	3
HTH 370. Child and Adolescent Health	3
HTH 372. Human Sexuality	3
HTH 378. The Use and Effects of Drugs	3
Quantitative requirement for B.S. degree	3
General Education courses	3
Electives	6
	<hr/> 30

In order to graduate in May of the senior year, a student must save HTH 423, HTH 458 and HTH 471 to be completed the third block of the senior year. The internship, HTH 495, is completed the fourth block. The internship is full-time supervised work at a professional site for eight weeks; thus, semester long courses cannot be taken the spring semester of the senior year.

Students who need additional courses must complete their internship during the summer after their senior year.

Fourth Year	Credit Hours
<b>Fall Semester</b>	
HTH 408. Health Research Methods	3
HTH 450. Epidemiology	3
HTH 453. Public Health Education Methods	3
Electives	9
	<hr/> 18

Spring Semester	Credit Hours
<b>Third Block</b>	
HTH 423. Ethics and Critical Thinking in Health <sup>3</sup>	3
HTH 458. Health Program Planning and Evaluation <sup>3</sup>	3
HTH 471. Health Aspects of Gerontology <sup>3</sup>	3
<b>Fourth Block</b>	
HTH 495. Internship in Health Organizations <sup>4</sup>	3
	<hr/> 12

1 Offered fall semester only.

2 BIO 270, CHEM 120 and MATH 220 may be counted for both General Education and the major.

3 Offered first eight weeks of spring semester.

4 Offered only in spring or summer. Physical and Health Education Teacher Education Certification

This program is housed in the Department of Kinesiology and culminates in a Master of Arts in Teaching degree.

## Credit by Examination

The Department of Health Sciences offers credit by examination for a limited number of the courses taught in the department. Students who want permission to take an examination must apply to the department head during the regular registration period. Students will receive details regarding approval and examination dates after they apply. Examinations will be given only in courses offered during the semester.

# Department of History

*Dr. Gabrielle M. Lanier, Interim Department Head*

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Location: Jackson Hall, Room 201

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Website: <http://jmu.edu/history>

## Professors

J. Arndt, K. Borg, J. Butt, P. Dillard, M. Galgano, M. Gubser, S. Guerrier, S. M. Hanifi, K. Hardwick, R. Hyser, G. Lanier, M. Mulrooney, D. Owusu-Ansah, S. Reich, M. Seth

## Associate Professors

R. Brannon, S. Chappell, J. Davidson, C. Davis, T. Fitzgerald, M. Gayne, H. Gelfand, Y. Hu, L. King, K. McCleary, R. Meixsel, A. Sandman, W. Van Norman, E. Westkaemper, A. Witmer

## Assistant Professors

E. Friss, M. Galmarini-Kabala, P. Herrington

## Mission

The Department of History supports the academic mission of James Madison University by providing the highest quality educational experiences within the liberal arts tradition that meet students' needs and prepare students for meaningful careers and active citizenship. The department focuses on the student as individual learner and global citizen. Our dedicated faculty members are classroom innovators and scholars who work responsibly and supportively with students to expand their knowledge and skills, and to create a foundation for their lifelong learning.

## Inside the Classroom

Students of history will become well-rounded and engaged citizens by:

- Acquiring knowledge of the human condition through the study of political, cultural, and social experiences of people around the world
- Learning the historical contexts of major political, intellectual, social, economic, religious and environmental events and transformations
- Understanding the major cultural developments in fine and popular arts in societies around the world in their historical contexts
- Discerning how people from a variety of societies hold differing values, ethics, and legal concepts and comprehending how these ideas relate to each other and to Western ideas and values

Students of history will gain the following skills

- Reading, writing, and speaking effectively and critically
- Making informed judgments based on existing evidence
- Locating printed and online information to research a topic exhaustively
- Critically evaluating textual evidence by identifying its thesis, sources, conclusions, perspective, bias, and reliability

## Beyond the Classroom

While at JMU, students of history will bring the insights and skills they learn in the classroom to their relationship and experiences with their broader communities.

Possibilities for such interactions include:

- Leading efforts to promote open dialogue, civic engagement, and public service.
- Fostering interdisciplinary relationships by engaging with the larger scholarly community at the university.
- Participating in partnerships and events that expand and challenge their own worldview.
- Studying abroad to deepen their understanding of cultural differences and non-US historical perspectives and experiences.
- Becoming involved in professional work through internships.

## Career Opportunities

Students graduating with a major or minor in history leave JMU with skills that are sought after by a wide range of employers. History graduates are adaptive learners and able project managers. As a result, they are particularly marketable in a world where professions change rapidly. Some of the career paths that history majors follow include:

- Advertising
- Archives and Libraries
- Business
- Communication
- Digital humanities
- Education
- Government
- Information Management
- Journalism
- Law
- Non-Profit and Non-Governmental Organizations
- Project Management
- Public History and Museums
- Public Policy
- Research
- Teaching
- Writing and Editing

Undergraduate work in history is also a successful foundation for advanced degrees in the humanities, law, the social sciences, medicine, and other disciplines.

## Co-curricular Activities and Organizations

- Phi Alpha Theta (National Honor Society for History)
- The Madison Historians

## Degree and Major Requirements

### Bachelor of Arts in History

History courses introduce students to the nature of history and survey the globe in a historical context. The 100- and 200-level courses are world or regional surveys, covering extensive periods of time, while the 300- and 400-level courses are focused on one theme, time period or geography. The upper-level courses require extensive analysis of sources and texts, and they include a research assignment that showcases the students' ability to develop and present their own historical interpretations.

The major requires three core courses: HIST 101, HIST 102 and HIST 395. Majors must take eight additional courses: Two on the 200 level and six on the 300 and 400 levels—with at least three of the upper division courses taken at the 400 level. In addition, majors must take one upper division course in each of the following fields: U.S., Europe and World history. For students writing a senior honors thesis, only three hours of HIST 499. Honors Thesis may be counted among the three 400-level courses required for the major.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	29-43
Major requirements (listed below)	33
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

### Major Requirements

Core Requirements	Credit Hours
HIST 101. World History to 1500	3
HIST 102. World History Since 1500	3
Any two courses at the 200-level, including HIST 225 <sup>1</sup>	6-7
HIST 395. History Seminar <sup>2</sup>	3
Electives: Six 300- or 400-level courses	18
At least one course in each of World, U.S. and European history and at least three courses at the 400 level	
	33

1 HUM 252 may be able to fill this requirement. Check with the history adviser.

2 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

### Recommended Schedule for Majors

First Year	Credit Hours
HIST 101. World History to 1500 (Cluster Two)	3
HIST 102. World History Since 1500 (Cluster Two)	3
Foreign language courses	6-8
General education courses	9

General Education Cluster One: Skills for the 21st Century 9

30

Second Year	Credit Hours
Any two courses at the 200 level	6-7
HIST 395. History Seminar	3
Foreign language courses (if needed) or electives	9-10
General Education courses (Cluster Three, Cluster Five)	12
	31

Third Year	Credit Hours
Philosophy course	3
History electives (mix 300 and 400 levels)	9
Electives	9
General Education courses (Cluster Two, Cluster Four)	9
	30

Fourth Year	Credit Hours
History electives (mix 300 and 400 levels)	9
Electives	18
General Education courses (Cluster Four)	3
	30

## Concentrations

### Public History

Historians today practice their discipline in a variety of careers as well as in more traditional academic settings. Those historians who work in museums, archives, government agencies, libraries, historic preservation organizations, businesses, contract history firms, cultural resource management firms and historic sites are known as public historians because they use their skills as historians to serve a public audience. The concentration in Public History trains students in the broad range of skills and issues associated with public history while providing them with a solid general background in history.

Students pursuing the public history concentration augment their foundation of traditional history courses by taking introductory and specialized public history courses and completing a semester-long internship. History majors opting to pursue the public history concentration will complete seven elective courses, six of which must be 300/400 level history courses. The public history concentration consists of five courses (15 credit hours).

Students are required to complete two public history core courses and three elective courses. Two of the three elective courses should be chosen from the list of primary electives; the remaining elective course may be chosen from either the primary or secondary list of elective courses.

### History Major with Public History Concentration

Core Requirements	Credit Hours
HIST 101. World History to 1500	3
HIST 102. World History Since 1500	3
Any two 200-level History courses	6-7
HIST 395. History Seminar <sup>1</sup>	3
Seven electives <sup>2</sup>	21
300/400-level HIST courses	9

**Public History Concentration**

## Required Courses

HIST 340. Internship in History	3
HIST 396. Introduction to Public History	3

## Primary Electives

HIST/ANTH 331. Historical Archeology	6-9
HIST/ARTH 394. Introduction to Museum Work	
HIST 407. Digital History	
HIST 438. Workshop in Local History	
HIST 440. The History Museum	
HIST/SCOM 441. Oral History	
HIST 491. Editing Historical Documents	
HIST/ANTH/ARTH 492. Material Culture	
HIST/ARTH493. Historic Preservation	
HIST 495. Introduction to Archives and Manuscripts	

## Secondary Electives

HIST 326. The Automobile in 20th Century America	0-3
HIST 327. Technology in America	
HIST/SOCI 338. U.S. Urban History	
HIST 360. Research Apprenticeship in History	
HIST 391. Travel Studies Seminar: Summer in Ghana	
HIST 391. Travel Studies Seminar: Paris and Normandy: Civilization, Culture, and Memory: North of England Programme	
HIST 402. Workshop in Colonial American Life	
HIST 403. Workshop in Civil War Virginia	
HIST/ARTH 406. Monticello	
HIST/ARTH 408. The Museum: Histories and Controversies	
ANTH 494. Field Techniques in Archeology	

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1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 Six (18 credit hours) of the seven electives must be 300/400-level history courses. At least three courses (9 credit hours) must be 400-level history courses. For honors majors, only three hours of HIST 499. Honors Thesis, may be counted among the three 400-level courses required for the major.

## Business

Many graduate business schools encourage applications from liberal arts majors. History majors who wish to prepare specifically for admission to a Master of Business Administration degree program should schedule from these courses.

A history major may choose no more than 27 credit hours in this program from courses offered by the College of Business. Students should consult regularly with the associate dean of the College of Business. In addition to the major in history, students are advised to choose from the following courses:

COB Course Electives for History Majors	Credit Hours
COB 191. Business and Economic Statistics	3
COB 204. Computer Information Systems	3
COB 218. Legal and Ethical Environment of Business	3
COB 241. Financial Accounting	3
COB 242. Managerial Accounting	3
ECON 200. Introduction to Macroeconomics	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Finance for Non-Financial Managers	3
MKTG 380. Principles of Marketing	3

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## Teaching Licensure

Students interested in becoming teachers must meet specific curriculum requirements in their major as part of the undergraduate academic degree. History majors desiring secondary teaching licensure must complete HIST 225.

In addition to the general education and academic major requirements, history majors desiring secondary teacher licensure must minor in Interdisciplinary Social Sciences. They must also be admitted to teacher education, complete the pre-professional program in secondary education at the undergraduate level and complete the graduate level Master of Arts in Teaching degree.

It is critical that students seeking licensure consult regularly with their education adviser, their ISS adviser, and their major adviser to support their progression through the programs. For a full description of the requirements see the teaching history section of the history department website.

## Minor Requirements

### History Minor

The minor in history enhances any program of study and pairs well with many majors. It is available with any degree. The minor requires 21 credit hours of history, including HIST 101 and HIST 102. At least six of the remaining 15 hours must be at the 300- or 400-level, with at least one of these courses in world history.

### Cross Disciplinary Minors

Students majoring or minoring in History should consider adding a Cross Disciplinary minor. The programs below are supported by History faculty and include courses that can be double-counted in the History major or minor. For more information, refer to Cross Disciplinary Minors.

- Africana Studies
- American Studies
- Asian Studies
- Classical Studies
- Environmental Humanities
- Historical Archaeology
- Latin American and Caribbean Studies
- Medieval and Renaissance Studies
- Middle Eastern Communities and Migrations
- Russian Studies
- Science, Technology, and Society
- Women and Gender Studies

## Credit by Examination

The Department of History offers credit by examination for HIST 101, HIST 102 and HIST 225. Students who want permission to take an examination must apply in writing to the department head during the regular registration period. The examinations are administered during the first month of each semester at a time and place set by the department. Additional information on credit by examination may be found at the Department of History website.

# Hospitality Management

*Dr. Michael J. O'Fallon, Director*

Phone: (540) 568-5174 Email: ofallomj@jmu.edu

Location: Godwin Hall, Room 355

Website: <http://www.jmu.edu/hartschool>

## Professor

R. Foucar-Szocki

## Associate Professor

M. O'Fallon

## Assistant Professors

S. Bae, G. Hornsby, G. Juhan, J. Kim

## Lecturers

M. Baltazar, T. Lind, T. Pippert

## Mission

The mission of the Hospitality Management Program is to develop a community of learners through quality education that integrates theory, practice and personal growth in the hospitality, sport and recreation industries.

The hospitality leaders of tomorrow must be educated and enlightened citizens who will lead productive and meaningful lives. The James Madison University Hospitality Management Program prides itself in developing creative hospitality leaders who make a difference.

The program mission is to develop hospitality leaders through sound theoretical course work, innovative learning activities, mentoring opportunities, exposure to premier hospitality organizations and interaction with dynamic industry professionals. Together with alumni, students, parents and friends of the program, JMU-HM will be recognized as the preferred provider for hospitality graduates.

## Goals

- To expose students to a rigorous academic and experiential learning program, including a 400-hour internship prior to graduation.
- To provide an intimate educational setting of small classes, team learning experiences and meaningful personal contacts with faculty and industry professionals.
- To promote the use and development of technology, critical thinking and communication skills in hospitality leadership.
- To ensure that all HM students have a meaningful choice of job opportunities upon graduation.
- To build a set of leadership skills while providing students exceptional financial acumen.
- To maintain a faculty of knowledgeable and respected industry professionals, dedicated to continuous improvement via internships, authorship, industry contacts and participation at national and international industry conferences.

## Career Opportunities

The hospitality field, also known as the mega-industry, includes many career opportunities. Recent statistics include:

- Hospitality management provides \$98.3 billion in tax revenues or federal, state and local governments.

- Total hospitality employment in the U.S. includes 15.4 million jobs.
- Pleasure travel volume was 950.4 million; personal trips with business travel accounted for over 251 million trips in the United States alone.
- The World Tourism Organization forecasts a growth in international tourist arrivals of between 3% and 4% in the next year. International visitors spend \$79.4 billion a year.
- The travel field is America's largest services exporter, with international travelers spending over \$110 billion in the United States.
- The US hotel and motel industry consists of about 40,000 companies that operate 48,000 properties, with combined annual revenue over \$120 billion.
- The restaurant industry's total economic effect is \$1.5 trillion.
- The restaurant industry remains one of the nation's largest private-sector employers with its 12.7 million employees, comprising 9% of the U.S. workforce.
- The restaurant industry is projected to add 1.3 million career and employment opportunities by 2020.
- Dining is the most popular domestic trip activity and is included in 31% of all domestic trips. On a typical day, 130 million Americans will visit a restaurant.
- The private club industry represented by The Club Managers Association of America had \$13 billion in revenue in 2008 employing 290,749 associates.

## Co-curricular Activities and Organizations

- Professional Convention Management Association (PCMA) is a student organization that provides both educational and social programs to the hospitality management major. This group plans and coordinates an annual trip to the PCMA Annual Convention.
- The National Society of Minorities in Hospitality (NSMH) is a student organization that explores the issues, challenges and opportunities for minorities in mega-industry. It participates in both regional and national conventions in association with industry leaders.
- The James Madison University Student Chapter of Club Managers Association of America (JMU CMAA) is

instrumental in exposing students to the profession of club management and its many career opportunities.

- Eta Sigma Delta (ESD) is an honor society recognizing hospitality and tourism students for outstanding academic achievement, meritorious service and demonstrated professionalism.

## Degree and Major Requirements

The B.S. degree in Hospitality Management (HM) requires a minimum of 120 credit hours of undergraduate course work. All HM majors must complete the general business minor for hospitality management, HM core and HM required courses.

Required Courses	Credit Hours
General Education <sup>1</sup>	41-44
Quantitative Requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Hospitality Management Core Courses	9
Major Requirements	36
General Business Minor for Hospitality Management <sup>2</sup>	18
University Electives	6-10
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> Successful completion of these courses with a 2.0 GPA will qualify the student for a general business minor; however, it is the responsibility of the student to complete the necessary paperwork in the College of Business to apply for the minor.

## Major Requirements

Hospitality Management Core	Credit Hours
HM/SRM 201. Foundations of Hospitality, Sport and Recreation Management	3
HM/SRM 202. Foundations of Leadership in Hospitality, Sport and Recreation Management	3
HM/SRM 203. Foundations of Ethics and Law in Hospitality, Sport and Recreation Management	3
	9

Required Courses	Credit Hours
HM 211. Overview of Hospitality and Tourism Management	3
HM 212. Hospitality Prowess	3
HM 310. Practical Work Experience	0
HM 311. Hotel Operations and Hospitality Technology	3
HM 312. Culinary Arts and Menu Management	3
HM 316. Country Club Management	3
HM 317. Introduction to Event Management	3
HM 351. Cost Control and Budgeting	3
HM 402. Supervisory Internship	3
HM 421. Hospitality Ethics	3
HM 422. Hospitality Human Resource Management	3
HM 441. Hospitality Revenue Management	3
HM 442. Hospitality Seminar	3
	36

## General Business Minor

Students in hospitality management must declare the business minor for hospitality management through the College of Business.

Required Courses	Credit Hours
ACTG 244. Accounting for Non-Business Majors <sup>1</sup>	3
CIS 204. Computer Information Systems Fundamentals for Non-Business Majors	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Finance for the Non-Financial Manager	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3
	18

<sup>1</sup> Successful completion of COB 242 will substitute for ACTG 244.

## Recommended Schedule

First Year	Credit Hours
HM 201. Foundations of Hospitality, Sport and Recreation Management	3
HM 202. Foundations of Leadership in Hospitality, Sport and Recreation Management	3
HM 203. Foundations of Ethics and Law in Hospitality, Sport and Recreation Management	3
Cluster One	9
General Education	12
	30

Second Year	Credit Hours
HM 211. Overview of Hospitality and Tourism Management	3
HM 212. Hospitality Prowess	3
ACTG 244. Accounting for the Non-Business Major	3
CIS 204. Computer Information Systems Fundamentals for Non-Business Majors	3
ECON 201. Principles of Economics (Micro)	3
Quantitative Requirement	3
General Education	12
	30

Third Year	Credit Hours
HM 310. 600 Hours of Professional Work Experience	0
HM 311. Hotel Operations and Hospitality Technology	3
HM 312. Culinary Arts and Menu Management	3
HM 316. Country Club Management	3
HM 317. Introduction to Event Management	3
HM 351. Cost Control and Budgeting	3
FIN 345. Finance for the Non-Financial Manager	3
MGT 305. Management and Organization Behavior	3
MKTG 380. Principles of Marketing	3
General Education and university electives	6
	30

Summer	Credit Hours
HM 402. Supervisory Internship	3
	3

Fourth Year	Credit Hours
HM 421. Hospitality Ethics	3
HM 422. Hospitality Human Resource Management	3
HM 441. Hospitality Revenue Management	3
HM 442. Hospitality Seminar	3
University electives	15

# Independent Scholars Program

*Dr. Fletcher Linder, Academic Unit Head*

*Dr. Matthew Chamberlin, Director*

*Dr. Phil Frana, Associate Director*

Phone: (540) 568-5218

Location: Maury Hall, Room 118

Email: chambema@jmu.edu

## Mission

The mission of the independent scholars major is to provide students with a learning environment in which they develop and pursue self-designed curricular pathways and research goals, identifying unique domains of inquiry and interweaving multiple modes of thinking. Students are empowered to cultivate their own academic and professional interests in ways that foster the ability to comprehend and contribute uniquely and innovatively to a wide array of topics, questions and problems.

## Objectives

IS majors will:

- develop topic-based interests and inquiry strategies to pursue those interests.
- enhance creativity, self-directedness and perseverance required for inquiry.
- learn research, technical and communication skills relevant to their inquiry.
- situate their inquiry in relation to contemporary notions of disciplinary thinking.
- enhance aptitude and confidence in working independently and collectively.
- apply knowledge and skills in experiential-learning settings.

## Admission to the Major

Acceptance into IS is competitive and open to all JMU students with a GPA of 3.25 or higher, or by permission.

Interested students will meet with one of the IS coordinators before the end of the first semester of their first year. Based on the advice of IS coordinators, students may then enroll in the IS exploration and major application course (IND 200), which is taught each fall. Students whose interests better align with existing JMU majors will be directed to those majors.

Decisions about acceptance into IS will be made by the IND 200 instructor, IS coordinators and a faculty advisory committee at the end of each IND 200 course. Successful applicants will:

- have a strong academic record that demonstrates exceptional motivation, curiosity, writing ability and independent research potential.
- have successfully recruited a faculty content expert to help the IS coordinators guide the student's IS inquiry.
- have performed well overall in the IND 200 course, which includes writing a convincing inquiry proposal and feasible curriculum.

Students not accepted into IS at the end of IND 200 will be carefully advised into other majors and can use the three IND credits as electives.

## Degree and Major Requirements

Individualized curricula using existing courses across participating JMU units will be constructed with faculty oversight to help students pursue their own inquiry goals. Each student's curriculum will include:

- a cross disciplinary exploration course (IND 200)
- at least 36 credit hours of course work beyond General Education requirements
- at least four credits of skill-enhancing workshops (IND 300)
- a six-credit hour senior project (IND 499A-C)
- the plans for relevant field experiences, internships and/or study abroad programs.

For students in the honors program, the IS senior project will fulfill the senior honors project requirement.

## Bachelor of Arts in Independent Scholars

Required courses	Credit Hours
General Education <sup>1</sup>	41
Philosophy course <sup>2</sup>	3
Foreign Language	1-14
Major requirements	49
Electives	13-27
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> In addition to course work taken to fulfill General Education requirement.

## Bachelor of Science in Independent Scholars

Required courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
Major requirements	49
Electives	23-24
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> In addition to course work taken to fulfill General Education requirement.

# Department of Integrated Science and Technology

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## Professors

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## Associate Professors

M. Benton, A. Biesecker, Z. Bortolot, R. Brent, J. Coffman, A. Goodall, C. J. Hartman, N. Hendrickson, S. Marrin, C. Nash, N. Radziwill, E. Reid, S. Stockwell, J. Tang, T. Walton, H. Way

## Assistant Professors

D. Bonsal, S. Conley, S. El-Tawab, J. Ferenbaugh, K. Moore, Q. Tao, L. Ward, X. Wei, E. York

## Instructor

P. Henriksen

## Geographic Science

*Program Coordinator: Dr. Mace Bentley*

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Email: [bentleml@jmu.edu](mailto:bentleml@jmu.edu)

## Mission

The Geographic Science Program empowers, inspires and motivates students to become competent critical thinkers prepared for lifelong learning, who will respond to intellectual challenges with interest, excitement and competence, and who will see themselves as global citizens actively involved in the world around them.

The Geographic Sciences Program prepares students who are confident in their abilities as geographers. Graduates have the skills to make a professional contribution to the field, and to compete in graduate programs and the job market. They are highly qualified for careers in research and development and are equipped for long term success as professionals in the field of geography.

Through the study of geography students will:

- Understand and properly use the terminology and concepts that are central to the discipline of geography, and explain how these concepts evolved over time.
- Effectively use appropriate geospatial technologies to address questions about human interactions within the built or natural environments.
- Be productive participants in research efforts aimed at measuring, describing, analyzing, and explaining the underlying processes giving rise to geographic phenomena.
- Work effectively in multidisciplinary teams.
- Evaluate human-environment interactions from holistic point of view that addresses geographic, as well as political, social, economic and ethical factors affecting those interactions.
- Demonstrate civic responsibility and appreciation for culture and physical diversity from local global scales.

## Career Opportunities

The geography major is divided into two concentration areas. Each of these offers a unique set of career opportunities.

## Applied Geographic Information Science (AGIS) Concentration

JMU Geographic Science graduates with an AGIS concentration are prepared to gain professional employment with government and industry or go on to graduate programs. Public agencies where they find employment include local and regional planning agencies, mapping organizations such as the U.S. Geological Survey, intelligence agencies such as the National Geospatial Intelligence Agency and, also in the environmental science field with the U.S. Forest Service, the National Park Service, the Environmental Protection Agency and other agencies.

JMU AGIS graduates find opportunities in industry with companies such as ESRI, Digital Global, Lockheed, BAE Systems, Astrium, SAIC, Sanborn and many others.

## Environmental Conservation, Sustainability and Development Concentration

Geographic Science graduates trained in resource analysis, environmental conservation and sustainable development find jobs with local, state and federal governments, non-profit organizations, and for-profit agencies.

Organizations hire geographers to work in environmental and land use planning, resource management (including hydrology, forestry, wildlife and soil conservation, and recreation management), area or regional specialties, international business, community development, and development of human and natural resources in foreign countries. Many geographic

science graduates move on to graduate degrees (M.A., M.S. and Ph.D.) and become educators in higher education (community colleges and universities) or obtain higher level positions in both the private and public sector.

Private environmental organizations and consulting firms, as well as government agencies, hire students completing the environmental studies concentration at JMU. Principal employers include the Environmental Protection Agency, the U.S. Forest Service, the National Park Service, U.S. Geological Survey, and non-profit organizations including the Nature Conservancy and Peace Corps. Particularly marketable for JMU Geographic Science graduates is the combination of experiences in the ECSD and AGIS concentrations.

## Co-curricular Activities and Organizations

- Geography Club
- Gamma Theta Upsilon (International Geographical Honor Society)

## Degree and Major Requirements

### Bachelor of Arts in Geographic Science

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course(s) (in addition to General Education courses)	3
Major requirements	53
Electives	18-22
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary. ISAT 251 for the math requirement in Cluster 3 is strongly recommended, as is GEOG 200 in Cluster 4.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

#### Major Requirements

Core Courses	Credit Hours
Statistics (ISAT 251 or MATH 220)	3
GEOG 210. Physical Geography	4
GEOG 215. Cartography and GIS	3
GEOG 216. Earth Observation and GPS	3
GEOG 230. Spatial Thinking and Problem Solving	3
GEOG 280. Human Geography: The Cultural Landscape	3
GEOG 290. Human Environment Interactions	3
GEOG 305. History and Philosophy of Geography	3
GEOG 390. Practicing Geographic Science	1
Advanced Sequence	6
GEOG 400-level (selected in consultation with the adviser) <sup>1, 2</sup>	
Concentration courses	21
	53

1 For Honors students, the advanced sequence is GEOG 499 A, B and C.

2 Students may opt for a capstone experience that entails three or six hours of independent research (GEOG 490), with the approval of and in close consultation with a project adviser.

In addition to the geography core courses, students must choose one of two concentrations, listed in the "Concentrations" section. All courses for the major must be taken on a graded basis. Students must earn a "C" or better in each of the core courses as they are prerequisites to most concentration courses.

## Bachelor of Science in Geographic Science

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41-44
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major requirements	53
Electives	18-22
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary. ISAT 251 for the math requirement in Cluster 3 is strongly recommended, as is GEOG 200 in Cluster 4.

### Major Requirements

Core Courses	Credit Hours
Statistics (ISAT 251 or MATH 220)	3
GEOG 210. Physical Geography	4
GEOG 215. Cartography and GIS	3
GEOG 216. Earth Observation and GPS	3
GEOG 230. Spatial Thinking and Problem Solving	3
GEOG 280. Human Geography: The Cultural Landscape	3
GEOG 290. Human Environment Interactions	3
GEOG 305. History and Philosophy of Geography	3
GEOG 390. Practicing Geographic Science	1
Advanced Sequence	6
GEOG 400-level (Selected in consultation with the adviser) <sup>1, 2</sup>	
Concentration courses	21
	53

1 For Honors students, the advanced sequence is GEOG 499 A, B and C.

2 Students may opt for a capstone experience that entails three or six hours of independent research (GEOG 490), with the approval of and in close consultation with a project adviser.

In addition to the geography core courses, students must choose one of two concentrations, listed in the "Concentrations" section. All courses for the major must be taken on a graded basis. Students must earn a "C" or better in each of the core courses as they are prerequisites to most concentration courses.

## Concentrations

### Applied Geographic Information Science Concentration

In addition to the geography core requirements, students in the AGIS concentration must complete the following course work.

Required Courses	Credit Hours
GEOG 365. Geography and Geospatial Visualization	3
GEOG 366. Introduction to Geographic Information Science	3
GEOG 385. Principles of Remote Sensing	3
Choose nine credit hours from the following electives: <sup>1</sup>	9
GEOG 406. Forest Inventory: A Geospatial Approach	
GEOG 465. Topics in GIS (3 credits)	
GEOG 466. GIS and Geographic Databases (3 credits)	
GEOG 467. GIS Project Management (3 credits)	
GEOG 468. Internet Geographic Information Systems (3 credits)	
GEOG 469. Applications of GIS (3 credits)	
GEOG 485. Processing Remotely Sensed Data (3 credits)	
GEOG 486. High Resolution Imagery (3 credits)	
GEOG 490. Senior Research	
GEOG 491. International Studies	
GEOG 495. Internship in Geography	
GEOG 497. Independent Study	

Cognate course (three credit hours selected from the following):	3
GEOG 200. Geography: The Global Dimension	
GEOG 300. Population Geography	
GEOG/HUMN 301. Introduction to Natural Disasters	
GEOG 310. Environmental Issues	
GEOG 311. Endangered Environments	
GEOG 315. Field Studies in Geography	
GEOG 320. Human Dimensions of Global Change	
GEOG 322. Agricultural Systems	
GEOG 323. The Geography of Human Genetics, Infectious Diseases and Diet	
GEOG 325. Environmental Ethics	
GEOG 327. Climatology	
GEOG 329. Global Climate Change	
GEOG 331. Geography of Virginia	
GEOG 332. Geography of Europe	
GEOG 333. Geography of Russia and the Former Soviet Union	
GEOG 334. Geography of East Asia	
GEOG 335. Geography of Africa	
GEOG 336. Environmental Hazards: Focus on Southeast Asia	
GEOG 337. Geography of Latin America	
GEOG 338. Geography of the Philippine Islands	
GEOG 339. Geography of the Caribbean	
GEOG 340. Biogeography	
GEOG 341. Wilderness Techniques	
GEOG 342. Management and Protection of Natural Resources	
GEOG 343. Wildlife Management	
GEOG 344. Economic Geography and Development Issues	
GEOG 345. Geography of Poverty	
GEOG 350. Topics in Geography	
GEOG/HUMN 360. GIS for Humanitarian Assistance	
GEOG 375. Political Geography	
GEOG 376. Urban Geography	
GEOG 380. Cultural Geography	
GEOG/BIO 402. Forest Ecology	
GEOG 410. Geography and Film	
GEOG 415. Environment, Landscape and Culture	
GEOG 427. Water Resources of the World	
GEOG/ISAT 429. Sustainability: An Ecological Perspective	
GEOG 430. Geography of Crop Plants	
GEOG 440. Global Biodiversity	
GEOG 470. Senior Seminar in Environmental Conservation, Sustainability and Development	
GEOG 476. Sustainable Cities Seminar	
ISAT 425. Environmental Hydrology	
ISAT 473. Local Agriculture and Farm Internships	

21

1 Courses from the ISAT program, the Department of Computer Science and the College of Business may be used as electives, as approved by the GS program operations coordinator.

## Environmental Conservation, Sustainability and Development Concentration

The environmental conservation, sustainability and development (ECSD) concentration focuses on the geographical contexts within which people and places interact. Required and elective course work allows students to explore spatial and temporal patterning between human communities and the natural environment at multiple scales. The curriculum addresses global issues such as global climate change and globalization; environment and human interactions including political, economic, physical and ethical factors; human and ecological aspects of sustainable development; natural resource

management including energy, forests, wildlife and biodiversity; cultural ecology; regional geography and population issues.

In addition to the geography core requirements, students in the environmental conservation, sustainability and development concentration must complete the following course work.

Required Courses	Credit Hours
Senior seminar course, selected from the following:	3
GEOG 410. Geography and Film	
GEOG 415. Environment, Landscape and Culture	
GEOG 427. Water Resources of the World	
GEOG 429. Sustainability: An Ecological Perspective	
GEOG 440. Global Biodiversity	
GEOG 470. Senior Seminar in Environmental Conservation, Sustainability and Development	
GEOG 476. Sustainable Cities Seminar	
GEOG 491. International Studies	
ECSD Electives	15
Cognate course	3
21	

Students select four courses from the list below. These 300-level courses are identified on the concentration form, which will be reviewed and approved by the student's academic adviser.

### ECSD Electives

- GEOG 200. Geography: The Global Dimension
- GEOG 300. Population Geography
- GEOG/HUMN 301. Introduction to Natural Disasters
- GEOG 310. Environmental Issues
- GEOG 311. Endangered Environments
- GEOG 315. Field Studies in Geography
- GEOG 320. Human Dimensions of Global Change
- GEOG 322. Agricultural Systems
- GEOG 323. The Geography of Human Genetics, Infectious Diseases and Diet
- GEOG 325. Environmental Ethics
- GEOG 327. Climatology
- GEOG 329. Global Climate Change
- GEOG 331. Geography of Virginia
- GEOG 332. Geography of Europe
- GEOG 333. Geography of Russia and the Former Soviet Union
- GEOG 334. Geography of East Asia
- GEOG 335. Geography of Africa
- GEOG 336. Environmental Hazards: A Focus on Southeast Asia
- GEOG 337. Geography of Latin America
- GEOG 338. Geography of the Philippine Islands
- GEOG 339. Geography of the Caribbean
- GEOG 340. Biogeography
- GEOG 341. Wilderness Techniques
- GEOG 342. Management and Protection of Natural Resources
- GEOG 343. Wildlife Management
- GEOG 344. Economic Geography and Development Issues
- GEOG 345. Geography of Poverty
- GEOG 348. Indigenous Geographies
- GEOG 350. Topics in Geography
- GEOG/HUMN 360. GIS for Humanitarian Assistance
- GEOG 375. Political Geography
- GEOG 376. Urban Geography
- GEOG 380. Cultural Geography
- GEOG/BIO 402. Forest Ecology
- GEOG 406. Forest Inventory: A Geospatial Approach
- GEOG 410. Geography and Film
- GEOG 415. Environment, Landscape and Culture
- GEOG 427. Water Resources of the World
- GEOG/ISAT 429. Sustainability: An Ecological Perspective
- GEOG 430. Geography of Crop Plants
- GEOG 440. Global Biodiversity

GEOG 470. Senior Seminar in Environmental Conservation, Sustainability and Development  
 GEOG 476. Sustainable Cities Seminar  
 GEOG 490. Senior Research  
 GEOG 491. International Studies  
 GEOG 495. Internship in Geography  
 GEOG 497. Independent Study  
 ISAT 425. Environmental Hydrology  
 ISAT 473. Local Agriculture and Farm Internships

Cognate course (three credit hours selected from the following):

GEOG 365. Cartography and Geospatial Visualization  
 GEOG 366. Introduction to Geographic Information Science  
 GEOG 385. Principles of Remote Sensing

In consultation with the academic adviser, a student may select one non-geographic science course as an elective.

## Minor Requirements

### Geographic Science Minor

The minor in geographic science consists of the following courses for a total of not less than 19 credit hours.

Required Courses	Credit Hours
GEOG 210. Physical Geography	4
GEOG 215. Geospatial Tools I – Cartography and GIS	3
GEOG 280. Human Geography: The Cultural Landscape	3
Three additional geographic science courses	9-12
	19-22

## Integrated Science and Technology

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### Mission Statement

The Integrated Science and Technology Bachelors Program prepares graduates to excel in a complex, technological world by empowering them to become critical thinkers and lifelong learners able to provide multi-disciplinary solutions to scientific and technological challenges with sensitivity to social, ethical and global considerations.

The foundational concept of the ISAT Program, which distinguishes it from other science and technology based programs, is its integration of multiple disciplines within a student's four-year course of study. The unique integrative character of the program is carried by the curriculum content, pedagogy, and departmental culture.

### Goals

We measure our success by achieving the following 11 goals. ISAT graduates will be able to do the following:

- Apply and integrate mathematics, physical science, biological science, and technology.
- Apply sound experimental methodology.
- Understand the professional requirements for the acquisition and use of information and data.
- Work effectively in multidisciplinary teams.

- Solve technological problems and understand their societal implications.
- Understand and apply the principles of professional ethics.
- Communicate effectively on social, scientific and technical matters.
- Analyze science and technology within broader global, political, economic and social contexts.
- Become autonomous, self-directed learners who recognize the need for lifelong learning.
- Use the computer as an effective problem-solving tool.
- Examine a problem and assemble the tools and knowledge needed to solve it.

## Career Opportunities

The ISAT major prepares graduates for a wide variety of careers because of the breadth of science, technology, economic, and societal studies coupled with the integrative, problem-solving focus of the program. The program prepares students for a professional career and the majority of students enter the workforce upon graduation. However, a significant number choose to continue their education through a variety of graduate programs.

ISAT graduates have successfully built careers over a wide range of professions. Examples include technical and operational consulting, biotech lab research, network reliability and security improvement, energy and environmental policy development, information management, renewable energy development, manufacturing process development, and environmental management.

Some graduates start their own businesses, some work in small start-ups involved with new technology applications while others work in Fortune 500 companies. Graduates have also chosen to start their careers in other directions including government agencies, Peace Corps and other forms of public service, education, and politics.

Students who choose graduate studies have a wide range of options. ISAT graduates have successfully completed graduate studies in areas such as engineering, business, microbiology, environment, computer science, law, and medicine. The flexibility of the ISAT program allows students to select appropriate elective courses as they prepare for the graduate program of their choice.

## Co-curricular Activities and Organizations

- ISAT Honor Society
- Environmental Management, JMU Student Chapter of Air and Waste Management Association
- Association for Facilities Engineering, JMU Student Chapter
- Virginia Biotechnology Association, JMU Student Chapter
- Society of Automotive Engineers International, JMU Student Chapter
- Society of Manufacturing Engineering, JMU Student Chapter
- IEEE Computer Society, JMU Student Chapter
- Armed Force Communications and Electronics Association (AFCEA), JMU Student Chapter
- American Wind Energy Association, JMU Student Chapter

## Program Accreditation

The ISAT Bachelor's degree program is accredited by the Applied Science Accreditation Commission of Accreditation Board for Engineering and Technology (ABET).

## Degree and Major Requirements

### Bachelor of Science in Integrated Science and Technology

#### Degree Requirements

While completing the ISAT courses, the student will also pursue the university's general education curriculum that is required of all students and is a cornerstone of the education received by every student. The required ISAT courses are listed below. A total of 120 credit hours are required for graduation.

In addition, a grade equal to or higher than "C-" is required for ISAT 151, ISAT 152, and ISAT 251.

Required Courses	Credit Hours
Issues in Science and Technology I-V	17
Social Context of Technology and Science	6
Analytical Methods I-V	17
Holistic Problem Solving Spine	12
Strategic Sectors/Concentration	13-14
Concentration	12
Senior Thesis/Project	6
General Education courses and electives <sup>1</sup>	36-37
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

#### Major Requirements

The Bachelor of Science degree in integrated science and technology produces a graduate broadly acquainted with basic science, technology and social science. All students pursue a common program through their sophomore year that provides a foundation of science and an introduction to its technology applications. Studies are integrated and include mathematics, statistics, physics, chemistry, biology, knowledge-based systems, internet networking and security, environmental science, modern production, energy, and the role of science and technology in society. During their junior and senior years, all students pursue deeper study of strategically significant areas that include applied biotechnology, energy, environmental studies, engineering and manufacturing, information and knowledge management, and telecommunications, networking, and security. Each student selects a concentration in any of these areas and pursues additional study in the concentration culminating in a senior project. Students rely heavily upon the computer as a problem-solving tool throughout the curriculum, work in teams extensively and engage in laboratory experiences in the requisite sciences.

#### Issues in Science and Technology

This sequence of five courses engages students in the practice of science, both to motivate and to provide understanding of science and technology in the context of important current social issues. Current areas from which issues are selected are living systems, the environment, modern production, internet networking and security, and energy.

#### Social Context of Technology and Science

This two-course sequence introduces the student to the broader issues encountered in science and technology problem-solving, particularly social, ethical, economic and legal issues.

#### Analytical Methods

This sequence of five courses provides students with basic methods and tools for understanding and analyzing problems in science and technology. Subjects are taught in an integrated manner with applications as the unifying factor. Topics include calculus, elements of the physical sciences, statistics, project management, the computer, knowledge-based systems, and instrumentation and measurement.

#### Holistic Problem-Solving Spine

This four-course sequence integrates content from other ISAT B.S. courses into a holistic problem-solving framework. In the first two courses, students learn and apply systems thinking methodology to investigate, define and describe complex problems. In the second two courses, students practice the holistic problem-solving approaches to analyze and propose solutions for complex problem case studies that involve a mix of scientific, technological and societal elements. The segment culminates in the capstone experience, where students independently address a real-world complex problem.

#### Strategic Sectors in Science and Technology

Students complete two strategic sectors of either six or seven credits each. The strategic sectors, developed from national critical technologies lists, represent areas of current strategic importance in the world economy. The sectors are applied biotechnology, energy, environment, engineering/manufacturing, information/knowledge management and telecommunications, networking and security.

#### Concentration Requirements

Students are provided the opportunity to focus their program of study by taking four additional courses in a particular area of concentration. The current areas for a concentration are

- Applied Biotechnology
- Energy
- Engineering and Manufacturing
- Environment
- Information and Knowledge Management
- Telecommunications, Networking and Security

Students also have the option to tailor their area of concentration with the help and approval of their adviser.

#### Capstone Experience

Working as part of a team of students and interdisciplinary faculty, students will propose, develop, manage, analyze and report on a project that addresses a real-world problem. ISAT 490 begins the sequence by helping students identify an appropriate problem to investigate and assemble the appropriate team. ISAT 491 helps students write a complete proposal for the project. In ISAT 492 and ISAT 493, students complete the proposed work and prepare written and oral reports on their results.

## Recommended Schedule for Majors

### First Year

Fall Semester	Credit Hours
ISAT 190. Introduction to the B.S. in ISAT Degree Program	3
ISAT 112. Environmental Issues in Science and Technology	4
ISAT 151. Topics in Applied Calculus in ISAT	4
	11

Spring Semester	Credit Hours
ISAT 113. Biotechnology Issues in Science and Technology	4
ISAT 131. Technology, Science and Society	3
ISAT 152. Topics in Applied Physics in ISAT	4
	11

### Second Year

Fall Semester	Credit Hours
ISAT 211. Modern Production Issues in Science and Technology	3
ISAT 215. Issues in Telecommunications, Networking and Security	3
ISAT 231. Political Economy of Technology and Science	3
ISAT 251. Topics in Applied Statistics in ISAT	3
	12

Spring Semester	Credit Hours
ISAT 212. Energy Issues in Science and Technology	3
ISAT 252. Programming and Problem Solving	3
ISAT 253. Instrumentation and Measurement in ISAT	3
ISAT 290. Introduction to Systems Thinking for Complex Problems	3
	12

### Third Year

Fall Semester	Credit Hours
ISAT Strategic Sector I	3
ISAT Strategic Sector I Lab	1
ISAT Strategic Sector II	3
ISAT Strategic Sector II Lab (if required)	1
ISAT 390. Holistic Problem-Solving Workshop I	3
ISAT 490. Senior Capstone Project I	1
	11-12

Spring Semester	Credit Hours
ISAT Strategic Sector I	3
ISAT Strategic Sector II	3
ISAT Strategic Sector II Lab (if not completed)	1
ISAT 391. Holistic Problem-Solving Workshop II	3
ISAT 491. Senior Capstone Project II	1
	11

### Fourth Year

Fall Semester	Credit Hours
ISAT 492. Senior Capstone Project III	2
ISAT Concentration I	3
ISAT Concentration II	3
	8

Spring Semester	Credit Hours
ISAT 493. Senior Capstone Project IV	2
ISAT Concentration III	3
ISAT Concentration IV	3
	9

## Integrated Science and Technology Major with Pre-health Preparation

Students majoring in ISAT desiring to prepare for higher education in health careers (dentistry, optometry, medicine, pharmacy, physical therapy, veterinary) may waive some required ISAT courses if they take equivalent courses required by the pre-health programs.

Required Courses for Pre-Health	ISAT Courses Waived
BIO 114, BIO 214	ISAT 113
CHEM 131, CHEM 132	ISAT 112
PHYS (140, 150) or (240, 250)	ISAT 152, ISAT 212
MATH 205, 235 or 231 and 232	ISAT 151
MATH 220	ISAT 251

These equivalencies are not generally granted outside of a pre-health preparation program. Students who begin a preparation but do not finish it may be able to have some of the courses waived. Contact Paul Henriksen, Coordinator for Students, for more information.

## Minor Requirements

### Integrated Science and Technology Minor

The minor in ISAT mirrors the major by having a breadth component and a depth component. The breadth component is satisfied through nine credit hours in Issues in Science and Technology and the Foundations of Instrumentation and Measurement. The depth component is satisfied through focused study in a concentration.

Students should note that many courses have ISAT prerequisites outside the minor (although equivalents to ISAT prerequisite courses will be accepted). In planning a sequence of courses for the minor, students are encouraged to meet with an ISAT adviser to ensure that all needed prerequisites will be taken in due course. In addition, before a student pursuing an ISAT minor can take any ISAT course, a grade equal to or higher than "C-" is required for all ISAT foundation courses that are prerequisites for another required ISAT foundation course.

The minimum requirements for the minor in ISAT are as follows:

Courses	Credit Hours
Choose three courses from the following:	9-10
ISAT 112. Environmental Issues in Science and Technology	
ISAT 113. Biotechnology Issues in Science and Technology	
ISAT 211. Modern Production Issues in Science and Technology	
ISAT 212. Energy Issues in Science and Technology	
ISAT 253. Instrumentation and Measurement in ISAT	
Choose one of the following sequences:	6-8
Energy (7 credits)	
ISAT 301. Instrumentation and Measurement in Energy (1 credit)	
ISAT 310. Energy Fundamentals I (3 credits)	
ISAT 311. Role of Energy in Modern Society (3 credits)	
Environment (7 credits)	
ISAT 320. Fundamentals of Environmental Science and Technology I (4 credits)	
ISAT 321. Fundamentals of Environmental Science and Technology II (3 credits)	
Engineering and Manufacturing (7 credits)	
ISAT 303. Instrumentation and Measurement in Engineering and Manufacturing (1 credit)	
ISAT 330. Manufacturing Systems: Techniques and Technologies (3 credits)	

ISAT 331. Automation in Manufacturing (3 credits)	
Information and Knowledge Management (6 credits)	
ISAT 340. Software Development (3 credits)	
ISAT 341. Modeling and Simulation (3 credits)	
Applied Biotechnology (7 credits)	
ISAT 305. Instrumentation and Measurement in Biotechnology (1 credit)	
ISAT 350. Biotechnology for the New Millennium I (3 credits)	
ISAT 351. Biotechnology for the New Millennium II (3 credits)	
Telecommunications, Networking, and Security (7 credits)	
ISAT 360. Introduction to Networking and Security (3 credits)	
ISAT 361. Fundamentals of Data Communications and Networking II (3 credits)	
ISAT 306. Instrumentation and Measurement in Data Communications and Networking (1 credit)	
One additional Integrated Science and Technology course at the 300 or 400 level	3
	18-21

## Intelligence Analysis

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### Mission Statement

The IA program will equip students to evaluate data from diverse sources and objectively assess the most significant implications for decision-making in a way that goes beyond other existing estimates of the situation and its significance using an integrated skill set in cognitive, computational, contextual and communicative methods, exemplify the character traits that define an effective and ethical analyst and employ the conceptual understanding of the underlying theoretical frameworks necessary to adapt and apply these methods to any type of problem.

The IA program's core values are versatility, real-world relevance, methodological sophistication, academic rigor, intellectual community, ethical and professional practice, and external engagement

### Career Opportunities

IA students can find employment in an array of government agencies (both civilian and military), federal contracting and consulting firms, select U.S. and multinational corporations, and state and local law enforcement.

### Admission to Intelligence Analysis

#### Currently Enrolled Students

Admission to JMU does not guarantee admission to the intelligence analysis major. The IA program will strive to accommodate all interested students who adopt IA upon admission to JMU or who change soon after in its first three required courses during the fall semester of sophomore year. The size of the cohort will be limited beyond that semester.

To be eligible to apply for full admission to the major, students must complete the following courses with a grade of "C" or better:

- IA 200. Introduction to National Security Intelligence
- IA 240. Technology Applications in a Networked World
- IA 261. Hypothesis Testing
- MATH 220. or ISAT 251. Statistics

Students will be admitted on the competitive basis of their combined performance in the first semester's three required IA courses.

### Transfer Students

Transfer students must also take the three required courses during their fall semester, as these courses are not offered in the spring. It is recommended that transfer students talk with an IA adviser regarding the selection of a minor that can be useful for the major if they begin during spring semester.

## Degree and Major Requirements

### Bachelor of Science in Intelligence Analysis

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
IA foundations and core courses	45
IA concentration courses	12
Electives	22
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill.

General Education Courses	Credit Hours
Cluster One	9
Cluster Two (REL 101 recommended)	9
Cluster Three (ISAT 251 or MATH 220 required)	10
Cluster Four (POSC 200 or POSC 225 recommended)	7
Cluster Five (PSYC 101 recommended)	6
	41

### IA Foundation and Core Courses

Foundation and Core Courses	Credit Hours
IA Foundation Courses	18
IA 200. Introduction to National Security Intelligence	
IA 210. Introduction to Global Competitive Intelligence	
IA 400. Cognitive Science and Information Analysis	
IA 405. Ethics, Law and Information Analysis	
IA 440. Seminar in Information Analysis	
IA 450. Capstone Project in Information Analysis	
Technology and Tools Core Courses	15
IA 240. Technology Applications in a Networked World	
IA 241. Introduction to Programming and Data Science	
IA 340. Data Mining, Modeling and Knowledge Discovery	
IA 341. System Dynamics Modeling, Simulation and Analysis	
IA 342. Visualization Methods, Technologies and Tools for Information Analysis	
Advanced Critical Thinking in Intelligence Core Courses	12
IA 261. Hypothesis Testing	
IA/PHIL 312. Causal Analysis	
IA/PHIL 313. Counterfactual Reasoning	
IA/PHIL 314. Strategy Assessment	
	45

### Concentrations

Students must complete either the national security concentration or the competitive intelligence concentration. With the approval of an IA adviser, students may, in special cases, design their own custom concentration of four 300-level or above courses that fit together thematically and support the educational objectives of the IA program.

## National Security

To complete this concentration, students must take four of the following courses. IA 480 may be repeated multiple times toward this requirement if it has a different topic each time.

<b>National Security Courses</b>	<b>Credit Hours</b>
Choose four of the following	12
IA 363. Apocalypticism, Religious Terrorism and Peace	
IA 459. Awareness and Understanding of Chemical, Biological and Radiological Weapons	
IA 460. All Hazards Response and Management Systems	
IA 480. Selected Topics in Intelligence Analysis	
GEOG 375. Political Geography	
One course approved by an IA program adviser	
	12

## Competitive Intelligence

To complete this concentration, 12 credits must be selected from either computer information systems perspective courses or global economics perspective courses.

<b>Required Courses</b>	<b>Credit Hours</b>
Computer Information Systems Perspective Courses <sup>1</sup>	9
CIS 304. Information Technology Enterprise Integration	
CIS 330. Database Design and Application	
CIS 454. Systems Analysis and Design	
Select one of the following:	3
CIS 424. Computer Security Management	
CIS 463. Business Intelligence	
CIS 411. Computer Forensics for Business	
Other 300-level or above CIS course approved by an IA adviser	
	12

<sup>1</sup> IA majors seeking to complete the computer information systems perspective version of the concentration must meet all the CIS minor program requirements. Consult with the CIS minor program regarding what requirements must be fulfilled to take these CIS courses.

OR

<b>Required Courses</b>	<b>Credit Hours</b>
Global Economic Perspective Courses	6
ECON 200. Introduction to Macroeconomics	
ECON 201. Principles of Economics (Micro)	
Select two of the following:	6
ECON 312. Comparative Economic Systems	
ECON 327. Game Theory	
ECON 365. Economic Development	
ECON 370. International Trade and Trade Policies	
ECON 372. International Finance and Payments	
Other 300-level or above ECON course approved by an IA adviser	
	12

## Additional IA Courses, Requirements and Recommendations

IA 280. Selected Projects in Information Analysis (not a required course)  
 IA 480. Selected Topics in Information Analysis (not a required course)  
 ISAT 251. Analytic Methods III: Introduction to Statistical Reasoning and Data Analysis  
 MATH 220. Elementary Statistics  
 These are General Education Cluster Three courses required for the IA major. They will be recorded as General Education, not IA, credits. All IA majors will be encouraged to do a not-for-credit internship in intelligence analysis.

## Cross Disciplinary Major and Minor Programs

ISAT participates in several cross disciplinary programs. These include a major in biotechnology and minors in:

- Environmental Information Systems
- Environmental Management
- Environmental Science
- Environmental Studies
- Materials Science
- Science, Technology and Society
- Telecommunications

# Department of Interdisciplinary Liberal Studies

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## Professor

G. F. Linder

## Associate Professors

M. Chamberlin, P. Frana, K. Wright

## Assistant Professors

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Interdisciplinary Liberal Studies (IDLS) is the undergraduate major for students pursuing teaching licensure in inclusive early childhood education (early childhood education, preK-3 and early childhood special education, birth to five), elementary education (PreK-6), middle grades education (6-8) and special education (K-12). The IDLS major meets Virginia teacher competencies by providing breadth and integration across the content areas of English and language arts, history, social sciences, mathematics, natural sciences, and technology.

IDLS requirements vary by education program, as outlined in this section. Students declaring the IDLS major must also declare one of the teacher education programs listed. Detailed information on teacher education programs is in the College of Education section of this catalog.

In the unusual circumstance that a student exits the education licensure pre-professional program late in his/her college career, the IDLS director may permit the student to complete the IDLS degree with the addition of an appropriate minor.

## Degree and Major Requirements

### Bachelor of Science in Interdisciplinary Liberal Studies for Inclusive Early Childhood Education, Elementary Education and Special Education Licensure

#### Degree Requirements

Required Courses	Credit Hours
IDLS and General Education core	53
Remaining General Education	6
IDLS upper-level concentration	21
Education program	35-47
Elective	0-5
	120

#### Core requirements

Core Requirements	Credit Hours
<i>Language Arts and Communication</i>	
Writing	3
WRTC 103. Critical Reading and Writing	
Oral Communication (choose one)	3
SCOM 121. Fundamental Communication: Presentations	

SCOM 122. Fundamental Human Communication: Individual Presentations	
SCOM 123. Fundamental Human Communication: Group Presentations	
Literature (choose one)	3
ENG 235. Survey of English Literature: From Beowulf to the 18th Century	
ENG 236. Survey of English Literature: 18th Century to Modern	
ENG 247. Survey of American Literature: From the Beginning to the Civil War	
ENG 248. Survey of American Literature: From the Civil War to the Modern Period	
ENG 239. Studies in World Literature	
ENG 260. Survey of African-American Literature	
<i>History/Social Sciences</i>	
Global History (both required)	6
HIST 101. World History to 1500	
HIST 102. World History Since 1500	
U.S. History	4
HIST 225. U.S. History	
Government	4
POSC 225. U.S. Government	
Economics (choose one)	3
ECON 200. Introduction to Macroeconomics	
ECON 201. Principles of Economics (Micro)	
Geography (choose one)	3
GEOG 200. Geography: The Global Dimension	
GEOG 280. Human Geography: The Cultural Landscape	
ANTH 195. Cultural Anthropology	
Psychology	3
PSYC 160. Life Span Human Development	
Health (choose one)	3
KIN 100. Lifetime Fitness and Wellness	
HTH 100. Personal Wellness	
<i>Mathematics</i>	
Fundamentals of Math (all required)	9
MATH 107. Fundamentals of Math I	
MATH 108. Fundamentals of Math II	
MATH 207. Fundamentals of Mathematics III	
<i>Natural Sciences</i>	
ISCI 171. Earth and Planetary Science for Teachers	3
ISCI 172. Physical Science for Teachers	3
ISCI 173. Life and Environmental Science for Teachers	3
Upper Level concentration requirement	21

## IDLS Concentration

In addition to the IDLS core, students will complete an IDLS concentration to provide depth and integration beyond core requirements. The four concentration options are noted below, with each option requiring seven upper-level courses.

- Option 1: Math and Science and Technology. Take four courses in math and three in science and technology, or take three in math and four in science and technology.
- Option 2: Humanities and Social Sciences. Choose a humanities and social science track (1-7) and take six courses in that track, plus the IDLS 400 capstone.
- Option 3: Math and Humanities and Social Sciences. Choose a humanities and social science track (1-7). Take three courses in the humanities and social sciences track and four in math, or take four in the humanities and social sciences track and three in math. The humanities and social sciences courses can include IDLS 400, but it is not required.
- Option 4: Science and Technology and Humanities and Social Sciences. Choose a humanities and social science track (1-7). Take three courses in the humanities and social sciences track and four in science and technology, or take four in the humanities and social sciences track and three in science and technology. The humanities and social sciences courses can include IDLS 400, but it is not required.

The current list of concentration courses is available on the IDLS website.

## Bachelor of Science in Interdisciplinary Liberal Studies for Middle Education Licensure

Required Courses	Credit Hours
IDLS and General Education core	46
IDLS upper-level concentration	36-42
Education program	32
Elective	0-6

120

The IDLS middle education curriculum consists of 46 hours of core requirements and 36-42 hours in the content concentrations, depending upon which concentrations are selected. Students will select two concentrations from four: science, mathematics, social studies and language arts. Mathematics and science concentrations are 18 hours. Language arts and social studies concentrations are 21 hours. Any combination of concentrations will satisfy the teacher licensure endorsement requirements for middle grades licensure in Virginia. The middle grades curriculum of IDLS is open only to middle grades licensure students.

## Core Requirements for IDLS Middle Education

Students follow the General Education planning guide for their catalog year, and complete these specific IDLS core requirements:

Cluster 2: Must select HIST 102 from Group One

Cluster 3: Must select Track 2 (the ISCI 17X series); must

complete the series with ISCI 173; must take MATH 108 in addition to MATH 107

Cluster 4: Must select ECON 200

Cluster 5: Must select PSYC 160

## Middle Education Concentration Options

Middle education students will complete the required courses for any two of the four concentration areas: science, mathematics, language arts and social studies. IDLS middle education concentrations provide depth and integration beyond core requirements. The current list of concentration courses is available on the IDLS website.

## IDLS Advisement

IDLS majors are assigned two advisers, one to guide them through teacher education program requirements and another to guide them through IDLS major requirements. Students should check with both advisers regularly to ensure timely graduation. These advisers are assigned when students officially declare their education program and IDLS major. To declare, students must acquire education and IDLS academic unit head signatures on a "Change or Declaration of Major" form.

## Teacher Licensure

To be eligible for teacher licensure in inclusive early childhood, elementary, middle school and special education, students graduating with the Bachelor of Science degree in IDLS must complete the appropriate teacher education program at the undergraduate and graduate (Master of Arts in Teaching) levels.

# International Affairs Program

*Dr. John Hulsej, Coordinator*

Phone: (540) 568-7854

Location: Miller Hall, Room 2165

Email: [hulsejw@jmu.edu](mailto:hulsejw@jmu.edu)

Website: <http://www.jmu.edu/polisci/intlaffairs.html>

## Mission

The major in international affairs provides a cross disciplinary understanding of foreign cultures and societies, the dynamics of world politics and other nations' world views and their consequent actions.

A liberal arts program (B.A. degree), the international affairs major combines cross disciplinary, intercultural and multilingual education. It offers students a choice between two concentrations: international relations and comparative study. The courses for these concentrations stem from a broad variety of traditional liberal studies disciplines. The major also allows students to incorporate a minor in Africana, Asian, Latin American, Middle Eastern, Modern European or Russian studies, as well as the studies abroad programs. Because of limited course offerings, certain specializations may require language training from another university.

## Degree and Major Requirements

### Bachelor of Arts in International Affairs

International affairs is a 50-credit hour major, with a 32-credit common core and 18 credits of concentration study. For further information and a complete list of the distribution requirements and eligible courses, contact the coordinator.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses) <sup>3</sup>	3
University electives	12-26
Major requirements (listed below)	50
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232), or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test. The international affairs major requires an additional year of language study. That is, students must have three years of a foreign language appropriate to their course of study in the major. Students majoring in international affairs who use proficiency in a native language to meet the INTA language requirement must make the following substitutions for the two 300-level foreign language courses: AMST 200 and one of the following courses: HIST 225, ENG 247 or ENG 248. Such students who have a diploma from a U.S. high school may take six credits of any foreign language, at any level, instead of the above two courses. These courses must focus on grammar, oral and written communication; they cannot be literature, cinema or civilization courses.

3 If students have taken a PHIL course to meet their General Education requirements, they must take an additional course to meet the B.A. degree philosophy requirement. PHIL 120 and PHIL 150 cannot be used to fulfill the B.A. philosophy requirement.

### Major Requirements

Students may choose either the comparative study or international relations concentration. The international affairs

major requires that all students complete a common core. Students should be aware that it is not always possible to offer courses on their regular rotation and that new courses may be added and existing ones deleted. Therefore, key requirements should not be left until just before graduation. Any course substitutions must be approved by the international affairs coordinator in consultation with other faculty members.

Core Courses	Credit Hours
ECON 201. Principles of Economics (Micro)	3
ECON 270. International Economics <sup>1</sup>	3
ECON 200. Introduction to Macroeconomics	3
INTA 295. Cross-National Research Skills <sup>2</sup>	4
INTA 489. Seminar in International Affairs <sup>3</sup>	4
POSC 230. International Relations	3
POSC 240. Comparative Politics	3
Choose one of the following: <sup>4</sup>	3
HIST 330. U.S. Diplomatic History	
POSC 370. U.S. Foreign Policy	
FL 300. Grammar and Communication <sup>5</sup>	3
FL 320. Oral and Written Communication <sup>5</sup>	3

32

1 Students should complete these core economics requirements before enrolling in upper-level economics courses. Students double-majoring in economics and international affairs may substitute ECON 370 for ECON 270 to meet their core requirement.

2 Students should note that MATH 220 is a prerequisite for INTA 295. If taken in the summer from an INTA faculty member, POSC 295 will count as INTA 295.

3 This course fulfills the College of Arts and Letters writing-intensive requirement for the major. Prerequisites: Completion of all courses in the core requirement of the major and senior standing.

4 Students in the international relations concentration must count POSC 370 in the core. HIST 330 must be taken as an international relations requirement (listed under the international relations concentration requirements). In other words, students who are following the international relations concentration must take both POSC 370 and HIST 330.

5 Students must be proficient at the third-year level of a foreign language. In most languages this will require the completion of courses numbered 300 and 320. Some languages may not use this course numbering. In this instance, students must take two 300-level courses that focus on grammar, oral and written communication. The second 300-level course may not be a literature, cinema or civilization course. Some languages cannot be completed through the 300 level at JMU. Students studying these languages may have to complete course work during the summer or abroad at a specialized language program. Students should consult with the Department of Foreign Languages, Literatures and Cultures on this point. Each student's foreign language must be appropriate for their track. French is acceptable for the Africa and Middle East tracks.

## Concentrations

### International Relations Concentration

The following international relations, cross area and area courses are required in addition to the core courses listed under Major Requirements. Students in the international relations concentration must complete the requirements for all four headings.

Students may use three credits of INTA 301W for cross area, area or international relations credit. INTA 301W will always count as a political science course. The precise manner in

which INTA 301W will count toward the major will be determined in consultation between students wishing to take INTA 301W and the international affairs coordinator.

<b>Cross-Area Courses</b>	<b>Credit Hours</b>
Complete one course:	3
Anthropology	
ANTH 195. Cultural Anthropology	
ANTH 340. The Invention of Race	
Communication Studies	
SCOM 248. Intercultural Communication	
Economics	
ECON 312. Comparative Economic Systems	
Geography	
GEOG 280. Human Geography: The Cultural Landscape	
GEOG 300. Population Geography	
GEOG 325. Environmental Ethics	
GEOG 344. Economic Geography and Development Issues	
GEOG 345. Geography of Poverty	
GEOG 380. Cultural Geography	
Political Science	
POSC 340. Political Development in the Third World	
POSC 347. Comparative Public Policy	
POSC 348. The Politics of Cultural Pluralism	
POSC 349. Comparative Political Behavior	
POSC 371. Topics in Comparative Politics <sup>1</sup>	
Sociology	
SOCI/ANTH 313. Processes of Social and Cultural Change	
SOCI 336. Race and Ethnicity	
SOCI/SOWK 348. Introduction to Developing Societies	
	3

<sup>1</sup> When course topic is appropriate for the chosen concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

<b>Area Courses</b>	<b>Credit Hours</b>
Complete one course:	3
Africa	
HIST 263. Africa	
HIST 361. Class and Ethnicity in Africa	
HIST 470. Modern Africa	
POSC 353. African Politics	
Asia	
HIST 274. Modern East Asia, 1600 to the Present	
HIST 371. India	
HIST 375. History of Modern Southeast Asia	
HIST 377. History of Korea	
HIST 378. China in the Modern World	
HIST 460. Modern Japan	
POSC 355. East Asian Politics	
Europe	
HIST 301. European Military History	
HIST 321. European Women's History	
HIST 384. England and the Empire-Commonwealth	
HIST 386. Russia since 1855	
HIST 475. Modern Russia	
HIST 478. Eastern Europe	
HIST 486. Europe since 1914	
POSC 337. Politics of Russia and the Former Soviet Union	
POSC 344. Politics of the European Union	
POSC 345. Politics of Western Europe	
POSC 346. Politics of Central and Eastern Europe	
Latin America	
ANTH/HIST 436. Afro-Latin America	
HIST 444. Revolution and Social Change in Latin America	
HIST 445. Latin America and the United States	
HIST 447. South America	
POSC 350. Latin American Politics	

The Middle East  
 HIST 270. Modern Middle East  
 HIST 473. The Islamic World  
 HIST 485. Colonialism in the Greater Middle East  
 POSC 354. Politics of the Middle East

3

<b>International Relations Courses</b>	<b>Credit Hours</b>
Complete four courses: <sup>1</sup>	12
(These courses must come from at least three fields of study. One of these courses must be HIST 330. Potential fields are listed below.)	
Economics	
ECON 365. Economic Development	
ECON 370. International Trade and Trade Policies	
ECON 372. International Finance and Payments	
Geography	
GEOG 375. Political Geography	
History	
HIST 330. U.S. Diplomatic History <sup>2</sup>	
HIST 456. The Global Economy and Nationalism	
Humanities	
HUM 252. Gandhi, Nonviolence and Global Transformation <sup>3</sup>	
Justice Studies	
JUST/POSC 331. Human Rights in Theory and Practice	
JUST/POSC 372. Ethics and International Politics	
JUST 375. Genocide in the 20th Century	
JUST 377. Global Futures	
JUST/POSC 392. Peace Studies	
Political Science	
POSC 361. Topics in International Politics <sup>4</sup>	
POSC 395. International Law	
POSC 396. International Organizations	
POSC 397. The Politics of International Economic Relations	
POSC 398. Simulations <sup>4</sup>	
POSC 430. International Security and Conflict Management	
POSC 435. International Terrorism	
POSC 458. International Political Analysis	
Religion	
REL/IA 363. Apocalypticism, Religious Terrorism and Peace	

12

<sup>1</sup> No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

<sup>2</sup> HIST 330 must be one of the courses taken to fulfill the international relations courses for the international relations concentration.

<sup>3</sup> HUM 252 will only count here when the topic is "Gandhi, Nonviolence and Global Transformation."

<sup>4</sup> When course topic is appropriate for the chosen concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

## Comparative Study Concentration

The following international/cross area courses and area courses are required in addition to the core courses listed under Major Requirements. Students in the comparative study concentration must complete the requirements for all three areas. Students may use three credits of INTA 301W for international/cross-area or area credit. INTA 301W will always count as a political science course. The precise manner in which INTA 301W will count toward the major will be determined in consultation between students wishing to take INTA 301W and the international affairs coordinator.

**International and Cross-Area Courses** **Credit Hours**Complete two courses:<sup>1</sup> 6

(Each course must come from a different field of study. Potential fields are listed below.)

**Cross-Cultural**

- ANTH 195. Cultural Anthropology
- SOCI/ANTH 313. Processes of Social and Cultural Change
- SOCI 336. Race and Ethnicity
- SOCI/SOWK 348. Introduction to Developing Societies
- ANTH 340. The Invention of Race
- SCOM 248. Intercultural Communication

**Economics<sup>2</sup>**

- ECON 312. Comparative Economic Systems
- ECON 365. Economic Development

**Geography**

- GEOG 280. Human Geography: The Cultural Landscape
- GEOG 300. Population Geography
- GEOG 325. Environmental Ethics
- GEOG 344. Economic Geography and Development Issues
- GEOG 345. Geography of Poverty
- GEOG 375. Political Geography
- GEOG 380. Cultural Geography

**History**

- HIST 330. U.S. Diplomatic History
- HIST 456. The Global Economy and Nationalism

**Humanities**

- HUM 252. Gandhi, Nonviolence and Global Transformation<sup>3</sup>

**Political Science**

- POSC 340. Political Development in the Third World
- POSC 347. Comparative Public Policy
- POSC 348. The Politics of Cultural Pluralism
- POSC 349. Comparative Political Behavior
- POSC 361. Topics in International Politics<sup>4</sup>
- POSC 370. U.S. Foreign Policy
- POSC 371. Topics in Comparative Politics<sup>4</sup>
- POSC/JUST 392. Peace Studies
- POSC 395. International Law
- POSC 396. International Organizations
- POSC 397. The Politics of International Economic Relations
- POSC 398. Simulations<sup>4</sup>
- POSC 430. International Security and Conflict Management
- POSC 458. International Political Analysis

6

1 No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

2 Students double-majoring in economics and international affairs may count ECON 372 (International Finance and Payments) as an international and cross-area course, in the economics box.

3 HUM 252 will only count here when the topic is "Gandhi, Nonviolence and Global Transformation."

4 When course topic is appropriate for the chosen concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

## Area Requirements

Students may choose from five tracks to fulfill the area requirement: Africa, Asia, Europe, Latin America or the Middle East. Students must complete four courses for their specific area. These courses must come from at least three fields of study. The potential fields are listed below. At least one of these courses must be a history course. Students with advanced language skills may also enroll in a 400-level literature course to meet the culture requirement. The following lists the potential courses for each of these areas.

## Africa Track

**Area Courses****Credit Hours**Complete four courses:<sup>1</sup> 12

(These courses must come from at least three fields of study. Potential fields are listed below.)

**Africana Studies**

- AFST 200. Introduction to Africana Studies

**Culture**

- ANTH 280. Peoples and Cultures of Sub-Saharan Africa
- ANTH 395. Special Topics in Anthropology<sup>2</sup>
- ARTH 210. African Art and Culture in the Humanities
- ARTH 310. African Art: The Sahara and Northern Sahel
- ARTH 312. African Art: Sub-Saharan
- ARTH 419. Topics in African Art
- ARTH 424. Arts of Ancient Egypt
- ENG 432. Studies in African Literature
- REL 300. Selected Topics in Religion<sup>2</sup>
- REL 305. Islamic Religious Tradition
- REL 330. African and African-American Religion
- SOCI/SOWK 348. Introduction to Developing Societies

**Economics**

- ECON 365. Economic Development

**Geography**

- GEOG 335. Geography of Africa<sup>3</sup>

**History**

- HIST 263. Africa
- HIST 341. Selected Themes in World History<sup>2</sup>
- HIST 361. Class and Ethnicity in Africa
- HIST/ANTH 436. Afro-Latin America
- HIST 470. Modern Africa
- HIST 473. The Islamic World
- HIST 489. Selected Topics in World History<sup>2</sup>

**Political Science**

- POSC 353. African Politics
- POSC 371. Topics in Comparative Politics<sup>2</sup>

12

1 No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

2 May be taken only when the subject matter is appropriate for this geographic concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

3 This course is found in the university catalog but is taught very infrequently. As such, students should not count on this course being available for scheduling in a timely fashion.

The following course is taught abroad only and is accepted for culture credit in the Africa track: ANTH 391. Study Abroad (in Kenya only)

## Asia Track

**Area Courses****Credit Hours**Complete four courses:<sup>1</sup> 12

(These courses must come from at least three fields of study. Potential fields are listed below.)

**Culture**

- ANTH 295. Peoples and Cultures of East Asia
- ANTH 395. Special Topics in Anthropology<sup>2</sup>
- ARTH 430. Far Eastern Art
- ENG 378. Studies in South Asian Literature
- REL 300. Selected Topics in Religion<sup>2</sup>
- REL 310. Rethinking Order and Chaos: An Introduction to Hinduism
- REL 312. Religions of East Asia
- REL 316. Topics in Hinduism
- PHIL/REL 385. Buddhist Thought
- REL 410. Dharma/Adharma: Hindu Ethical Reasoning

**Geography**

- GEOG 334. Geography of East and Southeast Asia<sup>3</sup>

## History

- HIST 274. Modern Asia
- HIST 341. Selected Themes in World History<sup>2</sup>
- HIST 371. India
- HIST 372. Afghanistan in Regional and Global Systems
- HIST 375. History of Modern Southeast Asia
- HIST 377. History of Korea
- HIST 378. China in the Modern World
- HIST 379. Family and Gender in East Asia
- HIST 460. Modern Japan
- HIST 489. Selected Topics in World History<sup>2</sup>

## Political Science

- POSC 355. East Asian Politics
- POSC 371. Topics in Comparative Politics<sup>2</sup>

12

1 No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

2 May be taken only when the subject matter is appropriate for this geographic concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

3 This course is found in the university catalog but is taught very infrequently. As such, students should not count on this course being available for scheduling in a timely fashion.

## Europe Track

### Area Courses

### Credit Hours

Complete four courses:<sup>1</sup> 12

(These courses must come from at least three fields of study.

Potential fields are listed below. All students in this track must complete POSC 344. Politics of the European Union.)

## Political Science

- POSC 344. Politics of the European Union
- POSC 337. Politics of Russia and the Former Soviet Union<sup>3</sup>
- POSC 345. Politics of Western Europe
- POSC 346. Politics of Central and Eastern Europe
- POSC 371. Topics in Comparative Politics<sup>2</sup>

## Culture

- ARTH 206. Survey of World Art II: Renaissance to Modern
- ENG 340. Modern British and Irish Literature
- ENG 341. Contemporary British Novel
- ENG 375. Introduction to Anglo-Irish Literature
- ENG/FR 435. Studies in French Literature
- ENG 436. Studies in German Literature
- ENG 437. Studies in Italian Literature
- ENG 438. Studies in Russian Literature
- FL 446. Special Topics in Literature<sup>2</sup>
- FL 447. Special Topics in Civilization and Culture<sup>2</sup>
- FR 308. Contemporary French Civilization
- FR 375. Business in Society in France
- FR 425. Twentieth Century French Literature
- FR 465. French Cinema, 1930-1980
- FR 466. Contemporary French Cinema
- GER 308. Contemporary German Civilization
- GER 425. Modern German Literature
- GER 465. German Cinema
- ITAL/HIST 308. Contemporary Italian Civilization
- ITAL 375. Business and Society in Italy
- ITAL 425. Modern Italian Literature
- ITAL 465. Italian Cinema
- RUS 266. Contemporary Russian Literature in Translation
- RUS 308. Introduction to Russian Civilization
- RUS 405. Russian Literature of the 19th Century
- RUS 406. Russian Literature of the 20th Century
- SPAN 307. Spanish Civilization
- SPAN 390. Spanish Poetry of the 20th Century
- SPAN 405. Spanish Novels of the 19th and 20th Centuries
- SPAN 406. Spanish Drama of the 19th and 20th Centuries

SPAN 460. Postwar Literature in Spain

## Economics

ECON 301. Economies in Transition

## Geography

GEOG 332. Geography of Europe<sup>3</sup>

GEOG 333. Geography of Russia and the Former Soviet Union

## History

- HIST 301. European Military History
- HIST 321. European Women's History
- HIST 341. Selected Themes in World History<sup>2</sup>
- HIST 382. Europe in the 20th Century
- HIST 384. England and the Empire-Commonwealth
- HIST 386. Russia since 1855
- HIST 388. Germany since 1871
- HIST 462. The Rise and Fall of Nazi Germany, 1918-1945
- HIST 475. Modern Russia
- HIST 478. Eastern Europe
- HIST 486. Europe since 1914
- HIST 487. World War II
- HIST 489. Selected Topics in World History<sup>2</sup>

12

1 No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

2 May be taken only when the subject matter is appropriate for this geographic concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

3 This course is found in the university catalog but is taught very infrequently. As such, students should not count on this course being available for scheduling in a timely fashion.

The following courses are taught abroad only and are accepted for culture credit in the Europe track:

- ARTH 313. Masterpieces of Italian Renaissance Art (Semester in Florence only)
- ARTH 314. Masterpieces of Spanish Art (Semester in Salamanca only)
- ARTH 316. Masterpieces of British Art (Semester in London only)

## Latin America Track

### Area Courses

### Credit Hours

Complete four courses:<sup>1</sup> 12

(These courses must come from at least three fields of study. Potential fields are listed below.)

## Culture

- ANTH 265. People and Cultures of Latin America and the Caribbean
- ANTH 395. Special Topics in Anthropology<sup>2</sup>
- ENG 431. Studies in Caribbean Literature
- ENG/SPAN 434. Latin American Literature in Translation
- SPAN 308. Latin American Civilization
- SPAN 385. Latin American Drama and Short Stories
- SPAN 395. Latin American Poetry of the 20th Century
- SPAN 408. Aspects of Latin American Civilization
- SPAN 415. The Spanish-American Novel
- SPAN 446. Special Topics in Spanish Literature<sup>2</sup>
- SPAN 447. Special Topics in Spanish Civilization and Culture<sup>2</sup>
- SPAN 485. Business and Society in Latin America

## Geography

GEOG 337. Geography of Latin America<sup>3</sup>

## History

- HUM 252. Latin American Cultures<sup>4</sup>
- HIST 341. Selected Themes in World History<sup>2</sup>
- ANTH/HIST 436. Afro-Latin America
- HIST 437. Latin America and Latin Americans Through Film
- HIST 444. Revolution and Social Change in Latin America
- HIST 445. Latin America and the United States
- HIST 447. South America
- HIST 489. Selected Topics in World History<sup>2</sup>

## Political Science

POSC 350. Latin American Politics

POSC 371. Topics in Comparative Politics<sup>2</sup>

12

1 No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

2 May be taken only when the subject matter is appropriate for this geographic concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

3 This course is found in the university catalog but is taught very infrequently. As such, students should not count on this course being available for scheduling in a timely fashion.

4 HUM 252 will only count here when the topic is Latin American Cultures.

## Middle East Track

### Area Courses

### Credit Hours

Complete four courses:<sup>1</sup> 12

(These courses must come from at least three fields of study. Potential fields are listed below.)<sup>1</sup>

#### Culture

ANTH 395. Special Topics in Anthropology<sup>2</sup>

ARTH 332. Islamic Art and Architecture

ARTH 424. Arts of Ancient Egypt

ARAB 446. Special Topics in Arabic Literature<sup>2</sup>

ARAB 447. Special Topics in Arabic Civilization and Culture<sup>2</sup>

ENG 433. Studies in Arabic Literature

REL 300. Selected Topics in Religion<sup>2</sup>

REL 305. Islamic Religious Traditions

REL 320. Judaism

REL 350. Islamic Law and Society

SOCI 342. Muslim Movements in the Middle East

SOCI/SOWK 348. Introduction to Developing Societies

#### Economics

ECON 365. Economic Development

#### History

HIST 270. Modern Middle East

HIST 341. Selected Themes in World History<sup>2</sup>

HIST 473. The Islamic World

HIST 485. Colonialism in the Greater Middle East

HIST 489. Selected Topics in World History<sup>2</sup>

#### Political Science

POSC 340. Political Development in the Third World

POSC 354. Politics of the Middle East

POSC 371. Topics in Comparative Politics<sup>2</sup>

12

1 No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

2 May be taken only when the subject matter is appropriate for this geographic concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

## Internships

A maximum of three credits in the major may be earned through an internship. Students must consult with the international affairs coordinator PRIOR to doing an internship to check on its applicability to the major.

## Study Abroad and Washington Semester

Website: <http://www.jmu.edu/polisci/washington.shtml>

Many of the courses available to students through JMU's Office of International Programs and the Washington Semester program can be used to fulfill requirements in the INTA major. Students planning to go abroad should keep this in mind in working out their schedules and must consult the INTA coordinator for course approvals and substitutions.

If you have questions about the Washington Semester, review the program website and contact the program director, Dr. David Jones.

# Department of International Business

*Dr. Marion M. White, Director*

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## Professors

I. Clarke, S. Elwood, S. Gallagher, R. Horn, Q. Liu, R. Jerome, M. Rosser

## Associate Professors

H. Sono, M. White

## Assistant Professor

N. Cavusoglu

## Lecturers

D. Parker, D. Zisk

## Mission

The mission of the Program of International Business is to provide nationally competitive undergraduate education in the study of international business. The program is cross disciplinary and designed to prepare students for participation in organizations that require a broad business perspective, applicable skills in global business and an understanding of the complexity of the globalized world. The program also prepares students for graduate programs in business and related fields.

## Goals

- To provide a strong foundation in the international implications for the business disciplines.
- To develop students' cultural understanding through course work and a required semester abroad.
- To enable students to gain proficiency in a second language.
- To enable students to develop extensive knowledge of a specific region of the world related to the second language.
- To develop students' competencies in addressing specific managerial issues related to international business, such as ethical considerations, managing foreign exchange risk, managing a multicultural work force, etc.
- To facilitate students' continuing development of written and oral communication skills.

## Career Opportunities

- Consumer marketing and business-to-business marketing, including sales, consumer relations and market analysis.
- Consulting, including management analysis, strategic planning, expansion overseas and market entry strategies.
- Marketing research, including database management and account analysis.
- Corporate finance, financial analyst, project management, junior analyst-finance, planning and administration.
- Capital management, credit manager, assistant treasurer – funds flow and risk management.
- Banking and financial institutions, lending officer and marketing officer.
- Foreign commercial service officer in the U.S. Department of Commerce.
- Careers that require analytic acumen and the ability to adapt quickly to diverse and changing environments.

## Co-curricular Activities and Organizations

- International Business Club. This student club is open to all JMU students. It sponsors speakers, informational sessions and social events.
- Epsilon Chi Omicron. This organization, founded in 1987 at JMU, is the international honor society for international business. The purpose of the organization is to encourage and recognize scholarly achievement. Membership requires an outstanding academic record while at JMU.
- Madison Marketing Association. This student club is affiliated with the American Marketing Association, a national marketing association for marketing professionals, faculty and students. MMA is open to all JMU students. MMA is comprehensive with its marketing programming and offers students information and activities in direct marketing, retailing and marketing management.
- Pi Sigma Epsilon. This is a professional fraternity, which focuses on programming and extracurricular experiences in marketing, personal selling and sales management.
- Financial Management Association. FMA is an organization designed for those interested in pursuing a career in the financial arena.

## Degree and Major Requirements Bachelor of Business Administration in International Business

The B.B.A. degree in international business requires a minimum of 120 credit hours of undergraduate work. Fifty percent of this work, 60 credit hours, must be taken outside of the College of Business. In counting the 60 credit hours of nonbusiness courses, B.B.A. students may include all hours taken in general education (usually 41), up to a total of nine hours in economics and three hours of COB 191. Business Statistics. The remaining hours, to bring the total to 60, must be taken from any department outside the College of Business. Students should purposefully select these non-business electives to help them gain additional knowledge and expertise for their careers and personal lives.

## Degree Requirements

Required Courses	Credit Hours
General education courses <sup>1,2</sup>	41
B.B.A. core courses	45
International business major requirements <sup>1,3</sup>	24
Nonbusiness major requirements	12-15
	122-125

1 Students are encouraged to choose general education courses having a foreign or international content. The program office has a list of these courses. The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 Some language and general education courses may be completed during the semester abroad.

3 Students are required to spend the equivalent of a semester abroad. See below for details.

Students planning to major in international business must complete the 30 to 31 hour, lower-division B.B.A. curriculum prior to enrolling in upper-division core courses, normally taken in the first semester of the junior year. It is expected that lower-division core curriculum along with the university general education curriculum will be completed during the first two years of study. Failing to complete all lower-division core requirements on time will delay enrollment in upper-division core and major courses until at least the second semester of the junior year.

The foreign language requirements of the major begin at the advanced level. Consequently, students with little or no foreign language training must use elective credits to obtain proficiency through the intermediate level.

### Major Requirements

Students majoring in international business must carefully plan their individual course work because not all required courses are offered each semester and because each student in the major is required to study or work abroad. The study/work abroad requirement is for a minimum of six weeks outside of the United States, unless express permission is granted by the program director for another option. The primary language spoken in the country chosen by each student for the study/work abroad requirement is not to be English and must be the language chosen by the student to meet the IB language requirement. Approval of the study/work abroad requirement must be obtained from the program director (approval forms are available online or outside Zane Showker Hall, room 436). International students should see the program director to determine appropriate requirements for this aspect of the curriculum.

International business majors must select a world region on which to concentrate that coincides with their selected language. For example, an international business major who selects French as his/her second language could choose Europe, Africa or Asia as a world region. Also, a student who selects Spanish as the second language could select either Europe or the Americas. The acceptable world regions are Africa/Middle East, Americas, Asia and Europe.

As part of the JMU assessment program, graduating seniors are required to participate in assessment activities. Assessment information is used to assist the COB faculty in modifying curricula and co-curricular events.

### Required Courses

BLAW 497. Legal Aspects of International Business<sup>1</sup>  
 IB 480. International Business Theory and Policy<sup>2</sup>  
 MGT 340. International Management  
 Foreign language 300. Grammar and Communication  
 Foreign language 307-308. Civilization  
 Foreign language 330. Business  
 Foreign language 375. Business and Society<sup>3</sup>

1 Offered fall semester only.

2 Offered spring semester only.

3 Students choosing Spanish to meet the IB language requirement should take either SPAN 485 or SPAN 486 to fulfill this requirement.

The remaining courses will depend upon which of the following three concentrations the student selects.

- General International Business
- Marketing
- Finance

The requirements for each of the three concentrations are outlined below.

## Recommended Schedule for Majors

### Third year

	Credit Hours
COB 300A. Integrated Business: Management	3
COB 300B. Integrated Business: Finance	3
COB 300C. Integrated Business: Operations	3
COB 300D. Integrated Business: Marketing	3
Foreign language (300) grammar and communication <sup>1</sup>	3
Foreign language (307-308) civilization course <sup>1</sup>	3
Foreign language (375) business and society <sup>1</sup>	3
ECON 270. International Economics <sup>2</sup>	3
General Education courses	6
	30

1 International business major requirement.

2 International business major requirement. Students with a finance concentration must take ECON 370 in place of ECON 270. ECON 370 is offered fall semester only.

## Concentrations

Students in international business may choose to concentrate in general international business, marketing or finance. The concentrations are as follows.

### General International Business

Fourth Year	Credit Hours
ACTG 483. International Accounting and Financial Reporting <sup>1,3</sup>	3
BLAW 497. Legal Aspects of International Business <sup>1,2</sup>	3
FIN 355. International Financial Management <sup>1,2</sup>	3
IB 480. International Business Theory and Policy <sup>1,3</sup>	3
MGT 340. International Management <sup>1</sup>	3
MKTG 460. Global Marketing <sup>1</sup>	3
International Business approved elective <sup>1</sup>	3
COB 487. Strategic Management	3
Foreign language (330) business course <sup>1</sup>	3

## Marketing

Fourth Year	Credit Hours
BLAW 497. Legal Aspects of International Business <sup>1,2</sup>	3
IB 480. International Business Theory and Policy <sup>1,3</sup>	3
MGT 340. International Management <sup>1</sup>	3
MKTG 460. Global Marketing <sup>1</sup>	3
International Business approved elective <sup>1</sup>	3
COB 487. Strategic Management	3
Foreign language (330) business course <sup>1</sup>	3
Choose two of the following: <sup>1</sup>	6
MKTG 384. Integrated Marketing Communications	
MKTG 385. Consumer Behavior	
MKTG 430. Professional Selling	
MKTG 470. Strategic Internet Marketing <sup>4</sup>	
MKTG 482. Marketing Analytics	

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## Finance

Fourth Year	Credit Hours
ACTG 483. International Accounting and Financial Reporting <sup>1,3</sup>	3
BLAW 497. Legal Aspects of International Business <sup>1,2</sup>	3
ECON 372. International Finance and Payments <sup>1</sup>	3
FIN 355. International Financial Management <sup>1,2</sup>	3
FIN 360. Analytical Methods in Finance <sup>1</sup>	3
IB 480. International Business Theory and Policy <sup>1,3</sup>	3
MGT 340. International Management <sup>1</sup>	3
COB 487. Strategic Management	3
Foreign language (330) business course <sup>1</sup>	3

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1 International business major requirement.

2 Offered fall semester only.

3 Offered spring semester only.

4 MKTG 384 is a prerequisite for MKTG 470.

# Department of Justice Studies

*Dr. Glenn P. Hastedt, Director*

Phone: (540) 568-7124

Location: Moody Hall, Room 213

Email: [hastedgp@jmu.edu](mailto:hastedgp@jmu.edu)

Website: <http://www.jmu.edu/justicestudies>

## Professors

G. Hastedt, P. Plass, C. Robinson, S. Spivey

## Associate Professors

T. Beitzel, T. Castle

## Assistant Professors

G. DeFazio, J. McKee, B. Meade, T. Parsons, M. Poteyeva, H. Scheuerman

## Mission

Justice studies is committed to offering an cross disciplinary, intellectually challenging and vocationally relevant course of study for persons interested in academic or applied careers in justice studies at the community, national or global level.

## Goals

To carry out this mission, justice studies seeks to:

- Help students develop a comprehensive understanding of justice studies.
- Examine and explain justice and injustice and their impact on individuals, communities, institutions and/or nations.
- Understand human behavior and interactive systems with a focus on negotiation and conflict resolution in justice contexts.
- Sharpen students' ability to think and reason critically, to practice sound methodological skills and to communicate effectively.
- Prepare students to utilize and produce scholarship in the field of justice studies.

## Career Opportunities

The justice studies major includes opportunities for field work and career-related internships as part of the curriculum.

- Peace Corps
- Non-government organizations
- Law enforcement
- Corrections
- Law
- Nonprofit groups (national and international)
- Human services
- Domestic and international security
- Intelligence analysis
- Diplomatic Corps
- Research and graduate study

## Transfer Credit

A maximum of three courses may be transferred into the justice studies major from other institutions. No transfer credit will be given for any course offered in the major at the 300 or 400 level.

## Degree and Major Requirements

### Bachelor of Arts in Justice Studies

#### Degree Requirements

Required Courses	Credit Hours
General Education	41
Philosophy course <sup>1</sup>	3
Foreign language courses (intermediate level required)	1-14
Major requirements (core courses and selected tracks)	41
Electives	18-38
	120

<sup>1</sup> Any PHIL course except PHIL 120 or PHIL 150. Consult the list of courses satisfying Bachelor of Arts degree requirements on the Registrar's website.

### Bachelor of Science in Justice Studies

#### Degree Requirements

Required Courses	Credit Hours
General Education courses	41
Quantitative requirement (in addition to General Education)	3
Scientific literacy requirement (in addition to General Education)	3-4
Major requirements (core courses and selected track)	41
Electives	28-35
	120

### Justice Studies Major Requirements

Core Courses	Credit Hours
JUST 100. Justice Studies Proseminar	1
JUST 200. Introduction to Justice Studies	3
Choose one of the following:	3
JUST 300. Perspectives on Comparative Justice Systems	
JUST 323. Comparative Criminal Justice	
JUST 328. Race, Class and Justice	
JUST 399. Justice Research Methods	4
JUST 400. Senior Seminar in Justice Studies	3
Choose one of the following (which is not required for your track):	3
JUST 210. Introduction to Crime and Criminal Justice	
JUST 212. Theories of Crime and Criminal Justice	
JUST 221. Social Justice Theories	
JUST 223. Social Justice Interventions and Policies	
JUST 235. Justice in the Global Community	

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Students must select one of the following tracks:

- Track A. Crime and Criminology
- Track B. Global Justice and Policy
- Track C. Social Justice

## Track A. Crime and Criminology

This track focuses on the nature, causes and solutions for crime, primarily but not exclusively in the United States. All students in Track A must take JUST 210, Crime and Criminal Justice, and JUST 212, Theories of Crime and Criminal Justice. Students select six additional courses from the following. At least four of the six electives must have a JUST identifier.

Courses	Credit Hours
Select six additional courses from the following:	18
JUST 301. Special Topics in Justice Studies (when topic is appropriate) <sup>1</sup>	
JUST/PSYC 314. Police Psychology	
JUST 315. Mental Illness in the Criminal Justice System	
JUST/PSYC 316. Developmental Psychology and Crime	
JUST 317. Victimization of Children	
JUST 318. Sex Offenders	
JUST 319. Psychopathology and Crime	
JUST 320. Organized Crime	
JUST 322. Understanding Violence	
JUST 324. Death Penalty	
JUST 327. Criminal Law	
JUST 329. Perspectives on Law	
JUST/SOCI/SOWK 330. Corrections	
JUST 334. Media and Justice	
JUST 341. Gender and Justice	
JUST 343. Justice and Society	
JUST 344. Marginalized Populations	
JUST 345. Restorative Justice	
JUST 347. Drugs, Politics and Society	
JUST 357. Environmental Justice	
JUST 361. Terrorism	
JUST 365. Justice in Literature, Film and Art <sup>1</sup>	
JUST 385 Disability and Justice	
JUST 401. Internship in Justice Studies <sup>1</sup>	
JUST 402. Advanced Research in Justice Studies <sup>1</sup>	
JUST 403. Nelson Institute Seminar <sup>1</sup>	
JUST 404. Community Based Research <sup>1</sup>	
PSYC 415. Forensic Psychology <sup>2</sup>	
Note: Other courses may be substituted with adviser's and department chair's consent.	

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1 May be taken for elective credit in Track A when the topic is appropriate. Students should seek approval from their advisers or the academic unit head.

2 Course is only open to students who are double majoring in Psychology.

## Track B. Global Justice and Policy

This track explores issues of justice in global context. Most prominent among them are questions of security, equity and equality. Courses in this track address the individual, group and state dimensions of these and related issues in a diverse set of policy areas including democratization, cultural identity, developmental, environmental protection, conflict resolution and human rights.

All students in Track B must take POSC 230, International Relations and JUST 235, Justice in the Global Community.

Students select six additional courses from the following. At least four must have a JUST identifier.

Courses	Credit Hours
Select six additional courses from the following:	18
JUST 301. Special Topics in Justice Studies <sup>2</sup>	
JUST 320. Organized Crime	
JUST 322. Understanding Violence	
JUST 324. Death Penalty	
JUST/POSC 331. Human Rights	

JUST 333. Negotiations  
 JUST 334. Media and Justice<sup>2</sup>  
 JUST 341. Gender and Justice  
 JUST 345. Restorative Justice  
 JUST 346. Intervention, Reconciliation and Justice in World Affairs

JUST 350. Globalization and Justice  
 JUST 351. Building Democracy  
 JUST 353. Justice and Development  
 JUST 354. Societal Conflicts  
 JUST 357. Environmental Justice  
 JUST 361. Terrorism

JUST 365. Justice in Literature, Film and Art<sup>2</sup>  
 JUST/POSC 372. Ethics and International Politics  
 JUST 373. Rebuilding Post Conflict Societies  
 JUST 374. War and Justice  
 JUST 375. Genocide in the 20th Century

JUST 377. Global Futures  
 JUST 385 Disability and Justice  
 JUST/POSC 392. Peace Studies  
 JUST 401. Internship in Justice Studies<sup>2</sup>  
 JUST 402. Advanced Research in Justice Studies<sup>2</sup>

JUST 403. Nelson Institute Seminar<sup>2</sup>  
 JUST 404. Community Based Research<sup>2</sup>  
 MSCI 390. The Combat Experience  
 PHIL 335. The Individual, the State and Justice  
 POSC 395. International Law

POSC 396. International Organizations  
 SCOM 332. Mediation  
 SCOM 342. Argument and Advocacy  
 SOCI 342. Muslim Movements in the Middle East  
 SOCI/SOWK 348. Introduction to Developing Societies  
 SOCI 360. Social Movements

Any 300-level anthropology course that is centered on a world region (other than North America)<sup>1</sup>

Any 300-level history course that is centered on a world region (other than North America) and that includes coverage of the 20th century<sup>1</sup>

Any 300-level political science course that is regionally focused<sup>1</sup>

Any 300-level religion course with a contemporary and international focus

Note: Other courses may be substituted with adviser's and department chair's consent.

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1 Only one course from this option may be counted towards the major; approval for course selection from Justice Studies and the academic unit offering the course is also required.

2 May be taken for elective credit in Track B when the topic is appropriate. Students should seek approval from their adviser or the department head.

## Track C. Social Justice

This track is designed to investigate what is fair, equitable and just for society. Emphasizing the oppression and liberation of vulnerable, exploited and marginalized populations, this curriculum promotes sustainable and just solutions to social, political and economic problems.

Students in Track C must take JUST 221, Social Justice Theories, and JUST 223, Social Justice Interventions and Policies.

Students select six additional courses from the following. At least four of the six electives must have a JUST identifier.

<b>Courses</b>	<b>Credit Hours</b>
Choose from the following:	18
ANTH 340. The Invention of Race	
HIST/SOCI 338. U.S. Urban Social History	
JUST 301. Special Topics in Justice Studies <sup>1</sup>	
JUST 315. Mental Illness and Criminal Justice	
JUST 322. Understanding Violence	
JUST 324. Death Penalty	
JUST 334. Media and Justice <sup>1</sup>	
JUST 341. Gender and Justice	
JUST 343. Justice and Society	
JUST 344. Marginalized Populations	
JUST 357. Environmental Justice	
JUST 361. Terrorism	
JUST 365. Justice in Literature, Film and Art <sup>1</sup>	
JUST 375. Genocide in the 20th Century	
JUST 385 Disability and Justice	
JUST/POSC 392. Peace Studies	
JUST 401. Internship in Justice Studies <sup>1</sup>	
JUST 402. Advanced Research in Justice Studies <sup>1</sup>	
JUST 403. Nelson Institute Seminar <sup>1</sup>	
JUST 404. Community Based Research <sup>1</sup>	
MSCI 390. The Combat Experience	
POSC 326. Civil Rights	
POSC 348. Politics of Cultural Pluralism	
POSC 383. Women and Politics	
PSYC 310. Psychology of Women and Gender <sup>2</sup>	
PSYC 320. Diversity Issues in Psychology	
REL/SOCI 322. Sociology of Religion	
REL 450. Religion and Society	
SOCI 336. Race and Ethnicity	
SOCI 354. Social and Cultural Stratification	
SOCI 367. Sociology of Sexuality	
Note: Other courses may be substituted with adviser's and department chair's consent.	

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<sup>1</sup> May be taken for elective credit in Track C when the topic is appropriate. Students should seek approval from their advisers or the department head.  
<sup>2</sup> Course is only open to students who are double majoring in psychology.

## Recommended Schedule for Majors

<b>First Year</b>	<b>Credit Hours</b>
JUST 200. Introduction to Justice Studies	3
MATH 220. Elementary Statistics (prerequisite for JUST 399) <sup>1</sup>	3
Track core course	3
<hr/>	
	9
 <b>Second Year</b>	 <b>Credit Hours</b>
Track foundation course	3
Outside track foundation course	3
Track electives	6
<hr/>	
	12
 <b>Third Year</b>	 <b>Credit Hours</b>
JUST 100. Justice Studies Proseminar	1
JUST 300. Perspectives on Comparative Justice	3
JUST 399. Research Methods	4
Track electives	9
<hr/>	
	17
 <b>Fourth Year</b>	 <b>Credit Hours</b>
JUST 400. Senior Seminar in Justice Studies	3
Track electives	3
<hr/>	
	6

<sup>1</sup> Can be counted for General Education, Cluster Three.

# Department of Kinesiology

*Dr. Janet Wigglesworth, Department Head*

Phone: (540) 568-6145

Location: Godwin Hall, Room 213

Email: [womackcx@jmu.edu](mailto:womackcx@jmu.edu)

Website: <http://www.jmu.edu/kinesiology>

## Professors

S. Nye, M. Saunders, J. Williams, C. Womack

## Associate Professors

T. Hargens, N. Luden, T. Moran, S. Carson Sackett, E. Edwards

## Assistant Professors

C. McKay, G. Young

## Instructors

R. Lifka, P. McMahan, J. Walters

## Mission

The Department of Kinesiology is dedicated to the development of future leaders in professions that maximize the potential of individuals and society through physical activity. Programs include exercise science and teacher education in physical education and health.

The department is committed to providing:

- Outstanding undergraduate programs based on the criteria of relevant professional associations which will enable graduates success in their professional endeavors.
- Programs that build upon the strong liberal studies background provided through General Education.
- Opportunities that challenge students to think critically.
- Use of technological advances.
- An appreciation of the global community.
- Quality graduate programs that complement the undergraduate programs and provide qualified students with an opportunity for advanced study in the kinesiology discipline.
- Contributions to the university's General Education curriculum through programs designed to promote lifelong fitness and wellness.
- Service to JMU, the professions and local community through our unique knowledge and expertise.
- Research and development projects that push back the boundaries of knowledge and promote effective practice in the kinesiology discipline.

## Career Opportunities and Marketable Skills

- Athletic coach
- Exercise specialist
- Fitness facility manager
- Physical and health education
- Pre-professional health programs (pre-physical therapy, pre-medicine, pre-physician's assistant, pre-occupational therapy)

## Degree and Major Requirements

### Bachelor of Science in Kinesiology

Students are advised to be certain they complete all General Education requirements before applying for graduation.

The kinesiology major program leads to the Bachelor of Science degree. Students are advised to familiarize themselves with the B.S. degree requirements.

Students who major in kinesiology work toward a B.S. degree by selecting and completing one of the following concentrations:

- Exercise Science
- Physical and Health Education Teacher Education

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Kinesiology Core Courses	12
Major and concentration requirements <sup>2</sup>	60-68
Electives	15-23
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The number of credits taken to meet major and concentration requirements may vary if courses are double-counted for General Education.

## Kinesiology Core Courses

Required Courses	Credit Hours
KIN 100. Lifetime Fitness and Wellness	3
KIN 202. Biological Foundations of Kinesiology	3
KIN 303. Motor Development and Learning	3
KIN 426. Physical Activity Behaviors	3

12

## Concentrations

### Exercise Science Concentration

The concentration prepares students to pursue careers in the fitness industry as well as graduate education in exercise science, pre-professional or an allied health field.

Students interested in physical therapy, medicine or other pre-professional health programs should review the pre-professional health programs section for prerequisite courses and recommendations for entrance to graduate professional health programs. Pre-professional health program coordinators are available to assist students with career planning and preparation.

### Admission Policy

Any student can declare the exercise science concentration; however, students must apply to be fully admitted to the major

for a limited number of spaces. Declaring the exercise science concentration does not guarantee full admission to the major.

To apply for admission to the exercise science concentration, students must complete the following prerequisite courses:

BIO 270. Human Physiology	
BIO 290. Human Anatomy	
CHEM 131. and CHEM 131L. General Chemistry and Lab	
KIN 100. Lifetime Fitness and Wellness	
KIN 202. Biological Foundations of Kinesiology	

Grades in the prerequisite courses are weighed heavily in the admission decision, and admission is offered to the top students on a space-available basis. Courses taken on a repeat/forgive basis will not be accepted. Only those grades received in prerequisite courses taken for the first time will be counted.

Applications are due October 15 for the spring semester and March 15 for summer and fall semester. Students denied admission may reapply during the next admission cycle.

### Concentration Requirements

The following courses are required of all students who choose the exercise science concentration.

Courses	Credit Hours
Kinesiology Core Courses	12
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
MATH 205. Introductory Calculus <sup>1</sup>	3
MATH 220. Elementary Statistics	3
NUTR 280. Nutrition for Wellness	3
CHEM 131-131L. General Chemistry I + Laboratory	4
CHEM 132-132L. General Chemistry II + Laboratory	4
PHYS 140-140L. College Physics I + Laboratory <sup>1</sup>	4
KIN 302-302L. Exercise Physiology + Laboratory	4
KIN 306-306L. Human Biomechanics + Laboratory	4
KIN 321-321L. Principles of Health Fitness Assessment & Lab	4
KIN 322. Fundamentals of Exercise Prescription	3
KIN 424. Exercise and Nutrition in Chronic Disease	3
KIN 471. Practicum in Kinesiology	3
KIN 481. Internship in Exercise Science and Leadership	4-12

66-74

<sup>1</sup> Course may be counted for both General Education and major degree requirements.

### Departmental Electives

All students who choose the exercise science concentration are required to complete two of the following courses.

Courses	Credit Hours
KIN 305. Psychological Foundations of Kinesiology	3
KIN 325. Kinesiology Honors Research Prep	3
KIN 329. Social Aspects of Sport	3
KIN 425. Concepts of Strength and Conditioning	3
KIN 429. Special Topics in Adapted Physical Education	3
KIN 430. Exercise Across the Lifespan	3
KIN 431. Environmental Exercise Physiology	3
KIN 432. Physiology of Endurance Performance	3
KIN 433. Exercise, Cardiovascular Disease, and ECG Assessment	3

### Recommended Schedule for Exercise Science Concentration

First Year	Credit Hours
General Education courses	21
KIN 100. Lifetime Fitness and Wellness	3
MATH 205. Introductory Calculus	3
MATH 220. Elementary Statistics	3

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Sophomore Year	Credit Hours
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 131-131L. General Chemistry I	4
CHEM 132-132L. General Chemistry II	4
KIN 202. Biological Foundations of Kinesiology	3
KIN 303. Motor Development and Learning	3
NUTR 280. Nutrition for Wellness	3
General Education	4

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Junior Year	Credit Hours
KIN 302-302L. Exercise Physiology	4
KIN 306-306L. Human Biomechanics	4
KIN 321-321L. Principles of Health Fitness Assessment and Lab	4
KIN 322. Fundamentals of Exercise Prescription	3
KIN 471. Practicum in Exercise Science	3
PHYS 140-140L. College Physics I	4
Electives	9

31

Senior Year	Credit Hours
Departmental electives (x2)	6
KIN 424. Exercise and Nutrition in Chronic Disease	3
KIN 426. Physical Activity Behaviors	3
KIN 481 Internship in Exercise Science	4-12
Electives	6-14

30

### Physical and Health Education Teacher Education Concentration

The Physical and Health Education Teacher Education (PHETE) concentration is committed to educating future leaders in the profession of teaching physical and health education. The program encourages the teacher candidate to advocate for effective educational changes, work collaboratively and collectively for social change, and to continue to grow professionally.

The PHETE concentration is a five-year Master of Arts in Teaching (M.A.T.) program. Upon successful completion of the first four years, students earn a Bachelor of Science (B.S.) degree in kinesiology. The fifth year M.A.T. degree provides the requisite courses to obtain a Virginia teaching license in Health and Physical Education (PreK-12). It is necessary to be admitted to the teacher education program prior to enrolling in professional education courses. For more information contact the PHETE coordinator, Dr. Jacqueline Williams, Godwin Hall, Room 317, (540) 568-6957, williaja@jmu.edu.

### Admission Policy

The admission and retention standards are designed to instill a professional attitude and commitment to the profession of teaching. The admission and retention standards complement the JMU Teacher Education application process. The following outlines the admission and retention standards and procedures for PHETE.

### PHETE Admission Standards

1. Full acceptance to the JMU Teacher Education Program
2. Submission of:
  - § Work Experience Verification Form
  - § Professional Resume
  - § Personal Statement

3. Successful completion of the following course work:  
 BIO 290, EDUC 300, PSYC 160\*, KIN 224, KIN 303\*, KIN 312\*

\*Grade of "C" or better required

4. Demonstration and appreciation of professional dispositions

### Concentration Requirements

Undergraduate Courses	Credit Hours
BIO 290. Human Anatomy	4
EDUC 300. Foundations of American Education	3
PSYC 160. Life Span Human Development	3
KIN 100. Lifetime Fitness and Wellness	3
KIN 202. Biological Foundations of Kinesiology	3
KIN 221-225. Skill Labs	10
KIN 303. Motor Development and Learning	3
KIN 305. Psychological Foundations of Kinesiology	3
KIN 310. Instructional Methods in Physical Education	3
KIN 311. Elementary Curriculum in Physical Education	2
KIN 312. Profession of Teaching Health and Physical Education	2
KIN 313. Adapted Physical Education	3
KIN 314. Assessment in Elementary Physical Education	3
KIN 410. School Health Content for PHETE	3
KIN 411. Measurement and Evaluation in Kinesiology	3
KIN 426. Physical Activity Behaviors	3
KIN 480. Student Teaching in Elementary Physical Education	8
NUTR 280. Nutrition for Wellness	3
READ 420. Content Area Literacy, K-12	2
	<hr/>
	67

Graduate Courses	Credit Hours
KIN 511. Technology in Health and Physical Education	3
KIN 512. Instructional Methods in Middle and Secondary Physical Education	3
KIN 513. Professional Issues for Prospective Physical and Health Educators	3
KIN 514. Methods in School Health for PHETE	3
KIN 610. Curriculum Design and Development in Health and Physical Education	3
KIN 611. Teaching Diverse Populations in Health and Physical Education	3
KIN 612. Analysis of Teaching and Learning	3
Choose one of the following:	3
KIN 655. Research Techniques	
HTH 655. Research Techniques	
EDUC 630. Inquiry in Education	
KIN 683. Secondary Internship in Health and Physical Education	6
	<hr/>
	30

### Recommended Schedule for Physical and Health Education Teacher Education Concentration

First Year	Credit Hours
General Education	27
KIN 100. Lifetime Fitness and Wellness	3
	<hr/>
	30
Sophomore Year	Credit Hours
PSYC 160. Life Span Human Development	3
KIN 202. Biological Foundations of Kinesiology	3
KIN 305. Psychological Foundations of Kinesiology	3
BIO 290. Human Anatomy	4
General Education courses	8
Electives	7
	<hr/>
	30

Junior Year – Fall Semester	Credit Hours
EDUC 300. Foundations of Education	3
KIN 224. Skill Lab	2
KIN 303. Motor Development and Learning	3
KIN 312. The Profession of Teaching	2
NUTR 280. Nutrition for Wellness	3
Elective	3
	<hr/>
	16

Junior Year – Spring Semester	Credit Hours
KIN 222. Skill Lab	2
KIN 225. Skill Lab	2
KIN 410. School Health Content for PHETE	3
KIN 411. Measurement & Evaluation in Kinesiology	3
READ 420. Content Area Literacy	3
Electives	4
	<hr/>
	17

Senior Year – Fall Semester	Credit Hours
KIN 223. Skill Lab	2
KIN 310. Instructional Methods in PE	3
KIN 311. Elementary Curriculum in PE	2
KIN 313. Adapted PE	2
Elective	3
	<hr/>
	12

Senior Year – Spring Semester	Credit Hours
KIN 221. Skill Lab	2
KIN 314. Assessment in Elementary PE	3
KIN 426. Physical Activity Behaviors	3
KIN 480. Student Teaching in Elementary Education	8
	<hr/>
	16

Fifth Year – Summer Session I	Credit Hours
KIN 511. Technology in Health & PE	3
KIN 610. Curriculum Design & Development in Health/PE	3
KIN 611. Teaching Diverse Populations	3
	<hr/>
	9

Fifth Year – Fall Semester	Credit Hours
KIN 512. Instructional Methods in Middle & Secondary Ed	3
KIN 514. Methods in School Health for PHETE	3
KIN 516 Qualitative Analysis of Movement	3
KIN 655. Research Techniques	3
	<hr/>
	12

Fifth Year – Spring Semester	Credit Hours
KIN 513. Professional Issues	3
KIN 612. Analysis of Teaching & Learning	3
KIN 683. Secondary Internship	6
	<hr/>
	12

# Minor Requirements

## Coaching Education Minor

This minor prepares students for the coaching profession on the high school and younger level by complying with the requirements of the National Council for Accreditation of Coaching Education at Level 3, intermediate coach. Evidence of CPR/first aid certification must be presented prior to beginning the coaching practicum. To enroll in the practicum, all of the minor courses except KIN 450 must be successfully completed (minimum of a "C") and the student's overall GPA must be 2.0. To successfully complete the minor, students must:

- Complete the American Sport Education Program (ASEP) Coaching Principles course and earn ASEP certification (part of KIN 450).
- Earn a minimum grade of a "C" in each of the six courses and a "satisfactory" on the practicum (KIN 473).

<b>Courses</b>	<b>Credit Hours</b>
ATEP 205. Introduction to Athletic Training	3
KIN 202. Biological Foundations of Kinesiology	3
KIN 353. Maximizing Sport Performance	3
KIN 425. Concepts of Strength and Conditioning	3
KIN 450. Principles of Coaching	3
KIN 473. Practicum in Coaching	3
Kinesiology techniques of sport class (with coordinator approval)	2

# Department of Learning, Technology and Leadership Education

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## Associate Professors

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## Assistant Professors

N. Brantmeier, R. Clemens, R. Ingram

## Instructors

J. Calcagno-Roach, E. Roberts Kaye, D. Meza, K. Richardson, R. Snow, E. Stauffer, N. Swayne

## Educational Media Minor

*Coordinator: Dr. Rich Ingram*

Phone: (540) 568-6965

The educational media minor prepares students for employment in education, business, communications, non-profit and consulting fields where the effective design of information, instruction and media are important. Students who minor in educational media will develop psychological and technological skills intended to enhance the major program of study and prepare for the workplace. Students who successfully complete the minor will possess skills appropriate for teaching, training, designing instruction and developing related multimedia. Underlying theories and concepts integrated into the course work include but are not limited to the diffusion of information, learning theory, message design, group dynamics and materials evaluation.

The educational media minor requires a minimum of 18 credit hours selected in consultation with an adviser for this program.

Required Courses	Credit Hours
PSYC 160. Life Span Human Development	3
LTLE 150. Information in Contemporary Society	3
LTLE 370. Instructional Technology	3
LTLE 372. Visual Literacy	3
LTLE 374. Photography for Learning	1
LTLE 376. Video for Learning	1
LTLE 378. Web Design for Learning	1
LTLE 385. Foundations of Instructional Design	3

## Human Resource Development Minor

*Coordinator: Prof. Randy Snow*

Phone: (540) 568-8842

The human resource development minor prepares students to develop and implement professional development and performance improvement programs and materials.

The minor is designed to provide students from a wide variety of content disciplines additional experiences and skill bases to seek employment in public and private sectors in the fields of training and development and performance improvement.

Students who minor in human resource development must complete 18 hours of course work, including LTLE 370.

Requirements	Credit Hours
HRD 240. Introduction to Human Resource Development	3
HRD 245. Leadership in Organizational Settings	3
LTLE 370. Instructional Technology	3
HRD 380. Performance And Task Analysis In Human Resource Development	3
HRD 480. Learning in Adulthood	3
HRD 485. Development of Materials and Programs	3
	<b>18</b>

# Department of Management

*Dr. Paula S. Daly, Department Head*

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## Associate Professors

D. Cavazos, L. Leduc, F. Mousa, M. Pattie, W. Ritchie, A. Shahzad, E. Stark, M. White

## Assistant Professors

A. Heavey, C. K. Lee, D. Peterson

## Lecturers

R. Eliason, C. Hamilton, F. Pargas, C. Roeder, M. Yankey, D. Zisk

## Mission

The mission of the management department is to provide students with a nationally competitive undergraduate education in the field of management studies. The management major prepares future organizational leaders to manage effectively in a dynamic global business environment. The management faculty strive to develop students' theoretical and practical managerial expertise, focusing on interpersonal and team skills, situational and data analysis, innovation and creativity, problem solving, evidence based decision making, and ethical reasoning.

## Goals

The overall goals of the management program are:

- To prepare graduates of the MGT major for a wide variety of management careers and leadership roles.
- To provide instruction relating to the study and practice of management to undergraduate and graduate students in the College of Business.

## Core Management Objectives

After studying management, students will possess an advanced understanding of:

- The Functions of Management: Management majors will understand the basic managerial functions of planning, organizing, leading and controlling and how these functions are used to achieve organizational objectives in dynamic, culturally diverse, and competitive global business environments.
- The Legal and Ethical Environment of Management: Management majors will recognize and understand the behavioral implications of the ethical and legal boundaries of managerial decision making and subsequent actions.
- Effective Decision Making and Problem Solving: Management majors will develop and enhance critical thinking, analytical and decision making skills. These skills will be demonstrated in students' ability to engage successfully in situational analysis, problem recognition, integration of information from diverse sources, use of logic and reasoning to develop solutions, and alternative courses of action, and implementation of action plans.
- Organizational Strategy and Design: Management majors will be able to identify and explain elements of the internal and external environments that influence the formulation, implementation and evaluation of organizational strategy, structure and design.

## Career Opportunities

- Project Manager
- Human Resources Generalist or Specialist
- Management Consultant
- Business Analyst
- Operations or Logistics Manager
- Supply Chain Analyst
- Labor Relations Specialist
- Small Business Owner/Manager
- Customer Service/Relations Manager
- Sales Manager
- Retail Manager
- Facility/Events Manager

## Co-curricular Activities and Organizations

- Sigma Iota Epsilon (SIE): National honors fraternity for management majors.
- Collegiate Entrepreneurs Organization (CEO): Encouraging and supporting entrepreneurial activity and enterprise creation.
- Society for Human Resource Management (SHRM): Student chapter of a national organization that provides students with opportunities to learn more about the field of human resource management through speakers, facility tours, networking and other activities.

## Degree and Major Requirements Bachelor of Business Administration in Management

The B.B.A. degree in management requires a minimum of 120 credit hours of undergraduate work. Fifty percent of this work, 60 credit hours, must be taken outside of the College of Business. In counting the 60 credit hours of non-business courses, B.B.A. students may include all hours taken in general education (usually 41), up to a total of nine hours in economics and three hours of COB 191. Business Statistics.

The remaining hours, to bring the total to 60, must be taken from any department outside the College of Business. Students should carefully select these non-business electives to help them gain additional knowledge and expertise for their careers

and personal lives. The credit hour requirements for each of the program components are as follows:

### Degree Requirements

Required Courses	Credit Hours
General Education requirements <sup>1</sup>	41
B.B.A. lower-level core courses	30
B.B.A. upper-level core courses	15
Management major requirements	24
Non-business electives	8-11
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major Requirements

Students planning to major in management must complete the 30-31 hour, lower-division B.B.A. core curriculum prior to enrolling in upper-division core courses normally taken in the first semester of their junior year. It is expected that the lower-division core curriculum will be completed during the first two years of study along with most of the university general education curriculum. Failing to complete all the lower-division core requirements on time will delay enrollment in upper-division core and major courses. Students enrolling in any 400-level course with a MGT prefix must have senior standing (90 credit hours). Because of the demands of group, team and outside of classroom applied assignments, students will not be allowed to enroll in more than four courses with a MGT prefix in any given semester.

Management majors must choose one of the following options to complete the required eight courses in the MGT major:

Option 1: Five required MGT core courses, one track and one elective

Option 2: Five required MGT core courses and three MGT electives.

Required Core Courses	Credit Hours
MGT 320. Management of Innovation and Technology	3
MGT 325. Project Management	3
MGT 357. Evidence-Based Decision Making	3
MGT 365. Fundamentals of Human Resource Management	3
MGT 390. Organizational Leadership	3
	18

## Tracks

### Business Analysis and Consulting

The business analysis and consulting (BAC) track is designed to develop and enhance students' critical thinking, problem solving and decision-making skills. In this track students engage in research and analysis to build a strong foundation for learning and implementing the business analysis and consulting process. This focus area is suggested for students interested in working as a business analyst, consultant or solutions manager, or in any position that requires strong analytical and problem solving skills. MGT 357. Evidence-Based Decision Making is considered the first course in this track.

Required Courses	Credit Hours
MGT 457. Business Analysis and Consulting Fundamentals	3
MGT 467. Business Analysis and Consulting Practicum	3
	6

### Human Resource Management

The human resource management (HRM) track is designed to help students broaden and deepen their understanding of the

acquisition, development, management and retention of human capital in organizations. This focus area is suggested for students who intend to work in human resource (HR) generalist or specialist positions, students planning on a career in labor relations or employment law, students who plan to start or manage a business, and students who want to attend graduate school in an HR-related field. MGT 365. Fundamentals of Human Resource Management is considered the first course in this track.

Course	Credit Hours
MGT 470. Acquiring and Developing Human Capital	3
MGT 475. Managing and Retaining Human Capital	3

6

## Innovation and Entrepreneurship

The innovation and entrepreneurship (ENT1) track is designed to provide students with an introduction to the role of innovation in business development, a solid foundation in the principle elements of entrepreneurship and small business management, and the opportunity to gain hands-on experience working with a team to create a new business venture. This focus area is suggested for students interested in creating and managing a new business venture, students intending to work for larger firms that encourage innovation and intrapreneurship, and students planning to work in small or family run businesses. MGT 320. Management of Innovation and Technology is considered the first course in this track.

Course	Credit Hours
MGT 471. Entrepreneurship and Small Business Management	3
MGT 472. New Venture Creation	3

6

## Recommended Schedule for Majors

### Third Year

First Semester	Credit Hours
COB 300A. Integrative Business: Management	3
COB 300B. Integrative Business: Finance	3
COB 300C. Integrative Business: Operations	3
COB 300D. Integrative Business: Marketing	3
General Education or non-business elective	3

### Second Semester

Second Semester	Credit Hours
Three of the following five MGT core requirements:	3
MGT 320. Management of Innovation and Technology	
MGT 325. Project Management	
MGT 357. Evidence-Based Decision Making	
MGT 365. Fundamentals of Human Resource Management	
MGT 390. Organizational Leadership	
General Education or non-business electives	6

### Fourth Year

Required Courses	Credit Hours
Remaining two of five MGT core course requirements	6
Choose one:	9
Option 1: One track (two courses) plus one MGT elective	
Option 2: Three MGT electives.	
COB 487. Strategic Management (may be taken in either the first or second semester of the senior year)	3
General Education or non-business electives as needed	

# Department of Marketing

*Dr. Andy Wood, Department Head*

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## Professors

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## Associate Professors

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## Assistant Professors

G. Atav, J. Derby, J. Guthrie, J. Parker

## Lecturers

S. Hertenberg, R. McMillen, L. King, J. Manuli, C. Snyder, R. Tate

## Mission

The marketing department's mission is to develop highly successful marketing professionals who deliver exceptional value to their customers, employers and communities and to advance the practice of marketing through academic and professional engagement.

The marketing curriculum focuses on traditional and online marketing skills needed in various business settings and industries. The curriculum seeks to develop competence in five areas: factual and conceptual knowledge, problem solving skills, communication skills, experiential learning, and use of information technology. Students will be prepared to enter corporate, small business or not-for-profit environments with highly valued skills and an understanding of the need for continuous learning.

## Goals

- To deliver a solid foundation of the concepts and theories of the marketing discipline, including market environmental issues; strategic market planning, implementation and evaluation; marketing research; buyer behavior and market segmentation; and development of marketing programs.
- To engage students in critical thinking processes, requiring in-depth analysis of qualitative and quantitative market data and development of subsequent marketing strategies based on this analysis.
- To enable students to evaluate marketing alternatives and commit to a course of action, using financial, organizational, environmental and ethical criteria as bases for decision making.
- To teach students a variety of information technology tools and techniques to improve marketing and overall business performance and deliver greater value to customers.
- To facilitate students' continuing development of listening, writing and oral communication skills.
- To develop students' marketing-based interpersonal skills, such as group-based negotiation, consensus building, delegation and performance evaluation.
- To integrate classroom study with exposure to industry practices throughout the marketing curriculum and ensure marketing students access to experiential learning opportunities in marketing career tracks.

## Career Opportunities

- Consumer marketing and business-to-business marketing: sales, direct marketing, market analysis, product development, Web-based marketing and customer relationship management.
- Communications: advertising account management, communications management, technical writing, media planning and coordination, and public relations.
- Consulting: marketing consultation, data analysis and data sales.
- Marketing research: database management, market research analyst and project management.
- Product/Brand management: business-to-business sales, product specialist, channel development and promotional marketing.
- Retailing: store management, merchandise buying, trend analysis, Internet sales and visual merchandising.
- Not-for-profit marketing: fund-raising, public relations and customer service.
- Sports/events marketing: merchandising, contract administration, event marketing, trade show management and e-commerce marketing.

## Co-curricular Activities and Organizations

- Madison Marketing Association. This student club is affiliated with the American Marketing Association, a national marketing association for marketing professionals, faculty and students. MMA is open to all JMU students. MMA is comprehensive with its marketing programming and offers students information and activities in direct marketing, retailing and marketing management.
- Professional Sales Club. This organization strives to help all students that are interested in sales and give them the knowledge and skills they need to be successful in a professional sales role.
- Pi Sigma Epsilon. PSE is a professional fraternity, which focuses on programming and extracurricular experiences in marketing, personal selling, and sales management.
- Mu Kappa Tau. This is an honorary marketing fraternity for students with high scholastic records. Admission is by

invitation only. The club invites speakers and engages in joint programming with other JMU student organizations.

- DECA. Collegiate DECA is a student-driven organization that values competence, innovation, integrity and teamwork.
- Ad Club (MAAF). The MAAF is JMU's only student advertising organization and a student chapter of the American Advertising Federation (AAF).

## Special Admissions Requirements

Admission to the marketing major may be limited and competitive if student enrollment exceeds available resources.

Only those students who have been formally admitted to the College of Business will be considered for admission into the marketing department.

## Degree and Major Requirements Bachelor of Business Administration in Marketing

Marketing majors conform to the general structure of the B.B.A. degree program. The B.B.A. degree in marketing requires a minimum of 120 credit hours of undergraduate course work.

### Degree Requirements

Required Courses	Credit Hours
General Education requirements <sup>1</sup>	41
B.B.A. lower-level core courses <sup>2</sup>	30
B.B.A. upper-level core courses	15
Marketing major requirements	27
Non-business electives	7
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> When B.B.A. lower-level core courses are used to meet General Education requirements (e.g., ECON 200 and MATH 205), the number of non-business elective hours a student must take to get 120 hours increases from 7 to 13. Fifty percent of course work, or 60 credit hours, must be taken outside of the College of Business. In counting the 60 credit hours of non-business courses, B.B.A. students may include all hours taken in general education (usually 41), up to a total of nine hours in economics and three hours of COB 191 or MATH 220. The remaining hours to bring the total to 60 must be taken from any academic unit outside the College of Business. Students should carefully select these non-business electives to help them gain additional knowledge and expertise for their careers and personal lives.

### Major Requirements

Students planning to major in marketing must complete the 30 hour, lower-division B.B.A. core requirements (see the College of Business section for the list of courses) prior to enrolling in upper-division B.B.A. core and marketing courses. Upper division courses normally begin in the first semester of the junior year. The lower-division core curriculum should be completed during the first two years of study along with most of the university General Education curriculum. Failing to complete all lower-division core requirements on time will delay enrollment in upper-division core and major courses. Two upper-division B.B.A. core courses are required: COB 300 (parts A, B, C and D) and COB 487.

## Marketing Curriculum

The marketing curriculum consists of 27 credit hours in marketing. The required courses equip students with knowledge and skills all marketers should have. Elective courses allow students to pursue areas of special interest and prepare for specific career tracks in marketing.

Students will complete a concentration in one of the following:

- Marketing
- Professional sales

Required Courses	Credit Hours
Core Courses	15
MKTG 384. Integrated Marketing Communications	
MKTG 385. Consumer Behavior	
MKTG 430. Professional Selling	
MKTG 482. Marketing Analytics	
MKTG 485. Marketing Management	
Concentration and elective courses <sup>1</sup>	6-12
	27

## Concentrations

Marketing has many aspects and marketers engage in a wide variety of activities. Marketing concentrations enable students to prepare for specific career paths within marketing.

### Marketing Concentration

This concentration maximizes students' opportunities to customize a degree that will prepare them for a preferred career path.

Required Courses	Credit Hours
Core courses	15
Choose four marketing electives:	12
MKTG 386. Services Marketing	
MKTG 388. Retail Marketing	
MKTG 450. Business Marketing	
MKTG 460. Global Marketing	
MKTG 462 Logistics	
MKTG 465. CRM Technology for Sales Professionals	
MKTG 466. Advanced Selling	
MKTG 470. Strategic Internet Marketing	
MKTG 477. Internet Marketing Practicum	
MKTG 480. Product Development and Management	
MKTG 490. Special Studies in Marketing	
MKTG 494 Marketing Internship	
	27

### Professional Sales Concentration

This concentration prepares students for careers in sales that focus on business customers and, in most cases, on the selling of relatively large ticket items.

Courses in this concentration build on the content of MKTG 430. Students should complete this course as soon as possible after completing COB 300.

Required Courses	Credit Hours
Core Courses	15
MKTG 466. Advanced Selling	3
MKTG 465. CRM Technology for Sales Professionals	3
Additional MKTG courses	6
	27

## Recommended Schedule for Majors

Marketing majors should follow the course schedule below to complete the final two years of their program. It is possible to deviate from this program but care must be taken to ensure that all course prerequisites are met.

### Third Year

First Semester	Credit Hours
COB 300A. Integrated Functional Systems: Management	3
COB 300B. Integrated Functional Systems: Finance	3
COB 300C. Integrated Functional Systems: Operations	3
COB 300D. Integrated Functional Systems: Marketing	3
	<hr/>
	12

Second Semester	Credit Hours
Choose two:	6
MKTG 384. Integrated Marketing Communications	
MKTG 385. Consumer Behavior	
MKTG 430. Professional Sales	
Nonbusiness electives	6
	<hr/>
	12

### Fourth year<sup>1</sup>

First Semester	Credit Hours
MKTG 482. Marketing Analytics	3
Required marketing courses not completed junior year	3
Marketing electives	6
Nonbusiness elective or COB 487. Business Policy	3
	<hr/>
	15

Second Semester	Credit Hours
COB 487. Business Policy or nonbusiness elective	3
MKTG 485. Marketing Management	3
Marketing electives	6
	<hr/>
	12

<sup>1</sup> COB 487 must be taken during a student's fourth year; however, the course may be taken either semester.

## Transfer Credit Policy

The marketing program will accept no more than two courses for transfer credit toward the major. These courses must be from AACSB institutions and have AUH approval. In addition to this general College of Business policy, there are restrictions on which courses will be accepted for transfer credit.

Students must take the following courses at JMU:

- MKTG 482. Marketing Analytics
- MKTG 485. Marketing Management

# Department of Mathematics and Statistics

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## Associate Professors

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## Assistant Professors

R. Busi, T. Olsen, H. AH Shehadeh, J. Siegfried, A. Stevens, B. Ward, J. Webb, C. Williams, J. Willingham, C. Woodruff

## Instructors

A. Casiple, D. Hall, G. Jansen, E. Lahiere, T. Sprolden, C. Watson

## Mission

The Department of Mathematics and Statistics provides a program of study in the mathematical sciences that meets the needs of a wide variety of students and makes a continuing contribution to the advancement of mathematical and statistical knowledge and its dissemination. The program provides opportunities for in-depth study that can lead to careers as mathematicians and statisticians in private and public sectors, teachers of mathematics, and further study in graduate school. The program provides support for the mathematical and statistical needs of students in the natural sciences, integrated sciences, social sciences, and professional and pre-professional programs. The program meets the general education needs of all students, providing an understanding of mathematical and statistical thinking and approaches to problem solving.

We are committed to promoting mathematics and statistics as an art of human endeavor as well as a fundamental method of inquiry into the sciences and a vast array of other disciplines. We are committed to encouraging an attitude of appreciation and support for mathematics and statistics in current university students and, through them, the next generation of citizens. We are also committed to fostering an appreciation for the effective use of applied mathematics and statistics in connection with and support of other disciplines for those students majoring in other subjects.

## Goals

As a major in mathematics or statistics, a student can expect to use and build on skills such as:

- Thinking critically
- Formulating and solving problems
- Communicating solutions clearly, both orally and in writing

These skills have been gained in previous courses in mathematics, statistics and other areas. As the breadth of knowledge of the subject grows, students gain an increased understanding and appreciation of the fact that mathematics is truly a universal language whose creation and applications cut across all boundaries of race, class, culture and time.

There also will be opportunities for students to experience the challenges and rewards of faculty-mentored research, individually or as a member of a team, as they investigate mathematical and statistical problems that extend beyond those normally encountered in the classroom. Students increase their abilities to prove theorems, understand complex structures and apply mathematics and statistics in many real-world settings. The program students choose will make it possible for them to acquire strong preparation for graduate work or for professional applications in mathematics and statistics, teaching, natural and social sciences or other technical areas.

## Programs

The Department of Mathematics and Statistics offers the B.A. and B.S. degrees with a major in mathematics and the B.S. degree with a major in statistics. There is a program for a major in mathematics that qualifies a student for initial teaching licensure. A concentration in computational sciences is also available. Minors are offered in mathematics and statistics.

The department also recognizes the importance of providing courses for non-specialists who need to make effective use of mathematics or statistics in their chosen careers.

The university is an institutional/educational member of the American Mathematical Society, the American Statistical Association, the Mathematical Association of America, and the Society for Industrial and Applied Mathematics.

Students are strongly encouraged to participate in the numerous undergraduate research opportunities as well as individual and small group projects available in the department. Opportunities exist through the Center for Mathematical Modeling, the Statistical Consulting Center, honors theses and independent studies with individual faculty mentors.

Majors in the department are expected to participate in assessment activities. Assessment information is used to assist faculty members in modifying curricula.

# Degree and Major Requirements

## Bachelor of Arts in Mathematics

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1,2</sup>	41
Foreign Language classes (intermediate level required)	0-14
Philosophy course (in addition to General Education)	3
University electives	19-35
Major requirements (listed below)	41-43
	120

1 MATH 231 or MATH 235 must be included and students seeking secondary teaching licensure must include PSYC 160.

2 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Bachelor of Science in Mathematics

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1,2</sup>	41
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	32-35
Major requirements (listed below)	41-43
	120

1 MATH 231 or MATH 235 must be included and students seeking secondary teaching licensure must include PSYC 160.

2 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Mathematics requirements depend on whether or not the student is seeking secondary teaching licensure. All students must complete 29-31 credit hours of the following required core mathematics courses and 12 credit hours of mathematics courses beyond the core.

Core Courses Required of All Majors	Credit Hours
MATH 236-237. Calculus II-III	8
MATH 245. Discrete Mathematics	3
MATH 248. Computers and Numerical Algorithms	4
MATH 300. Linear Algebra and MATH 336. Elementary Differential Equations <sup>1</sup>	6
MATH 318. Introduction to Probability and Statistics	4
MATH 410. Advanced Calculus I	3
MATH 430. Abstract Algebra I	3
	29-31

1 MATH 238 Linear Algebra with Differential Equations may be substituted for MATH 300 and MATH 336 if the student is completing a double major, seeking the computational sciences concentration, or received credit for MATH 238 before declaring a math major.

### Additional Requirements for Students Seeking Secondary Teaching Licensure

Students seeking secondary teaching licensure must (in addition to the required core courses):

- Complete the 22-24 credit hours that comprise the pre-professional education program in secondary education.
- Complete 12 credit hours of mathematics courses:
  - One of MATH 310 or MATH 315
  - MATH 415
  - MATH 470
  - MATH 475

Students seeking secondary teaching licensure earn the Bachelor of Arts or Bachelor of Sciences degree and then complete the Master of Arts in Teaching degree.

It is necessary to be admitted to the teacher education program prior to enrolling in pre-professional education courses. For a full description of the program in secondary education, refer to the College of Education, Department of Middle, Secondary and Mathematics Education.

### Additional Requirements for Students Not Seeking Secondary Teaching Licensure

Students not seeking secondary teaching licensure track must complete (in addition to the required core courses) one of the following options, each consisting of 12 credit hours of mathematics courses:

- One of MATH 411, MATH 431, MATH 434 or MATH 435, and nine hours of mathematics electives 310 or above. No more than six of the nine hours may be MATH 486 and/or MATH 497.
- One of the pairs of courses MATH 426 and 427, MATH 440 and MATH 441, or MATH 448 and MATH 449, and six hours of mathematics electives numbered 310 or above.

The option chosen and the courses chosen to satisfy an option by a student are made in consultation with the student's adviser and are dependent upon the student's interests and career objectives. Students interested in pursuing graduate studies in mathematics are strongly urged to complete both MATH 411 and MATH 431.

### Recommended Schedule for Majors Seeking Secondary Licensure

First Year	Credit Hours
Skills for the 21st Century (Cluster One)	9-12
MATH 235-236. Calculus I-II	8
MATH 245. Discrete Mathematics	3
General Education courses	6-9
	30
Second Year	Credit Hours
MATH 237. Calculus III	4
MATH 248. Computers and Numerical Algorithms	4
MATH 300. Linear Algebra	3
MATH 336. Elementary Differential Equations	3
MATH 318. Introduction to Probability and Statistics	4
Pre-professional education requirements	6
General Education courses/electives	6
	30
Third Year	Credit Hours
MATH 430. Abstract Algebra I	3
Choose two of the following:	6
MATH 310. Elementary Theory of Numbers	
MATH 315. The Real Number System	
MATH 410. Advanced Calculus I	
MATH 415. History of Mathematics	
MATH 475. Fundamental Concepts of Geometry	
Mathematics electives numbered 310 or above	
Pre-professional education requirements and General Education courses/electives	21

<b>Fourth Year</b>	<b>Credit Hours</b>	30
Choose three from the following:		9
MATH 310. Elementary Theory of Numbers		
MATH 315. The Real Number System		
MATH 410. Advanced Calculus I		
MATH 415. History of Mathematics		
MATH 470. Connections in Mathematics		
MATH 475. Fundamental Concepts of Geometry		
Mathematics elective(s) numbered at or above MATH 310		
Pre-professional education requirements and General Education courses/electives		21
		30

## Recommended Schedule for Majors Not Seeking Secondary Licensure

<b>First Year</b>	<b>Credit Hours</b>	
Skills for the 21st Century (Cluster One)		9-12
MATH 235-236. Calculus I-II		8
Discrete Mathematics		3
General Education courses		6-9
		30

<b>Second Year</b>	<b>Credit Hours</b>	
MATH 237. Calculus III		4
MATH 248. Computers and Numerical Algorithms		4
MATH 300. Linear Algebra		3
MATH 336. Elementary Differential Equations		3
MATH 318. Introduction to Probability and Statistics		4
General Education courses/electives		12
		30

<b>Third Year</b>	<b>Credit Hours</b>	
Choose one of the following:		3
MATH 410. Advanced Calculus I		
MATH 430. Abstract Algebra I		
General Education courses/electives		18-21
Mathematics required or elective courses numbered 310 or above		6-9
		30

<b>Fourth Year</b>	<b>Credit Hours</b>	
Choose one of the following:		3
MATH 410. Advanced Calculus I		
MATH 430. Abstract Algebra I		
Mathematics required or elective courses 310 or above		6-9
Electives		18-21
		30

## Computational Sciences Concentration

For students majoring in mathematics or physics, the Departments of Mathematics and Physics offer a coordinated sequence of courses that prepare students for careers in the rapidly expanding field of computer modeling of complex systems. This program is structured so that students can earn a major in one department and a minor in the other. Students need not decide on a major field until their junior year.

The computational sciences concentration will prepare students to design and use computer models in any of those areas in which applied mathematics is used to understand complex systems (meteorology, astronomy, geology/ geophysics, oceanography, physics, etc.). The preparation is appropriate for both those students who plan to enter the work force after graduation and

those who plan to enter graduate school in applied mathematics, physics, or one of the other fields mentioned above.

Students should complete the following courses during the first two years of the program:

MATH 235-237. Calculus I-III	
MATH 238. Linear Algebra with Differential Equations (MATH 300 and MATH 336 may be substituted.)	
MATH 248. Computers and Numerical Algorithms	
PHYS 140L-150L. General Physics Laboratory I-II	
PHYS 240-260. University Physics I-III	
MATH/PHYS 265. Introduction to Fluid Mechanics	

During their junior and senior years, students will normally complete the necessary course work for their major and minor. Mathematics majors will take PHYS 340, Mechanics, and MATH/PHYS 365, Introduction to Computational Fluid Mechanics, counted as a physics course to complete their physics minor. Physics majors will take MATH/PHYS 365 counted as a mathematics course and either MATH 337, Methods of Applied Calculus, or MATH 440, Fourier Analysis and Partial Differential Equations, to complete their mathematics minor. Seniors in either major must complete at least one topic or independent study/research course that involves computer modeling.

## Bachelor of Science in Statistics

The Department of Mathematics and Statistics offers a major in statistics to meet the needs of both the public and the private sectors for graduates with degrees in statistics. The required courses provide a balance of applications and theory, which allows students to prepare for immediate employment or graduate studies by proper selection of the program electives.

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1, 2</sup>	41
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	28-31
Major requirements (listed below)	45-47
	120

<sup>1</sup> MATH 231 or MATH 235 must be included.

<sup>2</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major Requirements

Requirements for a B.S. degree with a major in statistics are the following required courses and a minimum of six credit hours from the electives listed below. Students interested in pursuing graduate studies in statistics are strongly encouraged to double-major in statistics and mathematics.

Required Courses	Credit Hours
MATH 220. Elementary Statistics <sup>1</sup>	3
MATH 236-237. Calculus II-III	8
Choose one of the following:	3-4
MATH 248. Computers and Numerical Algorithms	
MATH 309. SAS Programming and Data Management	
Choose one of the following:	3-4
MATH 238. Linear Algebra with Differential Equations	
MATH 300. Linear Algebra	
MATH 318. Introduction to Probability and Statistics	4
MATH 321. Analysis of Variance and Experimental Design	3
MATH 322. Applied Linear Regression	3
MATH 327. Categorical Data Analysis	3
MATH 421. Applied Multivariate Statistical Analysis	3

MATH 426. Probability and Mathematical Statistics I	3
MATH 428. Statistical Consulting	3
Electives	6
MATH 324. Applied Nonparametric Statistics	
MATH 325. Survey Sampling Methods	
MATH 326. Statistical Quality Control	
MATH 328. Time Series Analysis	
MATH 354/BIO 454. Introduction to Biometrics	
MATH 410. Advanced Calculus	
MATH 423. Stochastic Processes	
MATH 424. Statistical Decision Theory	
MATH 427. Probability and Mathematical Statistics II	
MATH 429. Research Project in Statistics	

45-47

1 Waived for those who have "C-" or better in MATH 318. No additional course will be required to substitute for MATH 220 if the requirement is waived.

### Recommended Schedule for Statistics

First Year	Credit Hours
Skills for the 21st Century (Cluster One)	9
MATH 220. Elementary Statistics	3
MATH 236. Calculus II	4
MATH 309. SAS Programming and Data Management <sup>1</sup>	3
General Education courses	11
	30
Second Year	Credit Hours
MATH 237. Calculus III	4
MATH 318. Introduction to Probability and Statistics	4
MATH 321. Analysis of Variance and Experimental Design	3
MATH 322. Applied Linear Regression	3
General Education courses/electives	16
	30
Third Year	Credit Hours
MATH 300. Linear Algebra <sup>2</sup>	3
MATH 327. Categorical Data Analysis	3
General Education courses/electives	24
	30
Fourth Year	Credit Hours
MATH 421. Applied Multivariate Statistical Analysis	3
MATH 426. Probability and Mathematical Statistics I	3
MATH 428. Statistical Consulting	3
Electives	21
	30

1 MATH 248. Computers and Numerical Algorithms may be substituted.

2 MATH 238. Linear Algebra with Differential Equations may be substituted.

## Minor Requirements

### Mathematics Minor

The mathematics minor is open to students not majoring in mathematics or statistics. Each student must obtain prior approval of all courses to be counted in the minor from the adviser, Dr. Peter D. Kohn, or from the department head.

A minor in mathematics requires a minimum of 18 credit hours. At least six hours must be earned within the JMU Department of Mathematics and Statistics.

Core Courses	Credit Hours
MATH 235-236. Calculus I-II or MATH 232 and MATH 236	8
Mathematics courses numbered 237 or above, excluding mathematics courses numbered 301-309	10
	18

### Statistics Minor

The minor in statistics is open to any student not majoring in mathematics or statistics. A minor in statistics requires a minimum of 18 credit hours. Students seeking the minor in statistics must complete one of the following options.

#### Option 1

Students completing Option 1 must obtain prior approval of the courses to be counted in the minor from the statistics minor adviser, Dr. Nusrat Jahan.

Required Courses	Credit Hours
MATH 322. Applied Linear Regression	3
Choose one of the following:	3-4
MATH 220. Elementary Statistics	
MATH 318. Introduction to Probability and Statistics or equivalent	
Choose four of the following:	12
MATH 309. SAS Programming and Data Management	
MATH 321. Analysis of Variance and Experimental Design	
MATH 324. Applied Nonparametric Statistics	
MATH 325. Survey Sampling Methods	
MATH 326. Statistical Quality Control	
MATH 327. Categorical Data Analysis	
MATH 328. Time Series Analysis	
MATH 354/BIO 454. Introduction to Biometrics	
MATH 421. Applied Multivariate Statistical Analysis	
MATH 423. Stochastic Processes	
MATH 424. Statistical Decision Theory	
MATH 426. Probability and Mathematical Statistics I	
MATH 427. Probability and Mathematical Statistics II	
	18-19

#### Option 2

Students completing Option 2 must obtain prior approval of the courses to be counted in the minor from the statistics minor adviser, Dr. Samantha Prins.

Required Courses	Credit Hours
MATH 236 and MATH 237. Calculus II & III	8
MATH 318. Introduction to Probability and Statistics	4
MATH 322. Applied Linear Regression	3
Choose two of the following:	6
MATH 321. Analysis of Variance and Experimental Design	
MATH 326. Statistical Quality Control	
MATH 423. Stochastic Processes	
MATH 426. Probability and Mathematical Statistics I	

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### Credit by Examination

The Department of Mathematics offers credit by examination for some of the courses taught in the department. Students who want to take an examination must apply to the department head. Upon application students will receive details regarding approval to take the examination.

# School of Media Arts and Design

*Dr. Gwyneth Mellinger, Director*

Phone: (540) 568-7007

Location: Harrison Hall, Room 0283

Email: smad@jmu.edu

Website: <http://www.jmu.edu/smad>

## Professors

S. Anderson, D. Flamiano, R. Greene, J. Hinshaw, J. Holman, G. Johnson, M. Johnson, A. Leidholdt, D. Maune, T. McHardy, G. Mellinger, K. Reynolds, R. Soenksen

## Associate Professors

M. Grundmann, A. Vilela, S. Wright, N. Zheng

## Assistant Professors

S. Hokanson, A. Hooker, T. Mitchell, I. O'Reilly, R. Parkhurst, D. Wang

## Instructors

J. Loyacano, P. Normand

## Mission

The School of Media Arts and Design prepares students to serve as creative, reflective, and highly skilled media producers and storytellers, sensitive to the personal and social impact of the messages they create and to the important role media can play in advancing the public interest.

## Vision

To be a national leader in media education, providing innovative programs that embrace and integrate traditional media concepts, values, and skills with new and evolving technologies.

We value:

- Inquiry-based learning, both independent and collaborative, that emphasizes the creative process and is distinctly innovative, challenging, cooperative and collegial.
- Historical, legal, and ethical literacy and critical thinking skills that enable students to reach thoughtful and principled decisions throughout their careers.
- Diverse communities and global perspectives acquired through study and experience.
- Strong co-curricular, extracurricular and internship activities that enrich education and enhance an understanding of the role of media in society.

## Goals

To help fulfill the above mission, the school requires students:

- To write clearly, concisely, accurately and effectively for a mass media situation: journalistic, cinematic or electronic.
- To demonstrate computer literacy.
- To demonstrate competency in information gathering for a variety of media situations.
- To recall the process involved in producing a publication (newspaper, magazine, radio, television or multimedia presentation).
- To understand how mass media businesses operate.
- To demonstrate competency in conducting pertinent media research.
- To recognize the history, theories, functions, and effects of mass media in society.
- To recall the history of legal and regulatory constraints on the mass media and new information technologies.
- To recognize ethical constraints on the mass media.

- To apply knowledge of the media in professional environments under academic supervision.

## Career Opportunities

The school integrates the fields and study of mass communication, advertising, digital video and cinema, interactive media, journalism, and mediated visual and aural expression. It offers a program of study that prepares students for careers that incorporate mass media and related areas of expertise, and for graduate study in mass communication and related areas.

## Co-curricular Activities and Organizations

Majors and interested non-majors are encouraged to participate in co-curricular activities and organizations associated with the school. Co-curricular activities entail practical media arts and design experiences for which credit is available through practica or other applied courses. Co-curricular organizations are student clubs and honorary societies associated with the school's programs of study.

### Co-curricular Activities

- *The Breeze* is the student newspaper.
- *Curio* is a feature magazine covering life in the Shenandoah Valley.
- WMRA-FM is the campus public radio station.

### Co-curricular Organizations

- SMAD Club is a student organization that promotes the School of Media Arts and Design, brings in speakers and organizes departmental events.
- Madison AAF, a chapter of the American Advertising Federation, is a club for those interested in careers in advertising.
- Society of Professional Journalists is the JMU chapter of a national organization for students and professionals working in the various fields of journalism.

## Special Admission and Retention Requirements

Admission to the School of Media Arts and Design is limited and competitive. There are two pathways to full admission to the SMAD major.

### Direct Admission

Entering freshmen and transfer students who are awarded a competitive scholarship by the university, the College of Arts and Letters, or by the School of Media Arts and Design will be fully and directly admitted to SMAD in the concentration of their choice. Such scholarship holders are exempt from the admission application requirement but must fulfill any conditions attached to their awards.

### Admission by Application

Students interested in majoring in the programs offered by the school must apply for a limited number of spaces in the major. An admission committee in the school reviews applications and offers admission based on availability to the most qualified students. A student may apply no more than two times for admission to the school.

### September Application Period

The September application process is only for transfer students matriculating to JMU in the current fall semester or the immediately preceding spring or summer semesters and have declared the SMAD major. These students must be officially admitted to JMU as transfer students and must have earned at least 30 hours of JMU approved post high school college credit. They must be degree-seeking students and must be enrolled in at least 12 hours at JMU during the fall semester. The application is due on Friday of the second week of the fall semester.

### January Application Period

Currently enrolled JMU students (including transfer students matriculating in January or in previous semesters) may apply during the January application period. Students applying to the major at JMU must be degree-seeking and have completed at least 12 hours or be enrolled in at least 12 hours at JMU. The application is due on the last Friday in January.

### Process

Students interested in applying for admission to this major must "declare" SMAD as a major and apply to become a "fully admitted" major. Declaring a SMAD major does not guarantee the student will be fully admitted into the SMAD major. Students must declare SMAD as a major prior to being eligible to enroll in SMAD 101. A declared SMAD student may take SMAD 101, but the student is restricted from SMAD courses beyond SMAD 101 until being fully admitted into the major.

A complete application to the major includes the following:

- Completion of SMAD 101 or enrollment in SMAD 101.
- Completion of the SMAD Admission Test. (Instructions for the SMAD Admission Test are given in SMAD 101).
- An application letter/personal essay expressing reasons for your interest in your first choice and second choice concentrations. Conduct research and then indicate what you know about careers in the concentration.

- A completed change of major form<sup>1</sup>.
- A completed SMAD major card<sup>1</sup>.
- A completed SMAD questionnaire<sup>1</sup>.
- Unofficial transcripts (Transfer students must include the record of JMU transfer credit evaluation).
- Completed SMAD Application Package Checklist

<sup>1</sup> Available in the SMAD office

The student will present the required information in a manila folder to the main SMAD office with the student's last name, first name and student identification number on the tab of the folder. The student must supply the folder.

Following the review by the SMAD Admission Committee, students will be notified of the committee's decision. If accepted, students will be eligible to register for SMAD courses. Students not accepted into the major may reapply the following January or a later January. Students may apply to the major no more than two times.

### Change of Concentration

Students accepted into the major must pick a concentration. Students who wish to change concentrations after being accepted into the major may do so only during the annual application period. To change a concentration, a letter must be submitted explaining why you want to change concentrations. This letter should be addressed to the Admission Committee and be no more than two pages in length. A Change of Concentration form must accompany the letter. A student, after consulting with his/her adviser and gaining approval of the admissions committee, will be permitted to change concentrations; however, there are no guarantees that the change request will be granted.

### Minimum Grades

If a student enrolled in SMAD 101 is accepted in the major and makes an "F" in the course, the student will be dropped from the major. In order to be eligible to reapply for the major, the student must re-take SMAD 101 and reapply. If a student enrolled in SMAD 101 is accepted in the major and makes a "D+", "D" or "D-" in the course, the student may continue to take classes in the major; however, the student must retake SMAD 101 the next semester and earn at least a "C-". Students are limited to taking SMAD 101 twice. Failure to achieve a grade of at least a "C-" after the second time will result in the student being dropped from the major, including being dropped from any SMAD courses for which the student is preregistered, and the student may not reapply for admission to the major.

To graduate with a degree in media arts and design, a student must have a grade point average of 2.0 ("C") or better in the major.

## Degree and Major Requirements

A student must complete a minimum of 39 SMAD credits. In addition to courses in the School of Media Arts and Design, students must complete at least 75 non-SMAD credits.

## Bachelor of Arts in Media Arts and Design

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	23-37
Major requirements (listed below)	39
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

### Major Requirements

Core Requirements	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
SMAD 201. Foundations of Visual Design	3
SMAD 202. Foundations of Audio-Visual Storytelling	3
SMAD 203. Foundations of User Experience Design	3
SMAD 301 or SMAD 301L. The Media Arts: Culture by Design <sup>1</sup>	3
SMAD 400. Senior Assessment in Media Arts and Design	0
Choose one of the following concentrations:	24
Creative Advertising	
Digital Video and Cinema	
Interactive Design	
Journalism	
	39

1 Students may receive SMAD credit for either SMAD 301 or SMAD 301L, but not both.

## Bachelor of Science in Media Arts and Design

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
University electives	33-34
Major requirements	39
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirements.

### Major Requirements

Core Requirements	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
SMAD 201. Foundations of Visual Design	3
SMAD 202. Foundations of Audio-Visual Storytelling	3
SMAD 203. Foundations of User Experience Design	3
SMAD 301 or SMAD 301L. The Media Arts: Culture by Design <sup>1</sup>	3
SMAD 400. Senior Assessment in Media Arts and Design	0
Choose one of the following concentrations:	24
Creative Advertising	
Digital Video and Cinema	
Interactive Design	
Journalism	
	39

1 Students may receive SMAD credit for either SMAD 301 or SMAD 301L, but not both.

Students accepted into the major either for the B.S. or B.A. degree must select a concentration. Refer to the Concentrations section below for details.

## Concentrations

### Creative Advertising

This professionally oriented concentration provides students with the knowledge and skills to create and manage advertising programs emphasizing new media. In addition to the theoretical concepts underlying advertising, students learn strategic creative writing, effective message design and media production. Students also learn strategic planning, implementation and evaluation of new media technologies, and research and analysis of current trends and applications. The program reviews ethical and legal issues involved in the creative advertising process and the use of new media. Students planning careers in creative advertising should obtain a broad liberal arts education to better understand the characteristics that make the diversified communication process effective across various media and organizations.

Course Requirements	Credit Hours
SMAD Core Requirements	15
SMAD 242. Introduction to Advertising and New Media	3
SMAD 252. Copywriting for Advertising <sup>1</sup>	3
SMAD 342. Elements of Creative Advertising	3
SMAD 443. Creative Advertising Campaigns	3
Choose one of the following:	3
SMAD 330. New Media Law	
SMAD 370. Mass Communication Law	
Choose one of the following Applied Skills courses:	3
SMAD 210. News Reporting and Writing	
SMAD 220. Copy Editing	
SMAD 225. Photojournalism	
SMAD 305. Special Topics in Media Production <sup>2</sup>	
SMAD 307. Interactive Design I	
SMAD 311. Feature Writing <sup>1</sup>	
SMAD 332. Visual Communication Design	
SMAD 422. Multimedia Journalism	
Choose two of the following Critical Analysis courses:	6
SMAD 360L. British Media and Society	
SMAD 372. Media History	
SMAD 373. Media Analysis and Criticism	
SMAD 398. Critical Studies in Media Arts and Design <sup>2</sup>	
SMAD 470. New Media and Society	
SMAD 472. Media and Politics <sup>3</sup>	
or SMAD 472L. British Media and Politics <sup>3</sup>	
SMAD 498. Senior Seminar	
	39

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 These courses satisfy concentration requirements when the topic is appropriate.

3 Students may receive SMAD credit for either SMAD 301 or SMAD 301L, but not both, and SMAD 472 or SMAD 472L, but not both.

### Recommended Schedule for Majors

First Year	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
Cluster One courses	9
General Education courses	18
	30

Second Year	Credit Hours
SMAD 201. Foundations of Visual Design	3
SMAD 202. Foundations of Audio-Visual Storytelling	3
SMAD 203. Foundations of User Experience Design	3
General Education courses	10-13
University electives	8-11
	30
Third Year	Credit Hours
SMAD 301 or SMAD 301L. The Media Arts: Culture by Design	3
SMAD 242. Introduction to Advertising and New Media	3
SMAD 252. Copywriting for Advertising	3
Creative advertising concentration intermediate applied skills elective course	3
Creative advertising concentration critical analysis elective course	3
University electives	15
	30
Fourth Year	Credit Hours
SMAD 400. Senior Assessment in Media Arts and Design	0
SMAD 342. Elements of Creative Advertising	3
SMAD 443. Creative Advertising Campaigns	3
Choose one of the following:	3
SMAD 330. New Media Law	
SMAD 370. Mass Communication Law	
Creative advertising concentration critical analysis elective course	3
University electives	18
	30

## Digital Video and Cinema

The core mission of the Digital Video and Cinema concentration is to prepare students to be visual storytellers. Students will develop a broad understanding of the aesthetics, techniques and technologies that embody the visual storytelling process as well as a critical perspective of how media tools are used to create content, convey information and impact audiences.

The program offers preparation in writing, development, production and post-production in various genres, and an exploration of the continuously evolving commercial and artistic potential of visual media and story. Digital Video and Cinema students are encouraged to complement their concentration with a robust liberal arts experience that could include a minor and/or a second major. An internship is also recommended.

Course Requirements	Credit Hours
SMAD Core Requirements	15
SMAD 302. Video Production	3
Choose one of the following:	3
SMAD 250. Scriptwriting <sup>1</sup>	
SMAD 251. Screenplay Writing <sup>1</sup>	
Choose one of the following:	3
SMAD 330. New Media Law	
SMAD 370. Mass Communication Law	
Choose one of the following:	3
SMAD 407. Business and Management of Digital Media	
SMAD 410. The Creative Producer	
Choose two of the following Applied Skills courses:	6
SMAD 303. Post Production	
SMAD 304. Audio Production	
SMAD 305. Special Topics in Media Production <sup>2</sup>	
SMAD 306. Studio Production	
SMAD 340. Advanced Screenplay Writing <sup>1</sup>	
SMAD 402. Motion Graphic Design and Production	
SMAD 403. Documentary Production	
SMAD 405. Producing and Directing	
SMAD 462. Documentary in Film and Television	

SMAD 463. Film Adaptations <sup>3</sup>	
or SMAD 463L. Film Adaptations: British Literature and Film <sup>3</sup>	
Choose two of the following Critical Analysis courses:	6
SMAD 360L. British Media and Society	
SMAD 371. Narrative Media Studies	
SMAD 373. Media Analysis and Criticism	
SMAD 380. Introduction to Film	
SMAD 398. Critical Studies in Media Arts and Design <sup>2</sup>	
SMAD 460. Film and Society	
SMAD 461. Film as Art	
SMAD 462. Documentary in Film and Television	
SMAD 463. Film Adaptations <sup>3</sup>	
or SMAD 463L. Film Adaptations: British Literature and Film <sup>3</sup>	
SMAD 464. Contemporary American Film	
SMAD 465. The Entertainment Industry: An Overview	
SMAD 470. New Media and Society	
SMAD 498. Senior Seminar	

- 1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.
- 2 These courses satisfy concentration requirements when the topic is appropriate.
- 3 Students may receive SMAD credit for either SMAD 463 or SMAD 463L, but not both.

## Recommended Schedule for Majors

First Year	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
Cluster One courses	9
General Education courses	18
	30
Second Year	Credit Hours
SMAD 201. Foundations of Visual Design	3
SMAD 202. Foundations of Audio-Visual Storytelling	3
SMAD 203. Foundations of User Experience Design	3
SMAD 250. Scriptwriting	3
or SMAD 251. Screenplay Writing	
General Education courses	10-13
University electives	5-8
	30
Third Year	Credit Hours
SMAD 301 or SMAD 301L. The Media Arts: Culture by Design	3
SMAD 302. Video Production	3
Digital Video and Cinema concentration applied skills elective course	3
Digital Video and Cinema concentration critical analysis elective course	3
University electives	18
	30
Fourth Year	Credit Hours
SMAD 400. Senior Assessment in Media Arts and Design	0
SMAD 330. New Media Law	3
or SMAD 370. Mass Communication Law	
SMAD 407. Business and Management of Digital Media	3
or SMAD 410. The Creative Producer	
Digital Video and Cinema concentration applied skills elective course	3
Digital Video and Cinema concentration critical analysis elective course	3
University electives	18
	30

## Interactive Design

This concentration serves students interested in digital convergence – the delivery of content via multiple media formats such as text, images, audio, video and interactive websites. Students are involved in content creation and distribution using diverse communications media and are prepared for a variety of roles in media industries. Class work and practical experiences are grounded in online media and provide students with opportunities to develop additional skills using other media formats. At the same time, the program encourages students to obtain a broad liberal arts education so they will understand the theories, design, legalities and applications of convergence in society.

Course Requirements	Credit Hours
SMAD Core Requirements	15
SMAD 307. Interactive Design I	3
SMAD 317. User Interaction Design	3
SMAD 330. New Media Law	3
SMAD 407. Business and Management of Digital Media	3
Choose one Intermediate Applied Skills courses:	3
SMAD 305. Special Topics in Media Production <sup>2</sup>	
SMAD 308. Interactive Design II	
SMAD 332. Visual Communication Design	
Choose one Advanced Applied Skills courses:	3
SMAD 404. Advanced Interactive Design	
SMAD 408. Converged Media Lab	
Choose two Critical Analysis courses:	6
SMAD 360L. British Media and Society	
SMAD 372. Media History	
SMAD 373. Media Analysis and Criticism	
SMAD 398. Critical Studies in Media Arts and Design <sup>2</sup>	
SMAD 470. New Media and Society	
SMAD 471. Media Ethics	
SMAD 472. Media and Politics <sup>3</sup>	
or SMAD 472L. British Media and Politics <sup>3</sup>	
SMAD 498. Senior Seminar	

39

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 These courses satisfy concentration requirements when the topic is appropriate.

3 Students may receive SMAD credit for either SMAD 472 or SMAD 472L, but not both.

## Recommended Schedule for Majors

First Year	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
Cluster One courses	9
General Education courses	18
	30
Second Year	Credit Hours
SMAD 201. Foundations of Visual Design	3
SMAD 202. Foundations of Audio-Visual Storytelling	3
SMAD 203. Foundations of User Experience Design	3
General Education courses	10-13
University electives	8-11
	30
Third Year	Credit Hours
SMAD 301 or SMAD 301L. The Media Arts: Culture by Design	3
SMAD 307. Interactive Design I	3
SMAD 317. User Interaction Design	3
Converged Media concentration intermediate applied skills elective course	3
Converged Media concentration critical analysis elective course	3
University electives	15
	30

Fourth Year	Credit Hours
SMAD 400. Senior Assessment in Media Arts and Design	0
SMAD 330. New Media Law	3
SMAD 404. Advanced Interactive Design or SMAD 408. Converged Media Lab	3
SMAD 407. Business and Management of Digital Media	3
Converged Media concentration critical analysis elective course	3
University electives	18
	30

## Journalism

This professionally-oriented program enables students to develop reporting, writing, editing and production skills needed to work in magazines, newspapers, video/broadcast and new media journalism through course work, internships and other practical experiences. At the same time the program encourages students to obtain a broad liberal arts education so they will understand many of the issues facing contemporary society.

Course Requirements	Credit Hours
SMAD Core Requirements	15
SMAD 210. News Reporting and Writing <sup>1</sup>	3
SMAD 309. Video Journalism	3
SMAD 370. Mass Communication Law	3
Choose one of the following:	3
SMAD 310. Advanced Reporting and Writing <sup>1</sup>	
SMAD 311. Feature Writing	
Choose one Intermediate Applied Skills courses:	3
SMAD 220. Copy Editing	
SMAD 225. Photojournalism	
SMAD 305. Special Topics in Media Production <sup>2</sup>	
SMAD 307. Interactive Design I	
SMAD 332. Visual Communication Design	
SMAD 403. Documentary Production	
Choose one Advanced Applied Skills courses:	3
SMAD 409. Electronic News Producing and Editing	
SMAD 421. Feature Magazine Production	
SMAD 422. Multimedia Journalism	
SMAD 497. Advanced Projects in Media Arts and Design (when topic is appropriate)	
Choose one Critical Analysis courses:	3
SMAD 372. Media History	
SMAD 471. Media Ethics	
Choose one Critical Analysis courses:	3
SMAD 360L. British Media and Society	
SMAD 372. Media History	
SMAD 373. Media Analysis and Criticism	
SMAD 398. Critical Studies in Media Arts and Design <sup>2</sup>	
SMAD 462. Documentary in Film and Television	
SMAD 470. New Media and Society	
SMAD 471. Media Ethics	
SMAD 472. Media and Politics <sup>3</sup>	
or SMAD 472L. British Media and Politics <sup>3</sup>	
SMAD 498. Senior Seminar	

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1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 These courses satisfy concentration requirements when the topic is appropriate.

3 Students may receive SMAD credit for either SMAD 472 or SMAD 472L, but not both.

## Recommended Schedule for Majors

First Year	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
Cluster One courses	9
General Education courses	18
	30
Second Year	Credit Hours
SMAD 201. Foundations of Visual Design	3
SMAD 202. Foundations of Audio-Visual Storytelling	3
SMAD 203. Foundations of User Experience Design	3
SMAD 210. News Reporting and Writing	3
General Education courses	10-13
University electives	5-8
	30
Third Year	Credit Hours
SMAD 220. Copy Editing	3
SMAD 309. Video Journalism	3
SMAD 301 or SMAD 301L. The Media Arts: Culture by Design	3
SMAD 310. Advanced Reporting and Writing or SMAD 311. Feature Writing	3
Journalism concentration intermediate applied skills elective course	3
Journalism concentration critical analysis elective course	3
University electives	12
	30
Fourth Year	Credit Hours
SMAD 400. Senior Assessment in Media Arts and Design	0
SMAD 370. Mass Communication Law	3
Choose one:	3
SMAD 409. Electronic News Producing and Editing	
SMAD 421. Feature Magazine Production	
SMAD 422. Multimedia Journalism	
Journalism concentration advanced applied skills elective course	3
Journalism concentration critical analysis elective course	3
University electives	18
	30

## Teaching Licensure

In addition to the general education and academic major requirements, media arts and design majors desiring to add an endorsement in journalism to a secondary teacher license in another content area must be admitted to teacher education, complete the pre-professional program in secondary education at the undergraduate level and complete the graduate level Master of Arts in Teaching degree.

It is critical that students seeking licensure consult regularly with both their education adviser and their major adviser to support their progression through the programs. For a full description of the program in secondary teaching, refer to the Department of Middle, Secondary and Mathematics Education.

## Minor Requirements

### British Communication and Media Minor

The cross disciplinary British Communication and Media minor enables students to expand their knowledge of communication and media in Great Britain and to enhance their appreciation of the impact culture has on communication and media. Students must participate in the JMU Semester or Summer in London program to complete this minor.

### Creative Writing Minor

The cross disciplinary minor in Creative Writing is designed to give students an opportunity to develop their writing talents across a number of literary forms and communication contexts.

### Film Studies Minor

The cross disciplinary minor in Film Studies is designed for students who wish to extend their critical understanding of visual communication and narrative form by studying how movies tell stories, convey information and influence audiences.

### Political Communication Minor

The program in Political Communication is designed for those students wishing to supplement their major programs with an emphasis on communication skills, knowledge and abilities specifically relevant to participation in political environments.

### Sport Communication Minor

This cross disciplinary minor consists of course work offered in communications, media arts and design, and kinesiology for students with an interest in sports media and communication.

### American Studies Minor

The minor in American Studies is based on the desirability of fostering an understanding of the whole of American civilization through study in a variety of fields and topics. Students will select courses in three groups—multicultural studies, ideas and the arts, and history and politics—and from diverse fields including literature, history, the fine arts, philosophy and the social sciences.

# Department of Middle, Secondary and Mathematics Education

*Dr. David Slykhuis, Interim Department Head*

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## Professors

M. Cancienne, K. Doubet, J. Kindig, D. Slykhuis

## Associate Professors

E. Carbaugh, M. Cude, D. Haraway, S. Purcell, A. Wallace

## Assistant Professors

R. Higdon, A. Taylor Jaffee, A. Sawyer

## Instructors

E. Imbrescia, D. Lane

## Middle Education Grades Six Through Eight Master's Level Licensure Program

The undergraduate pre-professional program in middle education is designed to prepare teachers of grades 6-8. This program provides the requisite course offerings and experiences that form the foundation for admission to the Master of Arts in Teaching (M.A.T.) program. The JMU middle education program is based on the following four assumptions:

- Classroom teachers should possess a broad liberal education that provides a context for understanding individual behavior and major social issues in a contemporary democratic and technological society.
- Middle level classroom teachers should possess extensive knowledge and expertise in the content areas in which they teach and understand essential cross disciplinary concepts related to the respective content areas.
- Middle level classroom teachers must have extensive professional knowledge and be able to practice and demonstrate teaching skills that are effective and appropriate for students between the ages of 10 and 14.
- Middle level classroom teachers must have strong problem-solving skills, must be reflective in professional thought and practice, and must be ethically, morally and professionally responsible.

Teacher candidates must meet a set of content and subject-specific criteria that are approved by the Virginia Department of Education. In some states, middle grade teachers must meet minimum preparation requirements in two of the four core subject areas (mathematics, social studies/history, science, English/language arts). In order to meet these requirements, candidates are advised to major in Interdisciplinary Liberal Studies, a major that will allow them to complete dual content concentrations as well as meet the necessary subject-matter competencies.

The IDLS major is assigned two advisers. One adviser is the adviser for the education pre-professional licensure program

who will guide the student through the licensure program requirements. The other adviser is the IDLS adviser who will guide the student through the IDLS major requirements. Students should plan on consulting both advisers regularly. Typically, the education adviser is assigned when the student meets with the head of his/her licensure program and elects the licensure program. This may be as early as the first semester of the first year. The IDLS adviser is assigned when the first year student advising folders are transferred to the IDLS office (second semester, first year). Students are required to check with advisers regularly to ensure timely graduation.

The middle education program enables teacher candidates to become knowledgeable about the developmental characteristics of middle school students, and to create, design and implement curriculum activities that are cross disciplinary in nature and related directly to the social, emotional, physical and intellectual needs of children between the ages of 10 and 14.

Candidates should consult with the department head or an adviser in middle education early during the first year or as soon, thereafter, as possible to obtain information concerning the requirements for admission to teacher education. Candidates should contact the IDLS director for the General Education requirements for the IDLS major.

Candidates should note that they must be fully admitted to teacher education prior to registering for the courses included in the pre-professional middle education program. Candidates should also note that actual requirements may differ from the catalog requirements listed because of changes enacted by the Virginia Department of Education or other accrediting agencies after the catalog copy is approved. Therefore, it is especially important for candidates to confer with education advisers on a regular basis.

It is important for candidates to understand that they must meet the requirements for a baccalaureate degree and successfully complete all undergraduate pre-professional courses and experiences prior to being admitted to the M.A.T. program. Candidates must earn a grade of "B-" or better in all required pre-professional undergraduate courses in the education program to continue in and complete the pre-professional

program. Consult The Graduate Catalog for M.A.T. graduate requirements. Admission to and satisfactory completion of the M.A.T. program are required for a recommendation from James Madison University for licensure in middle grades education.

Completion of the five-year professional program in middle education is designed to lead to a Virginia teaching license with an endorsement in middle education. To be recommended for licensure, all candidates must meet the following requirements:

- Complete General Education and IDLS requirements.
- Complete the middle education pre-professional program.
- Meet all admission and retention criteria for teacher education including satisfactory scores on the Praxis Core Academic Skills for Educators (formerly Praxis I) and Praxis Subject Assessment (formerly Praxis II) tests.
- Meet admission requirements for the middle education M.A.T. program.
- Complete the graduate portion of the licensure program.
- Meet performance and behavior standards as indicated by ratings on the program Professional Dispositions Checklist.

## Degree and Major Requirements

### B.A./B.S. Undergraduate Degree

#### Requirements

Courses	Credit Hours
General Education <sup>1</sup>	46
Interdisciplinary Liberal Studies Major	36-42
Pre-Professional Studies in Education M.A.T. Program	37
Graduate Level Professional Studies	32

151-157

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Recommended Schedule for Middle Education

Undergraduate Course Requirements	Credit Hours
MSSE 101. Orientation to the Profession <sup>1</sup>	1
PSYC 160. Life Span Human Development	3
EDUC 300. Foundations of American Education	3

Students must declare the middle education pre-professional licensure program and be fully admitted into teacher education prior to enrolling in the remaining courses. Contact the MSME department office to determine the requirements for admission to teacher education. The first three courses listed are corequisite offerings and must be completed before enrolling in the next two courses which are also corequisites.

Courses	Credit Hours
EDUC 310. Teaching in a Diverse Society	3
MIED 311. Field Experience in Middle Education	2
READ 312. Reading and Writing Across the Curriculum in the Middle Grades	3
MSSE 370. General Instructional Methods for Grades 6-12	3
MSSE 371. Clinical Experience in Adolescent Education	1
READ 472. Literacy, Assessment, and Instruction in Content Areas for the Middle Grades	3
MSSE 470. Content Methods Courses (complete two in appropriate areas)	6
MSSE 470E. English/Language Arts	
MSSE 470H. Social Studies	
MSSE 470S. Science	
MSSE 470M. Mathematics	

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MSSE 471. Content Area Field Experience in Middle Schools<sup>2</sup>

EXED 460. Differentiation of Instruction and Academic Collaboration

3

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<sup>1</sup> Students are responsible for transportation to field placements at local schools.

<sup>2</sup> Choose practicum to correlate with the two content 470 courses. Students complete course twice in appropriate content for a total of six credit hours.

Students are responsible for transportation to field placements at local schools.

## Graduate Courses

Candidates beginning the graduate portion of the program must meet all graduate school requirements and criteria for admission (e.g., 2.7 or higher GPA, passing Praxis Subject Assessment scores); it is expected that candidates will complete the graduate admission process early in their senior year. In addition, candidates must meet all graduate level graduation requirements (culminating teaching project, etc.). See the Graduate Catalog for additional details.

Required Courses	Credit Hours
EDUC 540. Educational Technology	3
EXED 512. Behavior Management in the Classroom	3
MIED 610. Collaborative Leadership in Schools	3
MIED 620. Assessment in Middle Education	3
MSSE 630. Inquiry in the Classroom	3
MIED 656. Seminar in Middle Education	3
MSSE 690. Internship in Middle Education	8
MSSE 650. Internship Seminar	3
Approved graduate-level elective	3
	32

## Secondary Education

### Grades Six through Twelve Master's Level Licensure Program

The program in secondary education, including the undergraduate component and the M.A.T., is designed to prepare teachers who are reflective decision-makers. Teachers who are reflective decision-makers are able to choose from among known educational alternatives to maximize student learning in a variety of instructional situations.

The undergraduate program in secondary education is designed to provide candidates with the prerequisite course offerings and experiences that form the required foundation for admission to the Master of Arts in Teaching (M.A.T.) program. Completion of the M.A.T. program is required for a recommendation for licensure in secondary education through JMU. Undergraduate candidates who are planning to pursue licensure to teach in an academic area at the secondary school level should complete the 23 credit hour pre-professional program in education.

Candidates should also complete a major or the equivalent in one of the arts and sciences disciplines closely associated with the desired teaching area. The state approved licensure areas in the secondary education program at JMU include: English, mathematics, the natural sciences (biology, chemistry, physics, earth science), and history/social science (social studies). Licensure endorsements for other teaching areas (e.g., algebra I, journalism and gifted education) are available as add-on programs. Candidates should contact the departmental office for information concerning those programs.

Candidates should consult with the department head or an adviser in secondary education early during the first year or as soon, thereafter, as possible to obtain information concerning completing the related General Education and content area requirements, as well as the undergraduate and graduate education requirements.

The secondary education licensure program is an integrated program of undergraduate and graduate requirements and experiences. It is important for candidates to understand that they must meet the requirements for a baccalaureate degree and that the appropriate undergraduate pre-professional courses and experiences must be completed satisfactorily before they will be admitted to the M.A.T. program.

Candidates must earn a grade of "B-" or better in all required pre-professional undergraduate courses in the education program and at least a "C-" in content course work to continue in and complete the pre-professional program. Consult The Graduate Catalog for M.A.T. graduate requirements. Admission to and the satisfactory completion of the M.A.T. program are required in order to receive a recommendation through JMU for a teaching license at the secondary school level.

Candidates should note that they must be fully admitted to teacher education prior to registering for courses in the pre-professional secondary education program. Candidates should also note that actual teacher licensure requirements may differ from the catalog requirements listed for a program because of changes enacted by the Virginia Department of Education or accrediting agencies after the catalog copy is approved. Therefore, it is important for students to confer with their education advisers on a regular basis.

## Degree and Major Requirements

### B.S./B.A. Undergraduate Degree

#### Requirements

Courses	Credit Hours
General Education <sup>1</sup>	41-44
Discipline Major	36-60
Pre-Professional Studies in Education	23
M.A.T. Program (Graduate)	
Graduate Level Professional Studies	35

135-162

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Recommended Schedule for Secondary Education

First and/or Second Year	Credit Hours
MSSE 101. Orientation to the Profession <sup>1</sup>	1
PSYC 160. Life Span Human Development	3
EDUC 300. Foundations of American Education	3

Students must declare the secondary education pre-professional licensure program and be fully admitted into Teacher Education prior to enrolling in the remaining courses. Contact the departmental office to determine the requirements for admission to teacher education. The first three courses listed are corequisite offerings and must be completed before enrolling in the next three courses which are also corequisites.

Third and/or Fourth Year	Credit Hours
EDUC 310. Teaching in a Diverse Society	3
MSSE 370. General Instructional Methods for Grades 6-12	3
MSSE 371. Clinical Experience in Adolescent Education	1
MSSE 470. Content Methods Course for Middle School	3
MSSE 471. Content Area Field Experience in Middle Schools <sup>1</sup>	3
READ 440. Literacy-Based Learning in Secondary Education	3

23

<sup>1</sup> Students are responsible for transportation to field placements at local schools.

## Graduate Courses

Before beginning the graduate portion of the professional program, candidates must meet all criteria for admission to teacher education and for admission to the Graduate School (e.g., 2.7 or higher GPA, passing Praxis Subject Assessment scores). Candidates are expected to complete the admission processes early in their senior year. Candidates must meet all additional requirements of the program and The Graduate School before completing the program. See the Graduate Catalog for additional information. The following courses are required for completion of the graduate portion of the licensure program in secondary education.

Courses	Credit Hours
MSSE 607. Middle and Secondary School Curriculum and Co-Curriculum	3
MSSE 625. Assessment in Secondary Education	3
EDUC 540. Educational Technology	3
EXED 512. Behavior Management in the Classroom	3
MSSE 630. Inquiry in the Classroom	3
EXED 520. Differentiation of Instruction and Academic Collaboration	3
MSSE 570. Content Methods Course for High School	3
MSSE 571. Content Area Field Experience in High School	3
MSSE 675. Internship in Middle and Secondary Education	8
MSSE 650. Internship Seminar	3

35

## Program Advising

First-year candidates planning to become teachers in secondary schools must enroll in MSSE 101. Orientation to the Profession. Candidates should contact an education adviser concerning job opportunities in the various secondary subject areas, proper sequence of education courses, practicum opportunities in local secondary schools and special programs. By consulting regularly with their program adviser in secondary education, candidates can continually evaluate their academic objectives.

## Vocational Education Courses

For persons employed by school divisions, to teach in vocational programs, the following courses are available and can be used by trade and industrial education teachers to upgrade their provisional license to the technical professional teaching license.

Courses	Credit Hours
PSYC 160. Life Span Human Development	3
EDUC 490. Special Topics in Education	3
VOED 383. Curriculum and Instructional Procedures in VOED	3

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# Department of Military Science

*LTC Thomas Tolman, Department Head*

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## Professor

T. Tolman

## Associate Professors

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## Instructor

J. Wayment

## Mission

The James Madison University Army ROTC Duke Battalion mission is to recruit, develop, educate and provide quality leadership training, practical hands-on experience and Army values character development in order to commission agile and adaptive leaders to serve as the future officer leadership in the Army, Army Reserve or Army National Guard. Additionally, it is our mission to motivate young people through caring leadership to be better citizens committed to lifelong service of the community and nation.

## Goals

The program offers two, three and four year options, allowing students to complete the requirements to earn a commission as an Army officer. The three and four year programs consist of a basic course and an advanced course. A two year option allows students with at least two academic years remaining in either undergraduate or graduate studies to complete all requirements for commissioning as a second lieutenant in the active Army, Army National Guard or Army Reserves. Additionally, students not intending to pursue a career in the military will gain valuable leadership, teambuilding and communication skills, which transfer into marketable civilian job skills.

## Career Opportunities and Marketable Skills

Army ROTC provides students with highly marketable leadership skills. The curriculum imparts leadership principles, concepts of human development, and aspects of health and fitness. Practical application of classroom instruction in lab develops one's leadership style, communication and organizational skills, and strengthens personal character. Development of these skills implicitly builds one's self-confidence, discipline and professional attributes.

Army Reservists or Army National Guardsmen who are continuing their education full time may be eligible for the Simultaneous Membership Program, which combines Reserve Forces duty with Army ROTC on campus and enables the student to earn approximately \$5,000 in two years. Graduates of the program earn an Army commission and may serve four years in career areas as diverse as medical service, signal, infantry, law enforcement, aviation or nursing.

There are also opportunities for students seeking graduate degrees to delay going on active duty in order to pursue a graduate study program in law, medicine or other subjects. Further, Army ROTC scholarships are competitive for graduate students with no prior Army ROTC experience.

## Co-curricular Activities and Organizations

- Color Guard
- JMU Cannon Crew
- JMU Ranger Group
- Scabbard and Blade Military Honor Society
- Army Ten Miller Team
- Ranger Challenge

## Special Admission and Retention Requirements

Advanced military science courses are normally taken during the junior and senior years, or during graduate school. Qualified students pursuing a commission as a second lieutenant are contracted and paid a subsistence allowance of \$300-\$500 per month for up to 10 months during the school year. Prior to commissioning, each cadet must successfully complete the four-week ROTC Leader Development Assessment Course (LDAC) at Ft. Knox, Kentucky. Cadets must maintain at least a 2.0 GPA, meet DoD medical fitness standards and meet Army physical fitness and weight control standards.

## Degree Requirements

The Military Science curriculum is divided into two phases:

### Phase One: Basic Military Science

Courses	Credit Hours
MSCI 100. Leadership Laboratory (two semesters)	2
MSCI 101. Introduction to Leadership and the Army	2
MSCI 102. Leadership Development Fundamentals	2
MSCI 200. Intermediate Leadership Laboratory (two semesters)	4
MSCI 201. Leadership Styles – Theory and Application	2
MSCI 202. Developing Leader Skills	2

The basic course is open to all JMU students. There is no military obligation incurred for taking 100- and 200-level military science courses. This curriculum is designed to help students in the near-term as leaders on campus. The classes will also help students be more effective leaders in the long-term, whether they serve in the military or as leaders in civilian life. Topics addressed include problem solving, critical thinking, problem-solving methods, leadership theory, followership, group cohesion, goal setting, feedback mechanisms, physical fitness and land navigation.

Lessons are taught in a seminar format, emphasizing student discussions and practical exercises. Courses are open to all students with no prerequisites and no military obligation. Students must enroll in both the lab and the classroom instruction.

Placement credit for the basic course may be awarded through multiple programs including: prior military service, basic training, or successful completion of the ROTC summer leadership training course at Ft. Knox, Ky.

## Phase Two: Advanced Military Science

Courses	Credit Hours
MSCI 300. Advanced Leadership Laboratory (every semester)	12
MSCI 310. Leading Small Organizations	3
MSCI 320. Developing Advanced Leader Skills	3
MSCI 410. Adaptive Leadership	3
MSCI 420. Leadership in a Complex World	3

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The advanced course focuses on instruction and case studies which build leadership competencies and military skills in preparation for future responsibilities as Army officers and successful completion of the Leader Development Assessment Course (LDAC) at Ft. Knox, KY. Instruction includes the principles of war, decision-making processes, planning models and risk assessment. Advanced leadership instruction focuses on motivational theory, the role and actions of leaders, and organizational communications. Courses are only open to advanced course-contracted cadets with prerequisites and a military obligation is incurred.

## Scholarships

Contact the department's enrollment officers at (540) 568-3633 for scholarship information.

## Minor Requirements

### Minor in Military Leadership

Courses	Credit Hours
Basic military science courses	14
Advanced military science courses	24
Military History course (MSCI 150)	3

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# School of Music

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## Associate Professors

P. Aponte, C. Carrillo, V. Curry, R. Hallahan, W.B. Hayes, L. Maynard, K. McMillan, L. Piitz, D. Rierison, P. Steinberg, D. Stringham, J. Taylor, J. van der Vat-Chromy, I. Zook

## Assistant Professors

F. Beyers, C. Cangelosi, E. Guinivan, S. Jankauskas, J. Peterson, D Phoenix-Neal, J. Rathgeber, S. Suggs, J. Zyko

## Instructor

S. Ridders

## Mission

The mission of the School of Music is to provide the highest level of musical training in a comprehensive program that prepares students in conducting, music education, music industry, music performance, theory, composition and music history and to prepare them to be thoughtful and productive citizens. Specifically, the school's mission is to:

- Select undergraduate and graduate majors and minors who have demonstrated a commitment to developing their musical skills and talents.
- Motivate music enthusiasts to explore musical concepts by exposing them to and including them in music performance, composition and education.
- Foster a sense of community that encourages intellectual curiosity, creative endeavor, cultural diversity and respect for various perspectives.
- Encourage excellence from faculty members as educators, researchers, performers, clinicians and supporters so that they develop students into motivated, competent professionals and outstanding world citizens.
- Provide music majors and non-music majors with knowledge of music and develop appropriate skill levels and musicianship.
- Offer curricula that prepare students to be professionals in music performance, composition, education or industry.
- Broaden students' understanding of music through innovative teaching, creative experiences and scholarly research.
- Provide a wide variety of cultural events for the JMU and Shenandoah Valley communities.
- Expose students to current technology employed in the music field, such as computers, music instruction software, electronic devices, and advanced audio and visual equipment.
- Prepare D.M.A. students to teach at the college level, not just in their principal areas but also in many of the core curriculum classes, such as theory, music history and music appreciation.

The School of Music is an accredited institutional member of the National Association of School of Music.

## Objectives

The ten major degree concentrations are each designed to establish a set of skills and a knowledge base necessary for success as a practitioner in specific career areas in the broad field of music. These objectives are achieved through School of Music classes:

- Through core music classes, students will attain a general level of functional musicianship sufficient to begin and sustain a professional career in the music field.
- To gain awareness and basic competency in composition and analysis of the standard forms and styles of western music.
- To gain a broad historical perspective on the development of the forms and styles of western music, as well as diverse world musics.
- To develop a knowledge base enabling the placement of music within stylistic and chronological eras through cues that can be aurally identified.
- To develop a minimal ability to use a piano keyboard in the study, analysis and performance of music.
- To learn and practice the basic skills of conducting a musical ensemble and leading a rehearsal.
- Through attendance at musical performances, students will gain awareness and acceptance of a broad variety of music, as well as of the traditional practices of concert musicians through listening to and watching others perform.
- Through specialized classes in each concentration, students will attain skills and attitudes necessary for the establishment and maintenance of a career as a professional musician.
- Students in all concentrations will take weekly lessons in a primary instrument until they have mastered the skills of performance on that instrument sufficiently well to pass the graduation level for the specific concentration and to successfully complete a senior recital in performance or composition.
- Students in all concentrations will perform regularly in both solo and ensemble situations, allowing them to gain a variety of professional-level performing experiences. At least one ensemble per semester is required of all music

students until they have completed all the major requirements for the B.M. degree.

- Students in all concentrations will take specialized classes at the upper levels to learn the skills and more concentrated knowledge bases of the individual concentration areas. These classes may be aimed at developing a broad survey knowledge of music literature or history in a particular segment of the repertoire, or at the discovery and development of skills needed in the field but not necessarily to be mastered through individual practice and performance.
- In some major concentrations, internships are required that put the student into the work world in a supervised off-campus learning activity designed to give practical workplace experience in the field.

## Career Opportunities

The various programs offered by the school can lead students to a wide range of careers. Programs in performance or composition are intended for students who desire to continue their musical training in graduate programs that will prepare them for professional careers in performance, composition and/or teaching at the college level.

Those who elect the emphasis in music industry will be prepared for positions in a broad area of music-business occupations and for admission to graduate professional schools of business.

The music education program prepares students to teach vocal and/or instrumental music in public schools.

The music theatre program is designed to prepare vocal music majors for the field of popular Broadway musical theatre performance as well as for careers in opera and operetta.

The jazz studies program prepares students for the rigors of graduate study in jazz performance, equips students with the jazz vocabulary necessary for professional performance, and provides knowledge and skills necessary for employment in private instruction or as a jazz specialist in public schools.

The following list of careers is only a small sample of possibilities:

- Artists' manager
- Composer
- Conductor
- Entertainment lawyer
- Music educator
- Music journalist
- Music librarian
- Music software developer
- Orchestra manager
- Performing artist
- Professional accompanist
- Professor/teacher
- Record producer

## Co-curricular Activities and Organizations

These activities are open to all JMU students without audition:

- Concert Band
- Marching Royal Dukes
- Men's and Women's Chorus

These activities are open to all JMU students with audition or instructor permission:

- Bach Aria Group
- Brass Ensembles
- Camerata Strings
- Chamber Orchestra
- Chorale
- Clarinet Choir
- Collegium Musicum
- Flute Choir
- Guitar Ensemble
- Horn Choir
- Jazz Band
- Jazz Chamber Ensembles
- Jazz Ensemble
- Madison Singers
- Opera Theatre
- Opera Theatre Orchestra
- Percussion Ensemble
- Piano Accompanying
- Steel Drum Band
- String Ensembles
- Symphonic Band
- Symphony Orchestra
- Treble Chamber Choir
- Trombone Choir
- Trumpet Ensemble
- Tuba and Euphonium Ensemble
- Wind Symphony
- Woodwind Ensembles

## Admission Requirements

Students choosing to major in music must possess a solid background and experience in the performance medium they elect for their major, and they should display sufficient musical talent to indicate promise in their field.

To be considered for undergraduate admission to the music program, all entering first year students, transfer students and previously enrolled students seeking re-admission must complete the following:

- Submit an application for admission to JMU's Office of Admission.
- Submit the Undergraduate Music Audition Application to select an audition date.
- Successfully complete an audition.

Audition guidelines may be found on the music website.

Students are encouraged to contact the applied faculty on their area of performance expertise with specific questions about their audition. General questions about the music degree programs may be answered by an admissions assistant at (540) 568-3851 or by sending a message to [music\\_admit@jmu.edu](mailto:music_admit@jmu.edu).

## Audition, Exam and Placement Test

No student will be accepted into the music degree programs until an audition is successfully completed and passed. A piano placement test will also be taken but has no bearing on

acceptance. The piano test primarily determines keyboard skills class-level placement.

All candidates are expected to perform the entrance audition on one of the scheduled audition dates. The school does not encourage special appointments and will arrange them only when applicants have serious conflicts with the scheduled auditions.

Because assessing a student's ability through a recorded performance is difficult, only students who live at great distances are encouraged to send audition recordings. All recordings submitted must be of high quality and demonstrate the student's ability.

The audition should reveal the student's highest level of musical attainment. Appropriate literature in at least two varying styles and tempos is suggested so that the school can evaluate the candidate's ability accurately. If you have specific questions regarding appropriate audition literature, please contact the applied professor of your area of performance.

In addition to meeting the audition requirements above, all students who intend to major in the Bachelor of Music, emphasis in music industry or the music industry minor are required to first complete MUI 221 and then enroll in MUI 231 and MUI 250. To successfully complete MUI 250, prospective majors and minors must submit a portfolio for review, showing evidence of their interest and potential for success in the music industry. The portfolio should represent work completed in the above classes with assistance in resume preparation from Career and Academic Planning. Portfolios will be reviewed once each fall and once each spring semester. Following the portfolio review, students who are recommended for the major or minor will be eligible to register for upper level music industry classes. Students who are not recommended for admission to the major or minor may reapply the following semester. To obtain the schedule of portfolio review sessions, as well as other specific information about the admission process, contact the School of Music, music industry area.

All major concentrations in the School of Music require potential candidates to develop additional qualifications before full admission to the concentrations. These gateways are generally attempted at the end of the first or second year in the major. For additional details, see the School of Music's Undergraduate Music Student Handbook.

## Class Fees

There is a once per semester fee for enrollment in MUAP 200, MUAP 214 and MUAP 300, applied lessons. See MyMadison for details.

## Music Scholarships

The entrance audition also serves as the scholarship audition. All music scholarships are awarded on the basis of merit. Recorded auditions will not qualify a prospective student for consideration to receive a music scholarship.

A transfer student on scholarship at another school can only be considered for a scholarship at JMU if the music executive of the current school sends a written release to the director of the School of Music.

## Retention Policy

Students admitted as music majors must meet school standards published in the School of Music Student Handbook to continue. To ensure that these standards are met, the Music Academic Review Coordinator examines each music major's progress at the end of each semester in accordance with policies stated in the handbook.

Music majors must earn a minimum grade of "C-" in all music courses required for their degree. In situations where courses are sequential, with prerequisites (for example, MUS 141-142, 241-242, or MUS 100-101-202-303), if a grade lower than "C-" is earned, it does not constitute fulfillment of the prerequisite. A student who wishes to take MUS 142 must first pass MUS 141, with a "C-" or higher.

## Degree and Major Requirements

### Bachelor of Music Degree

The Bachelor of Music degree offers six specialized majors: performance, composition, music industry, music education, jazz studies and music theatre. All music majors must complete the General Education program and a 30 credit hour core program of music courses common to all the majors' curricula. The remaining hours are specified under each of the various majors and concentrations.

All undergraduate music majors must perform on the primary instrument in one assigned ensemble each semester when one or more of the following indicators applies:

- They are enrolled for a minimum of 12 credit hours on campus.
- They are enrolled for applied lessons on the primary instrument.
- They have not completed all of the requirements in the music major.
- They are not enrolled in an off-campus internship or in student teaching.

While students are required to participate in only one ensemble each semester, they are encouraged to take advantage of the many performance opportunities offered by the School of Music by participating in more than one ensemble. For information regarding the ensemble audition process, see the Undergraduate Music Student Handbook.

If piano is the primary instrument, see the specific requirements in the Undergraduate Music Student Handbook.

All music students should enroll in class piano each semester until they meet the keyboard skills requirements appropriate to their specific degree or concentration. Graduating seniors must participate in assessment activities including assessment day, as represented by MUS 220.

Another vital aspect of the programs is attendance at recitals and concerts. Attending these events contributes to the breadth of students' knowledge of music literature. Hearing performances also allows students to observe performing techniques from the student to the professional levels. Consequently, undergraduate music majors must attend a minimum of 10 recitals per semester for six semesters, totaling 60 attendances during their degree studies. Students must continue to register for MUS 195 until they fulfill this requirement.

## Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	35-41
Core music program courses	30
Major concentration courses and electives	54-62

123-133

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

	Credit Hours
Choose one of the following:	1
MUS 101.Keyboard Skills II (required for music industry majors and prerequisite for MUS 202-303)	
MUS 303.Keyboard Skills IV (all music majors except music industry; must be passed prior to student teaching)	
MUS 141-142.Music Theory I and II	6
MUS 143-144.Aural Skills I and II	2
MUS 195.Recital Attendance (six semesters)	0
MUS 206.Introduction to Global Music <sup>1</sup>	3
MUS 220. Assessment Tests—School of Music	0
MUS 241-242.Music Theory III and IV	6
MUS 243-244.Aural Skills III and IV	2
MUS 317.Basic Conducting	2
MUS 373,MUS 374,MUS 375.Music History	8

30

<sup>1</sup> MUS 206 will count for the Music Core and also for the General Education, Cluster Two, Part 2 if desired. There will be a specific music major section of MUS 206 offered once each academic year.

### Recommended Schedule for First Year Majors

The first year of study shares a common curriculum for all concentrations. The year is devoted to courses from the basic music core requirements, General Education courses, ensemble participation and applied study in the major applied area.

#### First Year

First Semester	Credit Hours
Choose one of the following:(According to placement decision)	1
MUS 100,MUS 101.Keyboard Skills I-II	
MUS 202,MUS 303.Keyboard Skills III-IV	
MUS 141.Music Theory I	3
MUS 143.Aural Skills I	1
MUS 195.Recital Attendance	0
WRTC 103.Critical Reading and Writing	3
Applied music major course	2
Music ensemble course	1-2
General Education courses (fromCluster One)	6

15-16

Second Semester	Credit Hours
Choose one of the following:	1
MUS 101.Keyboard Skills I	
MUS 202,MUS 303.Keyboard Skills III-IV	
MUS 142.Music Theory II	3
MUS 144.Aural Skills II	1
MUS 195.Recital Attendance	0
Applied music major course	2
Music ensemble course	1-2
General Education courses (MUS 206and final course fromCluster One)	6

14-15

For a recommended eight-semester outline of curricular requirements for each major concentration, see the School of Music's Undergraduate Music Student Handbook.

## Bachelor of Music in Performance

### Vocal Track

*Coordinator: Dr. John Little*

Phone: (540) 568-6970

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	35-41
Core music program courses	30
Major concentration courses and electives	58

123-129

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary. Students in this track are required to complete MUS 467-468. Song Literature I and II, which will count in Cluster Two, Part 3, of General Education.

### Major Requirements

Courses <sup>1</sup>	Credit Hours
Choose two of the following:	16
FR 101-102.Elementary French	
GER 101-102.Elementary German	
ITAL 101-102.Elementary Italian	
MUS 120.Diction for Singers I	1
MUS 121.Diction for Singers II	1
MUS 304.Advanced Keyboard Skills	1
MUS 318.Intermediate Choral Conducting	2
MUS 341.Musical Form and Analysis	2
MUS 395.Junior or Senior Half Recital	0
MUS 465-466.Opera History and Literature I and II	4
MUS 467-468.Song Literature I and II	4
MUS 477.Vocal Pedagogy	2
MUS 495.Senior Graduation Recital	1
Applied voice study	16
Ensembles (one each semester) <sup>2</sup>	8

58

<sup>1</sup> Additional requirements: Admission to this concentration by successful completion of performance audition, no sooner than end of first year as approved music major.

<sup>2</sup> Bachelor of Music in Performance, voice majors must participate in MUAP 343. Opera Theatre in an on-stage capacity for at least two semesters. They may elect to fill the ensemble requirement in their remaining semesters by taking any of the credited vocal ensembles of the school: Men's or Women's Chorus, Treble Chamber Choir, Chorale, Madison Singers, or Opera Theatre. A minimum of one credit of ensemble must be selected each semester.

### Piano Track

*Coordinator: Dr. Lori Piitz*

Phone: (540) 568-6646

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	56

124-127

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Courses <sup>1</sup>	Credit Hours
MUS 341.Musical Form and Analysis	2
MUS 371.Private Piano Pedagogy	3
MUS 372.Supervised Private Piano Teaching	1
MUS 395.Junior Half Recital	0

MUS 420.Piano Technology	2
MUS 444.Counterpoint	2
MUS 450.Topics in Music Analysis	3
MUS 460.Piano Literature I	2
MUS 470.Piano Literature II	2
MUS 480.Advanced Seminar in Musicological Topics <sup>2</sup>	6
MUS 495.Senior Graduation Recital	1
Applied piano study	22
Ensembles (one each semester)	8
Approved music electives <sup>3</sup>	2
<hr/>	
	56

1 Additional requirements: Admission to this concentration by successful completion of performance audition, no sooner than end of first year as approved music major.

2 Must include two different iterations of MUS 480. Advanced Seminar in Musicological Topics.

3 Approved music electives may not be fulfilled by additional ensemble credits.

## Piano Track, Subtrack in Accompanying/Coaching

*Coordinator: Dr. Gabriel Dobner*

Phone: (540) 568-6002

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	58

126-129

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Courses	Credit Hours
Choose one of the following:	4
FR 101.Elementary French	
GER 101.Elementary German	
ITAL 101.Elementary Italian	
MUS 120.Diction for Singers I	1
MUS 121.Diction for Singers II	1
Choose one of the following:	2
MUS 318.Intermediate Choral Conducting	
MUS 319.Intermediate Instrumental Conducting	
MUS 341.Musical Form and Analysis	2
MUS 371.Private Piano Pedagogy	3
MUS 395.Junior or Senior Half Recital	0
MUS 444.Counterpoint	2
MUS 460.Piano Literature I	2
MUS 467.Song Literature I or	2
MUS 468. Song Literature II	
MUS 495.Senior Graduation Recital	1
Applied piano accompanying	9
Applied piano study	13
Applied voice study	2
Approved music electives <sup>1</sup>	6
Ensembles (one each semester)	8
<hr/>	
	58

1 Approved music electives may not be fulfilled by additional ensemble credits.

## Instrumental Track

*Co-coordinators: Dr. Susan Barber, Dr. Carl*

*Donakowski and Prof. Kevin Stees*

Phone: (540) 568-6197

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41

Core music program courses	30
Major concentration courses and electives	54

122-125

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Courses <sup>1</sup>	Credit Hours
MUS 319.Intermediate Instrumental Conducting	2
MUS 341.Musical Form and Analysis	2
MUS 395.Junior or Senior Half Recital	0
MUS 472.Instrumental Pedagogy	1
MUS 480.Advanced Seminar in Musicological Topics <sup>2</sup>	3
MUS 495.Graduation Recital	1
Applied music courses (major instrument)	22
Chamber ensembles (in addition to the eight semester major ensemble requirement)	6
Ensembles (one each semester)	8
Advanced music literature or seminar elective	3
Approved music electives <sup>3</sup>	6

54

1 Additional requirements: Admission to this concentration by successful completion of performance audition, no sooner than end of first year as approved music major.

2 The MUS 480 requirement will be fulfilled by taking the class when the seminar focuses on a topic within the past century. MUS 480 can also be repeated to fulfill the requirements for an advanced music literature elective or the approved music electives.

3 Approved music electives may not be fulfilled by additional ensemble credits. A maximum of two credits may be counted in secondary applied music study.

## Bachelor of Music in Composition

*Coordinator: Dr. Jason Haney*

Phone: (540) 568-6664

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	61

129-132

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Courses <sup>1</sup>	Credit Hours
MUS 341.Musical Form and Analysis	2
MUS 352.Music Composition	16
MUS 435. Instrumentation	3
MUS 444.Counterpoint	2
MUS 445.Orchestration	3
MUS 450.Topics in Music Analysis <sup>2</sup>	6
MUS 480.Advanced Seminar in Musicological Topics <sup>3</sup>	3
MUS 495.Senior Graduation Recital	1
Applied major study	12
Ensembles (one each semester) <sup>4</sup>	8
Music literature or seminar electives	3
Approved music electives <sup>5</sup>	2

61

1 Additional requirements: Admission to this concentration by approval of theory/composition faculty. Grades no lower than "B" in all theory and composition courses.

2 Must include two different iterations of MUS 450.

3 The MUS 480 requirement will be fulfilled by taking the class when the seminar focuses on a topic within the past century. MUS 480 can also be repeated to fulfill the requirements for a music literature elective or the approved music electives.

4 Various ensembles approved by adviser.

5 Approved music electives may not be fulfilled by additional ensemble credits.

## Bachelor of Music with an Emphasis in Music Industry

*Coordinator: Dr. David Cottrell*

Phone: (540) 568-6303

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	57
	128

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major and Emphasis Requirements

Courses	Credit Hours
ACTG 244.Accounting for Non-Business Majors	3
MGT 305.Management and Organizational Behavior	3
MKTG 380.Principles of Marketing	3
MUI 221.Survey of the Music Industry	3
MUI 231.Legal Aspects of the Music Industry	3
MUI 250.Portfolio Review	0
MUI 440.Entrepreneurship in the Music Industry	3
MUI 492.Internship in Music Industry	3
Applied major study	14
Ensembles (one each semester for seven semesters)	7
Music industry electives	12
Approved music electives <sup>1</sup>	3
MUS 395.Junior or Senior Half Recital	0
	57

1 Approved music electives may not be fulfilled by additional ensemble credits.

## Bachelor of Music with an Emphasis in Music Theatre

*Director of Opera and Music Theatre: Dr. Don Rierison*

Phone: (540) 568-4164

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	55
	123-126

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major and Emphasis Requirements

Courses <sup>1</sup>	Credit Hours
MUI 221.Survey of the Music Industry	3
MUS 120.Diction for Singers I	1
MUS 121.Diction for Singers II	1
MUS/THEA 357.Music Theatre History and Analysis	3
MUS 395.Junior or Senior Half Recital	0
MUS 465-466.Opera History and Literature I and II	4
THEA 251.Basic Acting	3
THEA 353.Music Theatre Performance	2
Choose one of the following:	3
THEA 171. Performance Productions	
THEA 273. Design Aspects of Performance	
Choose one of the following courses:	2-3
THEA 261. Voice for the Stage	
THEA 303. Topics in Theater	
THEA 351. Acting II: Intermediate Acting	
THEA 454. Advanced Music Theatre Performance	

Choose two of the following: 4-5

DANC 245. Dance Improvisation

MUS 343. Basic Movement and Acting Skills for the Opera Stage

THEA 281. Movement for the Actor

Choose two dance classes of appropriate level from modern, ballet, ballroom, jazz, or tap: (DANC 140-440,DANC 142-442,DANC 144,DANC 146-446,DANC 147-247) 4

Applied voice study 16

Approved music, theatre or dance electives<sup>2</sup> 2

Ensembles (one each semester, as listed below)<sup>3</sup> 8

55

1 Additional requirements: Admission to this concentration by successful completion of performance audition, no sooner than end of first year as approved music major.

2 Approved music electives may not be fulfilled by additional ensemble credits.

3 Bachelor of Music in music theatre majors must participate in MUAP 343, Opera Theatre, in an on-stage capacity for at least three semesters. They may elect to fill the ensemble requirement in their remaining semesters by taking any of the credited vocal ensembles of the school – Men's or Women's Chorus; Treble Chamber Choir; Chorale; Madison Singers; Opera Theatre. A minimum of one credit of ensemble must be selected each semester.

## Bachelor of Music in Jazz Studies

*Coordinator: Dr. Charles Dotas*

Phone: (540) 568-6180

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	60
	128-131

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Major Requirements

Courses <sup>1</sup>	Credit Hours
MUS 146.Jazz Theory and Ear Training	2
MUS 305.Jazz Keyboard Skills	1
MUAP 300.Applied Lesson (Jazz Study, Level 5-8 <sup>2</sup> )	12
MUS 345.Small Ensemble Jazz Arranging	3
MUS 346.Large Ensemble Jazz Arranging	3
MUS 356.History of Jazz in America	3
MUS 395.Junior Half Recital <sup>3</sup>	0
MUS 440.Jazz Improvisation Laboratory II <sup>4</sup>	8
MUS 495.Senior Graduation Recital	1
MUED 473.Jazz Procedures and Techniques	2
MUAP 355.Jazz Chamber Ensemble (in addition to major ensemble requirement) <sup>5</sup>	4
Applied music study (primary instrument), Level 1-4 <sup>6</sup>	8
Ensembles (one each semester) <sup>7</sup>	8
Approved jazz electives <sup>8</sup>	5
	60

1 Additional requirements: Admission to the Jazz Studies program by successful completion of Level 4 in applied music study (primary instrument) and jazz performance audition, no sooner than end of second year as approved music major.

2 Applied Jazz Study (3 credit hours) taken after acceptance into the Jazz Studies program. Applied Jazz Study (2 credit hours) recommended for students interested in preparing for the Jazz Studies audition. Student must be enrolled in Applied Jazz Study during the semesters in which the Half Recital and Graduation Recital are presented.

3 Presented at the end of the junior year, jazz repertoire.

4 MUS 440 is a corequisite with Applied Jazz Study and can be repeated each semester.

5 Students accepted into the Jazz Studies program must enroll in MUAP 355 each semester until graduation.

6 To be taken during the first and second years. Students accepted into Jazz Studies program may continue applied music study (in addition to applied jazz study) with consent of primary applied instructor.

7 Prior to acceptance into Jazz Studies program, ensemble placement determined by primary instrument applied faculty and Ensemble Committee. Students accepted into the Jazz Studies program must enroll in MUAP 347 Jazz Ensemble (or MUAP 348 Jazz Band with jazz studies coordinator permission) each semester until graduation. Students in the Jazz Studies program are encouraged to continue participation in additional School of Music ensembles.

8 Approved electives include: MUS 446. Jazz Composition, MUS 480. Advanced Seminar in Musicological Topics and MUS 485. Advanced Jazz Topics Seminar.

## Bachelor of Music in Music Education

Phone: (540) 568-6753

The Bachelor of Music degree in Music Education is designed primarily for those preparing to teach vocal or instrumental music in public schools. In addition to the School of Music requirements outlined below, students seeking a degree in music education must meet all the criteria for admission to the teacher education program and complete the professional education sequence for teaching licensure.

### Teaching Licensure Requirements

Students who want to pursue the music education program must earn acceptance into the teaching licensure program offered by the College of Education.

### Professional Education Sequence

Required Courses	Credit Hours
EDUC 300. Foundations of American Education	3
MUED 480. Student Teaching (senior year)	12
PSYC 160. Life Span Human Development Pre-adolescent and Adolescent Child	3
READ 420. Content Area Literacy, K-12	2
	20

### Vocal Track

(Applied study in voice or piano)

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	38-41
Core music program courses	30
Major concentration courses and electives	42
Professional education sequence	20
	130-133

<sup>1</sup> PSYC 160 may double count as a Cluster Five course in General Education.

### Major Requirements

Courses	Credit Hours
MUED 201. Small Ensemble for Vocal Music Education Majors	0
MUED 206. Instrument Familiarization	1
MUED 271. Music Education: A Professional Choice	1
MUED 273. Music Education: Professional Practice	1
MUED 372. General Music Practices	2
MUED 376. Choral Materials and Techniques	2
MUED 380. Music in the Elementary School	2
MUED 471. Jazz and Show Choir Procedures	2
MUS 120. Diction for Singers I	1
MUS 121. Diction for Singers II	1
MUS 150. Introduction to Technological Applications in Music	1
MUS 318. Intermediate Choral Conducting	2
MUS 395. Junior or Senior Half Recital	0
MUS 441. Vocal Arranging	3
MUS 477. Vocal Pedagogy	2
Applied major study (voice or keyboard)	12

Applied secondary area (voice for piano majors; MUS 304. Advanced Keyboard Skills for voice majors) <sup>1</sup>	2
Ensembles (one each semester for seven semesters) <sup>2</sup>	7
	42

<sup>1</sup> Vocal majors must pass the Advanced Keyboard Skills exam.

<sup>2</sup> Piano majors may elect MUAP 357. Piano Accompanying and Piano Ensemble for two semesters.

### Instrumental Track

(Applied study in winds, strings, percussion, piano<sup>1</sup>)

### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>2</sup>	38-41
Core music program courses	30
Major concentration courses and electives	42-43
Professional education sequence	20
	130-134

<sup>1</sup> Students whose major instrument is piano must pass an interview with music education faculty, an audition on a band or orchestra instrument, and participate in instrumental ensembles each semester except for two during which they must elect MUAP 357. Piano Accompanying and Piano Ensemble. Performance in these ensembles will be on the secondary instrument with one semester on piano permitted as ensemble needs dictate.

<sup>2</sup> PSYC 160 may double count as a Cluster Five course in General Education.

### Major Requirements

Courses	Credit Hours
MUED 200. Small Ensemble for Instrumental Music Education Majors	0
MUED 271. Music Education: A Professional Choice	1
MUED 273. Music Education: Professional Practice	1
Instrumental Techniques classes <sup>1</sup>	7-8
MUED 301-302. Woodwind Techniques	
MUED 303-304. Brass Techniques	
MUED 305-306. Percussion Techniques	
MUED 307-308. String Techniques	
MUED 310. Vocal Techniques	1
MUED 371. Beginning Methods and Materials for Instrumental Music	2
MUED 373. Advanced Methods and Materials for Instrumental Music	2
Choose one of the following:	2
MUED 470. Marching Band Procedures	
MUED 472. Survey of String and Orchestra Repertoire	
MUED 474. Classroom Guitar Pedagogy	
MUS 150. Introduction to Technological Applications in Music	1
MUS 319. Intermediate Instrumental Conducting	2
MUS 395. Junior or Senior Half Recital	0
MUS 442. Instrumental Arranging	3
Applied music study (major instrument)	13
Ensembles (one each semester for seven semesters) <sup>2,3</sup>	7
	42-43

<sup>1</sup> One credit required in major instrument area. Two credits are required in other three instrumental areas. In the case of piano students, two credits are required in each instrument area for a total of eight credits.

<sup>2</sup> Wind and percussion majors are required to participate in marching band for a minimum of two years, but participation every year is recommended.

<sup>3</sup> Students whose major instrument is piano must pass an interview with music education faculty, an audition on a band or orchestra instrument, and participate in instrumental ensembles each semester except for two during which they must elect MUAP 357. Piano Accompanying and Piano Ensemble.

Performance in these ensembles will be on the secondary instrument with one semester on piano permitted as ensemble needs dictate.

## Endorsement in Both Vocal and Instrumental Music

Students desiring licensure in both instrumental and vocal music should consult the coordinator of music education to plan their programs.

## Minor Requirements

### General Music Minor<sup>1</sup>

Open to all JMU undergraduate students, the general music minor develops both the performing and non-performing musician's understanding of music. The minor requires the successful completion of six hours drawn from three areas – fundamentals, literature and history, and electives – for a total of 18 credit hours. Students must earn 50 percent of the required curriculum at JMU.

Required Courses	Credit Hours
Fundamentals	3-6
MUS 131. Fundamentals of Music	
MUS 141-142. Music Theory I and II	
Literature and History	6-9
MUS 200. Music in General Culture	
MUS 203. Music in America	
MUS 206. Introduction to Global Music	
MUS 356. The History of Jazz in America	
MUS 357. Music Theatre History	
MUS 373, 374, 375. Music History	
Electives – Any music course may count in this category:	6
All music ensembles	
MUI 221. Survey of the Music Industry	
MUI 315. Songwriting	
MUI 422. Concert Production and Promotion	
MUED 380. Music in Elementary School	
MUS 204. History of Rock	
MUS 240/440. Jazz Improvisation	

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<sup>1</sup> The minor in music does not qualify a student to teach music in Virginia public schools.

### Music Industry Minor

Open to all JMU undergraduate students, the music industry minor provides students majoring in other disciplines with a foundation for exploring career opportunities in the entertainment industry. The minor requires successful completion of MUI 221. Survey of the Music Industry; MUI 323. Legal Aspects of the Music Industry and of an additional 12 elective credit hours. Students must earn 50 percent of the required curriculum at JMU.

Required Courses	Credit Hours
MUI 221. Survey of the Music Industry	3
MUI 231. Legal Aspects of the Music Industry	3
MUI 250. Portfolio Review	0
Electives – Any MUI course may count in this category	12
MUI 324. Introduction to Audio Devices	
MUI 330. Publishing	
MUI 400. Multi-track Recording Techniques I	
MUI 405. Logic Pro	
MUI 315. Songwriting	
MUI 411. Audio Postproduction	
MUI 422. Concert Production and Promotion	
MUI 430. Artist Management	
MUI 435. Marketing of Recorded Music	
MUI 440. Entrepreneurship in the Music Industry	
MUI 492. Internship in Music Industry	

### Jazz Studies Minor

Open to all undergraduate students at JMU, the jazz studies minor helps students majoring in other disciplines understand and perform the jazz art form. The minor requires the successful completion of 15 credit hours in specified music courses and five credit hours in jazz ensembles. Students must earn 50 percent of the required curriculum at JMU.

Required Courses	Credit Hours
MUS 141. Music Theory I	3
MUS 143. Aural Skills I	1
MUS 240. Improvisation Lab I	2
MUS 356. History of Jazz in America	3
MUS 440. Improvisation Lab II (repeat three times)	6
Ensembles (choose from the following):	5
MUAP 347. Jazz Ensembles	
MUAP 348. Jazz Band	
MUAP 355. Jazz Chamber Ensemble	

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### Music and Human Services Minor

See the minor in music and human services in the cross disciplinary minors section of the catalog.

# School of Nursing

*Dr. Julie T. Sanford, Director*

*Mr. Joseph Tacy, Associate Director*

Phone: (540) 568-6314

Location: Health and Behavioral Studies Building, Room 4092

Email: [sanforjt@jmu.edu](mailto:sanforjt@jmu.edu)

Website: <http://www.nursing.jmu.edu>

## Professors

M. deValpine, M. Eaton, L. Hulton, J. Sanford, S. Zook

## Associate Professors

S. Annan, M. Bagnardi, A. Knopp, E. Metzler-Sawin, L. Sobel, J. Strunk, D. Trimm, E. Lewis

## Assistant Professors

C. Argenbright, L. Donovan, D. Gleason, A. Graham, J. Harnage, B. Herron, K. Jagiello, T. Kiser, C. Lam, J. Lee, M. Scheikl, J. Tacy, D. Elkins

## Instructors

C. Brown, L. Carmines, C. Fasching-Maphis, J. Haynes, M. Leisen, N. Puffenbarger, A. Kelly, S. Stowell, K. Weeks

## Mission

We engage students, faculty and communities through dynamic and innovative nursing education, practice and scholarship to influence health in our world.

## Purposes

In order to support and accomplish this mission the nursing faculty has identified the following purposes:

- Prepare nursing professionals who provide culturally competent, holistic, evidence-based nursing care to individuals, families, aggregates and communities in a wide variety of settings.
- Promote a community of learning that models professional values and lifelong professional development for both faculty and students.
- Promote service-learning activities that include collaborative, cross disciplinary initiatives and partnerships between nursing education and the practice arena to meet the future health needs of consumers.
- Conduct research and creative scholarship to generate nursing knowledge and disseminate that knowledge through collaboration, publication and presentations.

## Career Opportunities and Marketable Skills

- Preparation as a professional nurse leading to a Bachelor of Science in Nursing (B.S.N.) degree.
- Eligibility to take the National Certification and Licensure (NCLEX) exam to become a registered nurse (R.N.).
- Preparation for entry-level positions in a wide range of health care settings.
- Upon completion of the R.N. – B.S.N. program of study, students may be eligible for leadership positions in a wide range of health care settings.
- Preparation for graduate study in nursing.

## Co-curricular Activities and Organizations

- JMU Chapter of the Virginia Nursing Student Association
- Pi Mu At-Large Chapter of Sigma Theta Tau International Nursing Honor Society
- B.S.N. Student Advisory Council
- Nursing Students without Borders

## Accreditation

The JMU nursing program is approved by the Virginia Board of Nursing. The baccalaureate and master's programs at James Madison University are accredited by the Commission on Collegiate Nursing Education, One Dupont Circle, NW, Suite 530, Washington, DC 20036, (202) 887-6791.

## Program Options

The School of Nursing offers two program options. The generic B.S.N. program is designed to prepare undergraduate students to practice at the baccalaureate level of professional nursing. The R.N. to B.S.N. program provides flexible learning opportunities at the baccalaureate level for students who are graduates of community college or diploma schools and are licensed registered nurses (R.N.).

## Special Admission and Retention Requirements

### Generic B.S.N. Program

Admission to the nursing program is limited and competitive. Each semester 90 students are enrolled in junior level nursing courses. All students, including transfer students, must complete the B.S.N. Admission application following admission to the university. B.S.N. admission applications are available on the nursing school website.

A completed B.S.N. admission application must be received by December 1 to be considered for the following fall semester and by July 1 to be considered for admission for the spring semester of the following year. Students not admitted to the program must

reapply to be considered in the applicant pool for the following admission cycle.

To be considered for admission to the nursing major, students must:

- Be currently enrolled as a JMU student as a declared nursing major.
- Transfer students must complete one semester as a full-time student at JMU prior to applying the B.S.N. program.
- Have earned a minimum JMU cumulative GPA of 3.00 as verified by the academic record (Admission is competitive, based on cumulative GPA and nursing prerequisite course grades and limited to a set number of qualified students).
- Have completed and/or enrolled in 36 academic credits at the time of application.
- Complete the following nursing prerequisite courses (or approved equivalents) with a grade of "C-" or higher: CHEM 120, MATH 220 and at least two of the required biology courses (BIO 270, BIO 280 or BIO 290) by the end of the fall semester of the sophomore year (to be considered for the following fall) or by the end of spring semester (to be considered for the following spring).

In order to begin the nursing program, at time of entry to the first full semester, students must:

- Have completed all required nursing prerequisite courses (CHEM 120, MATH 220, PSYC 160, NUTR 280, BIO 270, BIO 280, and BIO 290).
- Have completed JMU General Education requirements.
- Maintain a GPA of at least 3.00 or higher.
- Meet the department's technical standards.

Admission criteria are available online. Students must meet the school's technical standards for nursing practice. Technical standards are basic physical, cognitive and psychosocial skills and abilities that are required for nursing practice. The technical standards are posted on the nursing website.

The nursing curriculum is designed as a full time program. The undergraduate program director must approve any deviation from the full time enrollment pattern as outlined in the catalog. Once fully admitted to the program, the student must earn a minimum grade of "C-" or "Pass" in each required nursing course to remain in good standing in the nursing program. A grade of "D", "F" or "Fail" is considered a failure. A student who for the first time receives a failure in a nursing course may, with school approval, repeat the course. A student who receives a failure in a second nursing course will not be permitted to continue in the program.

Other academic and related policies in effect for students in the nursing program are outlined on the school website.

## R.N. to B.S.N. Program

The R.N. to B.S.N. program provides flexible online learning opportunity for students who are graduates of community college or diploma schools and are licensed registered nurses (R.N.). Classes are offered online to allow students to maintain employment while completing the B.S.N. degree. The program provides a foundation for professional practice and will equip students for further opportunities afforded through graduate study and advance practice.

JMU will award nurses up to 37 portfolio credits for their prior learning and work experience, as well as 40 transfer credits toward the General Education requirements for a B.S.N.

Thirteen additional general education credits will be required but may be taken concurrently at a local community college and transferred to JMU for credit. Students will complete 30 credits in the R.N. to B.S.N. program in three semesters of full time study or five semesters of part-time study, thus completing a total of 120 semester hours for the baccalaureate degree. Nurses can apply for admission to the R.N. to B.S.N. program once all prerequisite courses have been completed and this has been documented through an academic transcript submission/review process.

Additional program eligibility criteria include:

- Associate Degree or Diploma in Nursing from an accredited college/university.
- Completion of the General Education courses required for the Bachelor of Science. May be taken concurrently with nursing course work but must be completed prior to graduation.
- Cumulative GPA of 2.5 or better on a 4-point scale.
- TOEFL scores greater than 570 for international applicants.
- Completion of all prerequisite courses with a grade of "C-" or better.
- Current unrestricted R.N. license in any state, Washington, D.C., or a U.S. possession or territory or an equivalent credential in another country.
- Employment as an R.N. for a minimum of four months and/or plans to practice concurrently with course work.
- Graduates of foreign nursing schools, who are licensed outside of the United States, are required to pass the Qualifying Exam of the Commission on Graduates of Foreign Nursing Schools (CGFNS) prior to application and include the exam report with their application materials.
- Ability to meet the school's technical standards for nursing practice (posted on the nursing website).
- Interested applicants must complete the transcript review process prior to submitting an application. The R.N./B.S.N. program admissions coordinator can be contacted to begin the transcript review process.

Admission to the program is contingent on admission to the university. An electronic application is sent to the applicant for completion once the official transcript review mentioned above is completed satisfactorily.

Once fully admitted to the program, the student must earn a minimum grade of "C-" or "Pass" in each required nursing course to remain in good standing in the nursing program. A grade of "D", "F" or "Fail" is considered a failure. A student who for the first time receives a failure in a nursing course may, with school approval, repeat the course. A student who receives a failure in a second nursing course will not be permitted to continue in the program.

## Degree and Major Requirements

### Bachelor of Science in Nursing

#### Generic B.S.N. Degree Requirements

Required Courses	Credit Hours
General Education, prerequisite and elective courses <sup>1</sup>	59
Nursing courses (including nursing electives)	61

120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## General Education and Nursing Prerequisite Requirements

The following are course prerequisites required for the Nursing major. Courses must be completed with "C-" or higher.

Prerequisites	Credit Hours
PSYC 160. Life Span Human Development <sup>2</sup>	3
CHEM 120. Concepts of Chemistry <sup>1</sup>	3
MATH 220. Elementary Statistics <sup>1</sup>	3
BIO 290. Human Anatomy	4
BIO 270. Physiology <sup>1</sup>	4
BIO 280. Allied Health Microbiology	4
NUTR 280. Nutrition for Wellness	3
	24

1 Contained in General Education Cluster Three.

2 Contained in General Education Cluster Five.

Required Courses	Credit Hours
NSG 350. Foundations of Nursing	2
NSG 351. Health Assessment	3
NSG 352. Clinical Applications and Reasoning in Nursing Care I	4
NSG 352L. Clinical Applications and Reasoning in Nursing Care I Clinical	2
NSG 353. Pathophysiology and Pharmacology	4
NSG 354. The Art and Science of Nursing	2
NSG 355. Women's Health	3
NSG 355L. Women's Health Clinical	1
NSG 356. Clinical Applications and Reasoning in Nursing Care II	4
NSG 356L. Clinical Applications and Reasoning in Nursing Care II Clinical	2
NSG 357. Psychiatric Mental Health Nursing	3
NSG 357L. Psychiatric Mental Health Nursing Clinical	1
NSG 450. Nursing Research	3
NSG 451. Child Health Care	3
NSG 451L. Child Health Care Clinical	1
NSG 452. Clinical Applications and Reasoning in Nursing Care III	4
NSG 453. Population-Centered Care in the Community	3
NSG 453L. Population-Centered Care in the Community Clinical	2
NSG 454. Transition to Practice	3
NSG 454L. Transition to Practice Clinical	2
NSG 455. Nursing Informatics	2
NSG 456. Capstone	5
Nursing Electives	2
	61

1 The nursing electives may be taken any semester or summer session when a nursing elective is offered. A total of two credits of nursing electives are required prior to graduation.

Students can seek fall or spring admission to the program. Students must complete 36 credit hours before they will be considered for admission to the program.

Cluster One normally is completed during the first year. General Education courses in clusters two, three, four and five can be scheduled as desired by the student across the first and second years. Most students can complete general education and prerequisite courses in four semesters, but some students find it necessary to enroll in summer school or an additional year to complete the work satisfactorily.

### Major Requirements

Additional information regarding the nursing curriculum can be found on the nursing website.

Junior/Senior Year	Credit Hours
Nursing Electives	2
	2

1 Can be taken anytime during junior or senior year.

First Semester	Credit Hours
NSG 350. Foundations of Nursing	2
NSG 351. Health Assessment	3
NSG 352. Clinical Applications and Reasoning in Nursing Care I	4
NSG 352L. Clinical Applications and Reasoning in Nursing Care I Clinical	2
NSG 353. Pathophysiology and Pharmacology	4
	15

Second Semester	Credit Hours
NSG 354. The Art and Science of Nursing	2
NSG 355. Women's Health	3
NSG 355L. Women's Health Clinical	1
NSG 356. Clinical Applications and Reasoning in Nursing Care II	4
NSG 356L. Clinical Applications and Reasoning in Nursing Care II Clinical	2
NSG 357. Psychiatric Mental Health Nursing	3
NSG 357L. Psychiatric Mental Health Nursing Clinical	1
	16

Third Semester	Credit Hours
NSG 450. Nursing Research	3
NSG 451. Child Health	3
NSG 451L. Child Health Clinical	1
NSG 452. Clinical Applications and Reasoning in Nursing Care III	4
NSG 453. Population-Centered Care in the Community	3
NSG 453L. Population-Centered Care in the Community Clinical	2
	16

Fourth Semester	Credit Hours
NSG 454. Transition to Practice	3
NSG 454L. Transition to Practice Clinical	2
NSG 455. Informatics	2
NSG 456. Capstone	5
	12

## R.N. to B.S.N. Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	
Cluster Two, Arts and Humanities	9
Cluster Four, The American Experience	4
Nursing courses	30
Portfolio Credit given for R.N. qualifications (up to)	37
Credit for Associate Degree and prerequisites <sup>2</sup>	40
	120

1 General Education (at JMU or as VCCS equivalents) and nursing prerequisite requirements.

2 Prerequisite courses include the following JMU or VCCS equivalents: WRTC 100; WRTC 103; BIO 270 and 290; PSYC 160; PHIL 270 (ethics); SOCI 101; BIO 280 or CHEM 120.

## Major Requirements

Additional information regarding the nursing curriculum can be found on the School of Nursing website.

### Full-Time Sequence of Classes

First Year	Credit Hours
Fall Semester	
NSG 324. RN/BSN Strategies for Success <sup>1</sup>	1
NSG 325. Concepts in Aging	3
NSG 333. Health Assessment	3
NSG 462. Issues in Contemporary Nursing Practice	3
NSG 463. Professional Role Transition	3
	13

Spring Semester	Credit Hours
NSG 460. Informatics	3
NSG 461. Pathophysiology and Pharmacology	3
NSG 464. Introduction to Nursing Research	3
NSG 471. Leadership and Management in Healthcare	3

12

Summer Session	Credit Hours
NSG 466. Community Health Practicum	1
NSG 469. Caring for the Public's Health: Community Health Nursing	4

5

1 NSG 324. RN/BSN Strategies for Success is required during the first semester of enrollment in the program.

### Part-Time Sequence of Classes

#### First Year

Fall Semester	Credit Hours
NSG 324. RN/BSN Strategies for Success <sup>2</sup>	1
NSG 333. Health Assessment	3
NSG 462. Issues in Contemporary Nursing Practice	3

7

Spring Semester	Credit Hours
NSG 461. Pathophysiology and Pharmacology	3
NSG 464. Introduction to Research	3

7

Summer Session	Credit Hours
NSG 466. Community Health Practicum	1
NSG 469. Caring for the Public's Health: Community Health Nursing	4

5

#### Second year

Fall Semester	Credit Hours
NSG 325. Concepts in Aging	3
NSG 463. Professional Role Transition	3

6

Spring Semester	Credit Hours
NSG 460. Healthcare Informatics	3
NSG 471. Leadership and Management in Healthcare	3

5

2 NSG 324. RN/BSN Strategies for Success is required during the first semester of enrollment in the program.

## Special Expenses

A differential tuition of \$90 per credit hour is added to the standard charge for courses carrying the NSG prefix. This charge applies to all students, both in-state and out-of-state, at the undergraduate and graduate levels, with exception of students enrolled in the R.N. to B.S.N. program.

# Department of Philosophy and Religion

*Dr. Charles R. Bolyard, Department Head*

Phone: (540) 568-6394

Location: Cleveland Hall, Room 112

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Website: <http://www.jmu.edu/philrel>

## Professors

C. Bolyard, D. Flage, F. Flannery, J. Goodman, W. Hawk, S. Hoeltzel, A. Kirk, S. Mittal, W. O'Meara, A. Veltman, A. Wiles

## Associate Professors

T. Adajian, R. Brown, P. Fleming, W. Knorpp, T. Luper, M. Piper

## Assistant Professors

E. Gravett, C. Kilby, A. Levinovitz, A. van Leeuwen

## Instructor

R. Fischbach

## Mission

The department offers a combined major in philosophy and religion. Students may choose one of four concentrations: either philosophy (B.A. or B.S.), religion (B.A. only), interdisciplinary philosophy (B.A. or B.S.) or interdisciplinary religion (B.A. only). Whether concentrating in philosophy or religion, students in the department acquire the following fundamental skills and knowledge: the ability to think critically and rigorously with increased capabilities for problem solving and analysis of arguments; thorough familiarity with the literature, major figures, issues and phenomena of the discipline; and the ability to express themselves clearly, soundly and persuasively in oral and written form. These skill areas are the foundation and substance of a major in philosophy and religion. On the basis of this training, students should be prepared to express their own creative thought in a disciplined and effective manner.

## Goals

### Philosophy Program

Students completing a major with a concentration in philosophy are expected to know the major movements, problems, writings, concepts and terms in the history of Western philosophy. The program concentrates on major figures such as Plato, Aristotle, Descartes, Locke, Berkeley, Hume and Kant; on problems arising in contemporary movements such as analytic philosophy, existentialism and American philosophy and on the major subdivisions of philosophy, including logic, ethics, metaphysics, epistemology, aesthetics, philosophy and law, philosophy of science and philosophy of religion.

### Religion Program

The study of religion by its nature includes different disciplinary approaches and critical methodologies. Students completing a major with a concentration in religion will gain experience in these approaches and will improve in the following skills and competencies:

- Mastery of the key concepts of global religious traditions (e.g., Hinduism, Buddhism, Judaism, Christianity, Islam),

and the historical and contemporary expressions of these religions in their social, political and cultural contexts.

- Specialized knowledge in at least one religious tradition or specialized area of comparative and issues-oriented study, and a broad competence in at least two others.
- Use of this knowledge to reflect upon problems in interpreting religious texts.
- Skill in the comparative and multi-disciplinary analytical methods used in the academic study of religion.
- Ability to articulate research and arguments effectively orally and in writing.
- Skill in evaluating different cultural perspectives on particular questions and issues, formulating sound arguments and examining claims for strengths and weaknesses.

All students who concentrate in religion take a 400 level capstone seminar during their senior year that will provide them extensive opportunity for research, critical and creative thought, and oral and written expression.

## Career Opportunities and Marketable Skills

Many of the department's majors enter graduate school in philosophy or religion, law school or seminary. Alternatively, a departmental major graduating with a concentration in religion might move directly into work connected with religious service, into the human services fields or into teaching. A concentration in philosophy leads most directly into teaching or law school.

A student's opportunities are by no means limited to these more obvious options, however. While there is no direct path from philosophy and religion to many specific jobs, students who have majored in philosophy and religion successfully find satisfying employment. Employers seek many of the capacities that the study of philosophy and religion develops such as:

- Problem-solving.
- Effective communication in speaking and writing.
- Organization and analysis of ideas and issues.
- Assessment of the pros and cons of arguments and issues.

- Reduction of complex information to essential points.
- Persuasion.

These capabilities represent transferable skills useful in most work environments. Many students of philosophy and religion find careers in business or industry, in government or public service and in law, human services and communications.

Students should work with the office of Career and Academic Planning for help in finding suitable employment.

## Preparation for Law School

*Coordinator: Dr. William Hawk*

Phone: (540) 568-4088 Email: hawkwj@jmu.edu

Students who plan to attend law school should seriously consider philosophy as an undergraduate major. Philosophy majors have historically scored very well on the Law School Admission Test. Philosophy courses emphasize the kinds of skills that prepare students for the LSAT and the law school curriculum: reading, comprehending and analyzing complex texts; organizing and synthesizing information and drawing reasonable inferences from it; analyzing and evaluating the reasoning and arguments of others; and researching and writing essays and papers.

Law schools recommend that students choose an undergraduate major that challenges them and provides them with an understanding of what shapes human experience. Philosophy does an outstanding job on both counts. The requirements of the major leave students plenty of opportunity to acquire a broad education by exploring other areas.

## Preparation for Seminary

*Coordinator: Dr. Robert Brown*

Phone: (540) 568-5415 Email: brownre@jmu.edu

The pre-seminary adviser will help majors and minors design undergraduate programs that will prepare them for further study in theological seminaries and university divinity schools. Academic counseling of students takes place within guidelines provided by the American Association of Theological Schools. The department offers rich opportunities for the study of the history, content and interpretation of the Bible; historical and modern theology; particular religious traditions; and cross-cultural topics in religious studies. Class assignments require students to think critically about a variety of theological and ethical issues; to read original and classical expressions of religious thought; and to become knowledgeable about specialized terms and the major spiritual and intellectual interpreters of the Hebrew and Christian traditions.

Students are encouraged to visit various seminaries and the department welcomes seminary representatives to the campus to discuss the possibilities for further theological education with students. Interested students may receive academic credit for practical supervised field work with social agencies and churches in order to help them find the particular forms of ministry (pastoral, campus, youth, missions, social, counseling) for which they are best suited. Qualified students are also encouraged to undertake an independent study and write an honors thesis in their junior and senior years.

## Co-curricular Activities and Organizations

A student-led Society of Philosophy and Religion, a philosophy honor society (Phi Sigma Tau), a religion honor society (Theta Alpha Kappa) and the Religion Majors Club provide excellent opportunities for fellowship and student participation in the intellectual and social activities of the department.

## Degree and Major Requirements Bachelor of Arts in Philosophy and Religion

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	26-43
Major requirements (listed below)	33-36
	<hr/>
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Language's placement test.

### Major Requirements

#### Philosophy Concentration

Core Courses	Credit Hours
PHIL 250. Introduction to Symbolic Logic	3
PHIL 330. Moral Theory	3
PHIL 340. Ancient Greek Philosophy	3
PHIL 341. Modern Philosophy	3
Choose one History of Philosophy courses <sup>1</sup>	3
PHIL 342. Medieval Philosophy	
PHIL 344. Existentialism	
PHIL 370. American Philosophy	
PHIL/REL 375. Nineteenth Century Philosophy and Theology	
PHIL/REL 377. Hermeneutics	
PHIL 430. Analytic Philosophy	
PHIL 466. Kant	
PHIL 468. Phenomenology	
Choose one Metaphysics/Epistemology courses <sup>2</sup>	3
PHIL/REL 218. Philosophy of Religion	
PHIL 300. Knowledge and Belief	
PHIL 311. Metaphysics	
PHIL 392. Philosophy of Mind	
PHIL 394. Self and Identity	
PHIL 396. Philosophy of Physics	
PHIL 397. Philosophy of Space and Time	
PHIL 398. Philosophy of Quantum Theory	
PHIL 410. Philosophy of Science	
PHIL 420. Philosophy of Language	
Philosophy electives (nine credits at the 300 level or above) <sup>3</sup>	15
	<hr/>
	33

1 Depending on the manner in which they are taught, the following topics classes may be counted toward the history requirement if they are approved by petition to the academic unit head: PHIL 390, PHIL 391, PHIL 460, PHIL 465, PHIL 470 and PHIL 475.

2 Depending on the manner in which they are taught, the following topics classes may be counted toward the metaphysics/epistemology requirement if they are approved by petition to the academic unit head: PHIL 390, PHIL 391 and PHIL 475.

3 If the student takes PHIL 101 as part of Cluster Two in the General Education program it can double count as one course of this elective section. Neither PHIL 120 nor PHIL 150 can be used as an elective.

### Interdisciplinary Philosophy Concentration

This option is designed for students who want to concentrate in philosophy but also apply philosophical ideas to work in other departments. Part of the requirements for this concentration is a cognate of nine credit hours from a different but related discipline.

Core Courses	Credit Hours
PHIL 250. Introduction to Symbolic Logic	3
PHIL 330. Moral Theory	3
PHIL 340. Ancient Greek Philosophy	3
PHIL 341. Modern Philosophy	3
Choose one of the following Metaphysics/ Epistemology courses <sup>1</sup> :	3
REL/PHIL 218. Philosophy of Religion	
PHIL 300. Knowledge and Belief	
PHIL 311. Metaphysics	
PHIL 392. Philosophy of Mind	
PHIL 394. Self and Identity	
PHIL 396. Philosophy of Physics	
PHIL 397. Philosophy of Space and Time	
PHIL 398. Philosophy of Quantum Theory	
PHIL 410. Philosophy of Science	
PHIL 420. Philosophy of Language	
Philosophy electives (nine credits at the 300 level or above) <sup>2</sup>	12
Cognate of three courses from one or more disciplinary areas outside of philosophy	9
	36

1 Depending on the manner in which they are taught, the following topics classes may be counted toward the metaphysics/epistemology requirement if they are approved by petition to the academic unit head: PHIL 390, PHIL 391 and PHIL 475.

2 If the student takes PHIL 101 as part of Cluster Two in the General Education program it can double count as one course of this elective section. Neither PHIL 120 nor PHIL 150 can be used as an elective.

### Religion Concentration

Core Requirements	Credit Hours
REL 101. Religions of the World	3
REL 200. Exploring Religion	3
Capstone (choose one of the following):	3
REL 410. Dharma/Adharma: Hindu Ethical Reasoning	
REL 440. Topics in Religion in America	
REL 460. Topics in Ancient Jewish and Early Christian Literature	
REL 475. Inter-Religious Dialogue	
Track Requirements	12
Choose 4 courses from one track. This will be your home track.	
Breadth Requirements	12
Choose 4 additional courses: one from each of the other tracks and one more from any of the three other tracks. None of these can be cross-listed in your home track.	
	33

### Courses

#### Track 1: Eastern Traditions

HUM 252. Gandhi, Non-violence and Global Transformation  
 REL 288 Introduction to Buddhism  
 REL 308. Islam in South Asia  
 REL 310. Rethinking Order and Chaos: An Introduction to Hinduism  
 REL 312. Religions of East Asia  
 REL 313 Classical Chinese Thought  
 REL 314. Gandhi  
 REL 316. Topics in Hinduism  
 REL 317. Introduction to Daoism  
 REL 319. Introduction to Confucianism  
 REL 323 Ethics East and West  
 REL 386. Topics in Buddhist Studies  
 REL 388 Tibetan Buddhism

REL 410. Dharma/Adharma: Hindu Ethical Reasoning

#### Track 2: Western Traditions

HUM 252. Global Cultures (when topic is Islamic Civilization)  
 REL 201. Introduction to Hebrew Bible/Old Testament  
 REL 202. Jesus and the Beginnings of Christianity  
 REL 210. Religion in America  
 REL 240. Jesus and the Moral Life  
 REL 270. Western Religious Ethics  
 REL 305. Islamic Religious Traditions  
 REL 306. Women and Gender in Islam  
 REL 308. Islam in South Asia  
 REL 309. Jihad in Islamic Tradition  
 REL 320. Judaism  
 REL 323 Ethics East and West  
 REL 325. Catholicism in the Modern World  
 REL 330. Religions of Africa and the African Diaspora  
 REL 332. Born Again Religion  
 REL 336. African-American Religion  
 REL 340. Introduction to Christianity  
 REL 342. The Historical Jesus Quest  
 REL 343. Paul and the Origins of Christianity  
 REL 348. Christianity in Global Context  
 REL 350. Islamic Law and Society  
 REL 360. History of Christian Thought  
 REL/HIST 362. Introduction to U.S. Religious History  
 REL/PHIL 375. The 19th Century: Age of Ideology  
 REL 380. Contemporary Theologies  
 REL 440. Topics in Religion in America  
 REL 460. Topics in Ancient Jewish and Early Christian Literature

#### Track 3: Biblical Studies and Theology

REL 102. God, Meaning and Morality  
 REL 201. Introduction to Hebrew Bible/Old Testament  
 REL 202. Jesus and the Beginnings of Christianity  
 REL/PHIL 218. Philosophy of Religion  
 REL 270. Western Religious Ethics  
 REL 325. Catholicism in the Modern World  
 REL 340. Introduction to Christianity  
 REL 341. Early Christian Gospels: Origins, History, and Conflict  
 REL 342. The Historical Jesus Quest  
 REL 343. Paul and the Origins of Christianity  
 REL 360. History of Christian Thought  
 REL/PHIL 375. The 19th Century: Age of Ideology  
 REL/PHIL 377. Hermeneutics  
 REL 380. Contemporary Theologies  
 REL 460. Topics in Ancient Jewish and Early Christian Literature  
 REL 475. Inter-Religious Dialogue

#### Track 4: Religion and Society

HUM 252. Gandhi, Non-violence and Global Transformation  
 REL 210. Religion in America  
 REL 280. Religion and Science  
 REL 303. Lived Religion: Ritual Practice and Ethnographic Method  
 REL 306. Women and Gender in Islam  
 REL 315. Women and Religion  
 REL/SOCI 322. Sociology of Religion  
 REL 330. Religions of Africa and the African Diaspora  
 REL 332. Born Again Religion  
 REL 334. New Religious Movements  
 REL 336. African-American Religion  
 REL 348. Christianity in Global Context  
 REL/IA 363. Apocalypticism, Religious Terrorism and Peace  
 REL 370. Mysticism  
 REL 450. Religion and Society  
 REL 475. Inter-Religious Dialogue

## Interdisciplinary Religion Concentration

This option is designed for students who want to concentrate in religion but also integrate their work in religion with work in another, complementary disciplinary area. A student electing this option will fulfill the requirements for the regular concentration in religion, with one change: nine credits from one or more disciplinary areas outside of religion (must be chosen in consultation with the adviser) will substitute for six of the religion electives credits required for the concentration in religion. Accordingly, the total required elective credits for the interdisciplinary concentration will be 18 (nine religion elective credits, nine interdisciplinary elective credits), giving a total of 36 credit hours to complete the program.

Core Requirements	Credit Hours
REL 101. Religions of the World	3
REL 200. Exploring Religion	3
Capstone (choose one of the following courses):	3
REL 410. Dharma/Adharma: Hindu Ethical Reasoning	
REL 440. Topics in Religion in America	
REL 460. Topics in Ancient Jewish and Early Christian Literature	
REL 475. Inter-Religious Dialogue	
Track Requirements	12
Choose four courses from one track. This will be your home track.	
Breadth Requirements	6
Choose two additional courses outside of your home track.	
These two courses cannot be from the same track and neither can they be cross-listed with a course in your home track.	
Interdisciplinary Requirements	9
Choose three courses from other disciplines (in consultation with your adviser).	
	36

## Bachelor of Science in Philosophy

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education courses)	3
Scientific literacy requirement (in addition to General Education courses)	3-4
Major in Philosophy concentration	33
Electives	40-41
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

### Philosophy Concentration

Core Courses	Credit Hours
PHIL 250. Introduction to Symbolic Logic	3
PHIL 330. Moral Theory	3
PHIL 340. Ancient Greek Philosophy	3
PHIL 341. Modern Philosophy	3
Choose one History of Philosophy courses <sup>1</sup>	3
PHIL 342. Medieval Philosophy	
PHIL 344. Existentialism	
PHIL 370. American Philosophy	
PHIL/REL 375. Nineteenth Century Philosophy and Theology	
PHIL/REL 377. Hermeneutics	
PHIL 430. Analytic Philosophy	
PHIL 466. Kant	
PHIL 468. Phenomenology	
Choose one Metaphysics/Epistemology courses <sup>2</sup>	3
PHIL/REL 218. Philosophy of Religion	
PHIL 300. Knowledge and Belief	

PHIL 311. Metaphysics	
PHIL 392. Philosophy of Mind	
PHIL 394. Self and Identity	
PHIL 396. Philosophy of Physics	
PHIL 397. Philosophy of Space and Time	
PHIL 398. Philosophy of Quantum Theory	
PHIL 410. Philosophy of Science	
PHIL 420. Philosophy of Language	
Philosophy electives (nine credits at the 300 level or above) <sup>3</sup>	15
	33

<sup>1</sup> Depending on the manner in which they are taught, the following topics classes may be counted toward the history requirement if they are approved by petition to the academic unit head: PHIL 390, PHIL 391, PHIL 460, PHIL 465, PHIL 470 and PHIL 475.

<sup>2</sup> Depending on the manner in which they are taught, the following topics classes may be counted toward the metaphysics/epistemology requirement if they are approved by petition to the academic unit head: PHIL 390, PHIL 391 and PHIL 475.

<sup>3</sup> If the student takes PHIL 101 as part of Cluster Two in the General Education program it can double count as one course of this elective section. Neither PHIL 120 nor PHIL 150 can be used as an elective.

### Interdisciplinary Philosophy Concentration

This option is designed for students who want to concentrate in philosophy but also apply philosophical ideas to work in other departments. Part of the requirements for this concentration is a cognate of nine credit hours from a different but related discipline.

Core Courses	Credit Hours
PHIL 250. Introduction to Symbolic Logic	3
PHIL 330. Moral Theory	3
PHIL 340. Ancient Greek Philosophy	3
PHIL 341. Modern Philosophy	3
Choose one Metaphysics/Epistemology courses: <sup>1</sup>	3
REL/PHIL 218. Philosophy of Religion	
PHIL 300. Knowledge and Belief	
PHIL 311. Metaphysics	
PHIL 392. Philosophy of Mind	
PHIL 394. Self and Identity	
PHIL 396. Philosophy of Physics	
PHIL 397. Philosophy of Space and Time	
PHIL 398. Philosophy of Quantum Theory	
PHIL 410. Philosophy of Science	
PHIL 420. Philosophy of Language	
Philosophy electives (nine credits at the 300 level or above) <sup>2</sup>	12
Cognate of three courses from one or more disciplinary areas outside of philosophy	9
	36

<sup>1</sup> Depending on the manner in which they are taught, the following topics classes may be counted toward the metaphysics/epistemology requirement if they are approved by petition to the academic unit head: PHIL 390, PHIL 391 and PHIL 475.

<sup>2</sup> If the student takes PHIL 101 as part of Cluster Two in the General Education program it can double count as one course of this elective section. Neither PHIL 120 nor PHIL 150 can be used as an elective.

### Recommended Schedule for Majors

The following outline is a sample four-year program. The actual courses and sequence a student takes may vary.

First Year	Credit Hours
Introductory courses in major	6
B.A. or B.S. Requirements	6-8
General Education courses <sup>1</sup>	6-18
	30
Second Year	Credit Hours
Required courses in major	6
B.A. or B.S. Requirements or Electives	6
General Education courses	18
	30

Third Year	Credit Hours
Requirements and electives in philosophy or religion	12
Electives (may be outside of major)	12
General Education courses	6
	30

1 Students should adjust General Education and foreign language load to achieve 30 hours total.

## Minor Requirements

### Christian Studies

This minor is designed to provide students with a systematic and comprehensive understanding of the nature and history of Christianity as a religion of global significance. Students begin their studies by exploring the history, beliefs and practices of diverse Christian traditions, from the ancient to the modern. Additional courses address the complex relationship between Christianity and various facets of the contemporary world, such as politics, culture, religious pluralism, terrorism and race.

Required Courses	Credit Hours
REL 202. Jesus and the Beginnings of Christianity	3
REL 340. Introduction to Christianity	3
REL 348. Christianity in Global Context	3
Choose three courses from the following, at least two of which must be at the 300- or 400-level.	9
REL 201. Introduction to Hebrew Bible/Old Testament	
REL 218. Philosophy of Religion	
REL 240. Jesus and the Moral Life	
REL 270. Religious Ethics	
REL 280. Religion and Science	
REL 325. Catholicism in the Modern World	
REL 332. Born Again Religion	
REL 336. African-American Religion	
REL 360. History of Christian Thought	
REL 363. Apocalypticism, Religious Terrorism and Peace	
REL 380. Contemporary Theologies	
REL 450. Religion and Society	
REL 460. Topics in Ancient Jewish and Early Christian Literature	

18

### Ethics

The 18 hour minor in ethics offers students an opportunity for deeper study into respected ethical thinkers and how ethical theory from philosophy and religion can be used to understand our individual and social lives. Students are to choose six courses total from either of the lists below. At least one of the six must be from the philosophy list, and at least one of the six must be from the religion list. Philosophy or religion majors may double count two courses (six credits) from their major toward the minor.

Philosophy
PHIL 262: Problems in Applied Ethics
PHIL 330. Moral Theory
PHIL 335. The Individual, the State, and Justice
PHIL/WGS 350. The Philosophy of Feminism
PHIL 367. Topics in Philosophy of Law
PHIL 440. Advanced Moral Philosophy

### Religion

REL 240. Jesus and the Moral Life
REL 270. Religious Ethics
REL 306. Women and Gender in Islam
REL 309. Jihad
REL 315. Women and Religion
REL 350. Islamic Law and Society

REL/IA 363. Apocalypticism, Religious Terrorism and Peace

REL 410. Dharma/ Adharma: Hindu Ethical Reasoning

REL 450. Religion and Society

Other courses with a sufficiently ethical focus from philosophy, religion, or another department may be able to count towards the minor with the approval of the ethics minor coordinator.

## Global Religion and Global Issues

The minor is intended for students who want to better understand the role played by religion in contemporary global events: from religious terrorism to nonviolence, from the suppression of women to the advocacy of civil rights. In this minor, students will study major global religions and their impact on real-world social and political issues. The minor may be of particular interest to students in the social sciences but all students with an interest in the subject are welcome.

Required Courses	Credit Hours
REL 101. Religions of the World	3
One Global Religious Traditions course	3
One Religion and Social/Political Engagement course	3
Three electives chosen from either group	9
	18

### Global Religious Traditions

REL 305. Islamic Religious Traditions

REL 308. Islam in South Asia

REL 310. Rethinking Order and Chaos: An Introduction to Hinduism

REL 312. Religions of East Asia

REL 320. Judaism

REL 330. Religions of Africa and the African Diaspora

REL 348. Global Christianity

### Religion and Social/Political Engagement

Religion and Social/Political Engagement

REL 306. Women and Gender in Islam

REL 314. Gandhi

REL 315. Women and Religion

REL 350. Islamic Law and Society

REL/IA 363. Apocalypticism, Religious Terrorism and Peace

REL 380. Contemporary Theologies

REL 450. Religion and Society

REL 475. Inter-Religious Dialogue

## Philosophy

Required Courses	Credit Hours
PHIL 101. Introduction to Philosophy	3
Choose two of the following:	6
PHIL 340. Ancient Greek Philosophy	
PHIL 341. Modern Philosophy	
PHIL 342. Medieval Philosophy	
PHIL 375. 19th Century Philosophy and Theology	
Three PHIL electives, at least two of which must be above PHIL 300 <sup>1</sup>	9
	18

1 Neither PHIL 120 nor PHIL 150 can be used as electives.

## Religious Studies

Foundational Courses	Credit Hours
REL 101. Religions of the World	3
Choose one course in each track	12
(At least one of these must be 300 or 400 level)	
Choose one REL elective	3
	18

# Department of Physics and Astronomy

*Dr. W. Christopher Hughes, Department Head*

Phone: (540) 568-6109

Location: Physics/Chemistry Building, Suite 2186

Email: [physics@jmu.edu](mailto:physics@jmu.edu)

Website: <http://csma31.csm.jmu.edu/physics>

## Professors

K. Giovanetti, W. C. Hughes, B. Newcomer, G. Niculescu, I. Niculescu, S. Scully

## Associate Professors

A. Banu, H. Butner, A. Constantin, C. Constantin, K. Feitosa, M. Mattson, S. Paulson, G. Scarel

## Assistant Professors

G. Albright, T. Finch, K. Fukumura, M. Kaveh-Baghdorani, I. Melnikov, S. Virani

## Instructors

L. Lucatorto, J. Sterlace

## Mission

The mission of the Department of Physics and Astronomy is the preparation of scientifically enlightened citizens. Science literacy is promoted by the production of teachers, researchers, technical professionals and knowledgeable individuals through the integration of classroom and experiential learning.

## Vision

We strive to be a leading undergraduate physics and astronomy department by building a research-active, student-centered community.

## Values

Excellence, integrity and mutual respect are the core values that define our department. The vigorous pursuit of research with undergraduates is central to extending our understanding of nature and the engagement of students directly in the practice of physics and astronomy.

Service to the university, the public and the profession is essential for continued vitality of science education and research.

## Goals

To help students:

- Develop competence in using computers for computation, data acquisition, numerical control, device development, and information acquisition and processing.
- Appreciate the role of science in society and the historical development of physics in the ongoing quest to discover the structure of the universe.
- Gain an understanding of the basic principles and the experimental basis of the various fields of physics and the logical relationships of the various fields.
- Become capable problem solvers using techniques that require mathematical skills, conceptual and mathematical models, order-of-magnitude estimates, and an understanding of limiting cases.
- Develop competence in designing, constructing, and using laboratory instruments, and to draw valid conclusions from experimental data.
- Improve written and oral technical communication skills.

## Co-Curricular and Organizations

- Society of Physics Students

## Degree and Major Requirements

### Bachelor of Arts in Physics

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	23-37
Major core requirements <sup>3</sup>	39
Major concentration requirements <sup>3</sup>	26-39

120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level (typically 232) of the student's chosen language or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

3 Some of the courses required for the major complete Cluster Three of General Education. PHIL 101 is part of Cluster Two.

#### Program Concentrations

Each student, in consultation with his/her faculty adviser, will choose one of the following program concentrations:

- Individual Option
- Professional

#### Major Core Requirements

Courses	Credit Hours
PHYS 105. Foundations of Physics	1
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	
Choose one of the following:	2
PHYS 140L-150L. College Physics I-II Laboratory	
PHYS 246-247. Data Acquisition and Analysis Techniques in Physics I, II	
PHYS 260. University Physics III	4

PHYS 270. Modern Physics	4
MATH 235, MATH 236 and MATH 237. Calculus I-III	12
CHEM 131 + 131L. General Chemistry with Lab	4
Choose one of the following:	4
BIO 140. Foundations of Biology I	
GEOL 110. Physical Geology	
PHYS 391-392. Seminar	1
PHYS 491-492. Physics Assessment and Seminar	1
	39

Students must complete one of the following concentrations:

### Individual Option

The individual option is a course of study chosen specifically to match the interest and career plans of the student. This option will allow custom-designed cross disciplinary majors such as the history of physics and physics and the fine arts.

A student electing the individual option must complete the major core requirements of the B.A. in physics and will select a program consisting of a coherent collection of a minimum of 26 additional credits of physics courses numbered above 270, astronomy courses numbered above 301 and courses in related fields. This individualized program must be selected in consultation with a faculty adviser in the department and must be approved by that adviser, the department head and one other faculty member in the department.

The individualized program, as approved by the department and accepted by the student, becomes the major requirements for the student.

Students are expected to review progress toward completion of the selected program of study with their faculty adviser.

### Professional

Students in this concentration must complete the following courses in addition to core requirements:

Required Courses	Credit Hours
MATH 238. Linear Algebra with Differential Equations	4
PHYS 340. Mechanics	3
PHYS 350. Electricity and Magnetism	3
Three credits chosen from PHYS courses at the 265-level or higher	3

Students are expected to review progress toward completion of the selected program of study with their faculty adviser.

### Pre-Medical Preparation

Students pursuing the B.A. in physics and astronomy with a professional concentration may complete a track in pre-medical preparation. In addition to degree and General Education requirements, students complete the following courses.

#### First Year Courses

PHYS 105. Foundations of Physics
PHYS 240-250. University Physics I-II
PHYS 246. Data Acquisition and Analysis Techniques in Physics I
MATH 235-236. Calculus-II
CHEM 131, 131L, 132, 132L. General Chemistry I-II and Labs

#### Second Year Courses

PHYS 247. Acquisition and Analysis Techniques in Physics II
PHYS 260. University Physics III
PHYS 270. Modern Physics
MATH 237. Calculus III
MATH 238. Linear Algebra with Differential Equations
CHEM 241, 242, 242L. Organic Chemistry I-II and Lab

### Third Year Courses

PHYS 340. Mechanics
PHYS 350. Electricity and Magnetism
PHYS 391-392. Seminar
PHYS elective 265 or higher (PHYS 326 recommended)
CHEM 361. Biochemistry I
BIO 140-150. Foundations of Biology I-II

### Fourth Year Courses

Two PHYS electives 265 or higher
PHYS 491-492. Physics Assessment and Seminar
Additional courses suggested by the Pre-professional Health program

### Teaching Licensure Preparation

Students pursuing the B.A. in physics and astronomy with a professional concentration may complete a track in teaching licensure at the secondary education level.

In addition to degree and General Education requirements, students must complete BIO 140, GEOL 110, GEOL 110L and MSSE 101. The student must also be admitted to the secondary education program and meet those requirements. The necessary courses and when they are usually taken are shown below.

#### First Year Courses

PHYS 105. Foundations of Physics
PHYS 240-250. University Physics I-II
PHYS 246. Data Acquisition and Analysis Techniques in Physics I
MATH 235-236. Calculus-II
BIO 140. Foundations of Biology I
MSSE 101. Orientation to the Profession

#### Second Year Courses

PHYS 247. Acquisition and Analysis Techniques in Physics II
PHYS 260. University Physics III
PHYS 270. Modern Physics
PHYS 397. Topics in Physics
MATH 237. Calculus III
MATH 238. Linear Algebra with Differential Equations
CHEM 131, 131L, 132, 132L. General Chemistry I-II and Labs
EDUC 300. Foundations of American Education

#### Third Year Courses

PHYS 340. Mechanics
PHYS 350. Electricity and Magnetism
PHYS 391-392 Seminar
PHYS elective 265 or higher
GEOL 110, 110L. Physical Geology and Lab
EDUC 310. Teaching in a Diverse Society
MSSE 370. General Instructional Methods for Grades 6-12
MSSE 371. Clinical Experience in Adolescent Education

#### Fourth Year Courses

Two PHYS electives 265 or higher (PHYS 380 recommended)
PHYS 491-492. Physics Assessment and Seminar
MSSE 470S. Natural Sciences Teaching Methods, Grades 6-8
MSSE 471. Content Area Field Experiences in Middle Schools
READ 440. Literacy-Based Learning in Secondary Education

To achieve teaching licensure, a student needs to supplement this curriculum with a fifth-year in the College of Education; see their website for more details.

# Bachelor of Science in Physics

## Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	2-8
Major core requirements (listed below)	41
Major program concentration requirements	25-31
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

## Major Core Requirements

Courses	Credit Hours
PHYS 105. Foundations of Physics	1
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	
PHYS 246, PHYS 247. Data Acquisition and Analysis Techniques in Physics I, II	2
PHYS 260. University Physics III	4
PHYS 270. Modern Physics	4
Cognate Disciplines	
CHEM 131-132. General Chemistry I-II	6
CHEM 131L-132L. General Chemistry Lab I-II	2
MATH 235-237. Calculus I-III	12
MATH 248. Computer Methods in Engineering and Science	4
	41

## Program Concentrations

Each student, in consultation with his/her faculty adviser, will choose one of the following program concentrations.

### Applied Physics Concentration

The applied physics concentration is designed to prepare students for careers in a wide variety of scientific areas including laboratory and industrial settings. It is separated into four tracks: applied nuclear physics, computational physics, materials physics, and electronics and instrumentation.

All students in the applied physics concentration must complete the following courses:

Required Courses (in addition to core requirements)	Credit Hours
PHYS 344, PHYS 345, PHYS 346. Advanced Physics Laboratory I, II, III	3
PHYS 360. Analog Electronics	4
PHYS 391-392. Seminar	1
PHYS 491-492. Assessment and Seminar	1
PHYS/ASTR 498R. Applied Physics Research	2
MATH 238. Linear Algebra with Differential Equations	4
Elective Physics courses including PHYS 295 and above.	3
	18

In addition to the required courses, students must complete one of the following tracks: Applied nuclear physics, electronics and instrumentation, materials physics, or computational physics.

Applied Nuclear Physics Courses	Credit Hours
PHYS 340. Mechanics	3
PHYS 460. Quantum Mechanics	3
PHYS 339. Introductory Nuclear Science or CHEM 450. Nuclear and Radiation Chemistry + CHEM 450L.	4

PHYS 338. Nuclear Physics or	3
PHYS 333. Introduction to Particle Physics	

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Electronics and Instrumentation Courses	Credit Hours
PHYS 350. Electricity and Magnetism	3
PHYS 371. Digital Electronics	2
PHYS 372. Microcontrollers and Applications	2
PHYS 380. Thermodynamics and Statistical Mechanics	3
Choose from:	3
PHYS 295 Laboratory Apparatus Design and Construction (1 credit)	
PHYS 386 Robots: Structure and Theory (3 credits)	
PHYS 387 Robot Construction and Control (3 credits)	
PHYS 388 Robots for Humanity (3 credits)	
Additional physics courses approved by the physics adviser	2-3

12-13

Materials Physics Courses	Credit Hours
PHYS 340. Mechanics	3
PHYS 350. Electricity and Magnetism	3
PHYS/CHEM/MATS 375. Introduction to Materials Science	3
Choose from:	3
PHYS 337/MATS 337 Solid State Physics (3 credits)	
PHYS 381/MATS 381 Materials Characterization with Lab (3 credits)	
PHYS 420 Modern Optics (3 credits)	
PHYS 455/CHEM 455 Lasers and their Applications in Physical Sciences (3 credits)	

12-15

Computational Physics Courses <sup>1</sup>	Credit Hours
PHYS 340. Mechanics	3
PHYS 380. Thermodynamics and Statistical Mechanics	3
PHYS 390 Computer Applications in Physics 3 Credits	
Choose two of the following courses:	3-4
PHYS/MATH 265. Introduction to Fluid Mechanics (4 credits)	
PHYS/MATH 266. Introduction to Solid Mechanics (3 credits)	
PHYS 341 Nonlinear Dynamics and Chaos (3 credits)	
MATH/CS 449 Numerical Analysis for Differential Equations (3 credits)	

12-13

<sup>1</sup> Students in this track must minor in mathematics.

## Physics and Engineering Combined Program Concentration

This dual degree program makes it possible for the student to earn a B.S. degree in physics from JMU and a Master of Engineering degree from the University of Virginia. The engineering areas available under this program include biomedical, environmental, transportation, materials science, systems engineering and engineering physics.

During the first three years at JMU, the student must complete 96 credit hours including all JMU General Education requirements, the physics core requirements, differential equations and at least 12 additional credit hours in physics courses designated by the JMU Department of Physics and Astronomy with at least a "B+" average. In general, these 12 additional hours will be chosen from those recommended for the applied physics track, but substitutions may be approved by the program adviser, Dr. Sean Scully. During the fourth year of study (when the student will be in residence at the University of

Virginia), the student will take further courses approved by the JMU Department of Physics and Astronomy for credit toward the Bachelor of Science degree in physics. A total of 37 credit hours of physics or other physics-related courses taken at either school will be required for the JMU Bachelor of Science degree in physics. For further information, consult the head of the Department of Physics and Astronomy.

## Fundamental Studies Concentration

The fundamental studies concentration is designed to prepare students for immediate post-baccalaureate employment or for entrance to advanced study in physics or related areas.

Required Courses (in addition to core requirements)	Credit Hours
MATH 238. Linear Algebra with Differential Equations	4
PHYS 340. Mechanics	3
PHYS 344, PHYS 345, PHYS 346. Advanced Physics Laboratory I, II, III	3
PHYS 350. Electricity and Magnetism	3
PHYS 360. Analog Electronics	4
PHYS 380. Thermodynamics and Statistical Mechanics	3
PHYS 391-392. Seminar	1
PHYS 460. Quantum Mechanics	3
PHYS 491-492. Assessment and Seminar	1
Choose from the following (if not enrolled in PHYS 499):	2-6
PHYS 337/MATS 337 Solid State Physics (3 credits)	
PHYS 420 Modern Optics (3 credits)	
PHYS 338. Nuclear Physics	
PHYS 333. Introduction to Particle Physics	
PHYS 330/ASTR 330 Relativity (4 credits)	
ASTR 480. Astrophysics	
PHYS 482 Advanced Theoretical Physics (3 credits)	
Choose one of the following (2-6 credits total):	2-6
PHYS/ASTR 398. Problems in Physics or Astronomy (2 credits)	
PHYS/ASTR 498R. Undergraduate Research in Physics or Astronomy (2 credits)	
ISCI 450. Interscience Research (2 credits)	
PHYS 494. Internship in Physics (2 credits)	
PHYS 499. Honors (6 credits)	

30-35

## Multidisciplinary Concentration

The multidisciplinary concentration is designed to provide a solid foundation in physics for students whose interests extend beyond traditional physics fields. The four tracks of business, technical and scientific communication, biophysics, and secondary education open doors to the pursuit of graduate degrees in law, the medical sciences, business and education, and other career paths requiring a technical background. Also, the concentrations in business and technical and scientific communication concentrations are excellent preparation for jobs in industry.

The following are also required for all tracks in the multidisciplinary concentration:

Courses	Credit Hours
MATH 238. Linear Algebra with Differential Equations	4
PHYS 340. Mechanics	3
PHYS 350. Electricity and Magnetism	3
PHYS 380. Thermodynamics and Statistical Mechanics	3
PHYS 391-392. Seminar	1
PHYS 491-492. Physics Assessment and Seminar	1
Two credits from the following:	2
PHYS/ASTR 398. Independent Study in Physics and Astronomy (2 credits)	

PHYS/ASTR 498R. Undergraduate Research in Physics or Astronomy (2 credits)  
 ISCI 450. Interscience Research (2 credits)  
 PHYS 494. Internship in Physics (2 credits)  
 PHYS 499. Honors (6 credits)

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Total Credits before Tracks 91-95

The student must choose one of the following tracks:

- Business
- Technical and Scientific Communication (TSC)
- Biophysics
- Geophysics
- Secondary Education

Business Track Courses	Credit Hours
CIS 204. Computer Information Systems for Non-Business Majors	3
ACTG 244. Accounting for Non-Business Majors	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Finance for the Non-Financial Manager	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3

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Total Credits w/Business 109-113

No more than 27 hours may be taken in the College of Business.

TSC Track Courses	Credit Hours
Choose six credits:	6
Physics course numbered above 300	
ASTR 480. Astrophysics	3
WRTC 300. Professional Editing	3
WRTC 316. Research Methodologies	3
WRTC 350. Foundations of Technical Communication	3
Choose six credits:	6
WRTC 301. Language, Law and Ethics	
WRTC 318. Intercultural Professional Communication	
WRTC 458. Writing about Science and Technology	
Other upper-level courses with permission	

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Total Credits w/TSC 115-119

Biophysics Track Courses	Credit Hours
PHYS 326. Biophysics	3
CHEM 241-242. Organic Chemistry I & II	6
CHEM 242L. Organic Chemistry Laboratory	2
CHEM/BIO 361. Biochemistry I	3
BIO 140. Foundations of Biology I	4
BIO 370. Animal Physiology	4
BIO 490. Mechanics of Animal Movement	4

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Total Credit w/Biophys 114-118

Geophysics Track Courses	Credit Hours
Choose one of the following:	3-4
GEOL 110. Physical Geology	
GEOL 210. Applied Physical Geology	
Choose one of the following:	3
ASTR 220. Astronomy	
GEOL 272. Planetary Geology	
GEOL 365. Structural Geology	
GEOL 440. Geophysics	
At least three credits from a field- or geographic-based course:	3-6
GEOG 215. Cartography and GIS	
GEOG 216. Remote Sensing and GPS	
GEOL 399. Field Geology (Ireland)	

GEOL442. Field Geophysics	9
At least nine credits from the following:	
GEOL 280. Mineralogy	
GEOL 300. Petrology	
GEOL/MATS 395. Geologic Perspectives in Materials Science	
GEOL 396. X-Ray Characterization	
GEOL 415. Evolution of North America	
GEOL 460. Geohydrology	
PHYS/MATH 265. Fluid Mechanics	
PHYS/MATS 337. Solid State Physics	
PHYS 360. Analog Electronics	
PHYS/MATS 381. Materials Characterization	3
Any other 300- or 400-level geology or physics course (upon approval from adviser).	3

24

Total Credits w/ Geophys 115-119

Secondary Education Track Required Courses	Credit Hours
MSSE 101. Orientation to the Profession	1
PSYC 160. Life Span Human Development	3
BIO 140. Foundations of Biology	4
GEOL 110. Physical Geology	3
GEOL 110L. Physical Geology Lab	1
Students must be fully admitted into pre-professional teacher education prior to enrolling in these courses:	
EDUC 310. Teaching in a Diverse Society	3
MSSE 370. General Instruction Methods for Grades 6-12	3
MSSE 371. Clinical Experience in Adolescent Education	1
MSSE 470S. Natural Sciences Teaching Methods, Grades 6-8	3
MSSE 471. Content Area Experiences in Middle Schools	3
READ 440. Literacy-Based Learning in Secondary Education	3

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Total Credits w/SEED 116-120

Students interested in becoming teachers must meet specific curriculum requirements in their major as part of the undergraduate academic degree.

In addition to the General Education and academic major requirements, physics majors desiring secondary teacher licensure must be admitted to teacher education, complete the pre-professional program in secondary education at the undergraduate level and complete the graduate level Master of Arts in Teaching degree.

It is critical that students seeking licensure consult regularly with both their education adviser and their major adviser to support their progression through the programs. For a full description of the program in secondary teaching, refer to the Department of Middle, Secondary and Mathematics Education, in addition to the College of Education section of the catalog.

## Individual Option Concentration

The individual option is a course of studies chosen specifically to match the interest and career plans of the student. This option will allow custom designed cross disciplinary majors such as chemical physics, as well as majors designed for students whose educational and career goals are not met by the existing concentrations in the major.

A student electing the individual option must complete the core requirements for the B.S. in physics and will select a program consisting of a coherent collection of a minimum of 25 additional credits of physics courses numbered above 270, astronomy courses numbered above 301 and courses in related fields.

This individualized program must be selected in consultation with a faculty adviser in the department, and must be approved by that adviser, the department head and one other faculty member in the department.

The individualized program, as approved by the department and accepted by the student, becomes the major requirements for that student.

Students are expected to review progress toward completion of the selected program of study with their faculty adviser.

## Recommended Schedule for Majors

First Year	Credit Hours
CHEM 131-132. General Chemistry I-II	6
CHEM 131L-132L. General Chemistry Laboratory	2
General Education, Cluster One: Skills for the 21st Century	9-12
MATH 235-236. Calculus I-II	8
PHYS 246. Data Acquisition and Analysis Techniques in Physics I	1
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	

32-35

Second Year	Credit Hours
MATH 237. Calculus III	4
MATH 238. Linear Algebra with Differential Equations	4
MATH 248. Computer Methods in Engineering and Science	4
PHYS 260. University Physics III	4
PHYS 270. Modern Physics	4
PHYS 247. Data Acquisition and Analysis Techniques in Physics II	1
General Education courses	11

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## Third and Fourth Years

During their junior and senior years, students will select courses to complete the specific program track which they are following. These course selections will be made with the assistance of a faculty adviser.

## Minor Requirements

### Astronomy Minor

The minimum requirement for a minor in astronomy is 21 credit hours selected as follows:

Astronomy Minor Electives	Credit Hours
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	
Choose one of the following:	2
PHYS 140L-150L. General Physics Laboratory I-II	
PHYS 246-247. Data Acquisition and Analysis Techniques in Physics I, II	
ASTR 220-221. General Astronomy I-II	7
ASTR 320. Astronomical Techniques	3
ASTR 330/PHYS330 Relativity 4 Credits	
One course selected from the following:	3
GEOL 272. Planetary Geology	
ASTR 480. Astrophysics	
HON 300Z. Life Beyond Earth	
PHYS 297, PHYS 397 or PHYS 497. Topics in Physics	
Appropriate topics could include the relativity, cosmology, cosmic rays or other astronomy-related topics with approval of minor adviser.	
ASTR 297, ASTR 397, ASTR 497. Topics in Astronomy	
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### Physics Minor

The minimum requirement for a minor in physics is 22 credit hours selected as follows:

Physics Minor Electives	Credit Hours
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	
Choose one of the following:	2
PHYS 140L-150L. College Physics I-II Laboratory	
PHYS 246-247. Data Acquisition and Analysis Techniques in Physics I, II	
PHYS 260. University Physics III	4
Ten credits selected from the following:	10
Physics courses numbered above 260	
ASTR 320. Astronomical Techniques	
ASTR 480. Astrophysics	
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## Other Minors

### Materials Science Minor

Refer to the Materials Science Minor in Centers for Materials Science for more detailed information on this cross disciplinary program.

### Robotics Minor

Refer to the Robotics Minor for more detailed information on this program.

### Physics Minor for Engineers

*Dr. Ioana Niculescu, Coordinator*

Phone: (540) 568-2980

Email: niculemi@jmu.edu

The minor in physics for engineering students is a program that enables JMU undergraduate students majoring in engineering to take a minor in physics. Interested students will take courses in upper-level physics to explore physical phenomena related to their professional development as an engineer.

Physics Minor for Engineers Electives	Credit Hours
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	
Choose one of the following:	2
PHYS 140L-150L. College Physics I-II Laboratory	
PHYS 246-247. Data Acquisition and Analysis Techniques in Physics I, II	
Choose one of the following:	4
ENGR 313. Circuits and Instrumentation	
PHYS 360. Analog Electronics	
PHYS 270. Modern Physics with lab	4
PHYS course at the 300-level or above <sup>1</sup>	3-4
	<hr/> 19-20

<sup>1</sup> May not include PHYS 360

# Department of Political Science

*Dr. Jonathan W. Keller, Department Head*

Phone: (540) 568-6149

Location: Miller Hall, Room 2120

Email: [kelle2jw@jmu.edu](mailto:kelle2jw@jmu.edu)

Website: <http://www.jmu.edu/polisci>

## Professors

M. Adams, J. Adolino, C. Blake, A. Broscheid, J. Chen, K. Ferraiolo, S. Hammond, D. Jones, J. Keller, H. Lubert, R. Roberts, K. Rutherford, J. Scherpereel, V. Sulfaro, Y. Yang

## Associate Professors

R. Alexander, J. Byrne, M. Cohen, J. Hulsey, M. Jamal, B. Kaussler, T. LaPira, H. Lee, F. Mayhew, L. Peaslee, N. Swartz, A. Teye

## Assistant Professors

K. Crawford, K. Grant, J. Park, M. Richardson, J. Taylor, K. Wylie

## Lecturer

E. Chisek

## Mission

The Department of Political Science offers strong major and minor programs sharing a focus on public concerns. We are committed to providing our students with the tools and competence to succeed in their lives, their graduate education and their careers by instilling academic rigor, information access and research skills, dedication to life-long learning and respect for diversity in cultures, nations and institutions of democracy.

## Goals

To carry out the above mission, the Department of Political Science seeks to:

- Offer strong major programs: the B.A. in political science, the B.S. in public policy and administration and the B.A. in international affairs (cross disciplinary).
- Offer strong minor programs: political science, public policy and administration, and political communication (cross disciplinary).
- Enhance critical thinking, communication and information gathering skills.
- Foster active learning through research, simulations and internships.

## Career Opportunities

The political science department offers programs that lead students to careers in the following fields:

- Administration and management
- Federal, state and local government
- International organizations
- Law
- Not-for-profit organizations
- Politics
- Private sector

To enhance the marketability of its students, the political science department supports career-related internships. For information contact the political science office, Miller Hall, Room 2120, (540)568-6149 or contact the internship coordinator, Dr. Jennifer Taylor ([taylo2ja@jmu.edu](mailto:taylo2ja@jmu.edu)).

## Co-curricular Activities and Organizations

- Pi Alpha Alpha: public administration honor society

- Pi Sigma Alpha: political science honor society
- Pre-Law Society
- Sigma Iota Rho: international affairs honor society
- PASO: JMU Public Affairs Student Organization

## Majors in the Department of Political Science

The Department of Political Science offers the B. A. degree with a major in political science, the B.S. degree with a major in public policy and administration and the B.A. degree with a major in international affairs.

## Bachelor of Arts in Political Science

*Coordinator: Dr. Scott Hammond*

Phone: (540) 568-6313

Email: [hammonsj@jmu.edu](mailto:hammonsj@jmu.edu)

Location: Miller Hall, Room 2127

For a major in political science, the student must satisfactorily complete a minimum of 33 credit hours, including:

- A 14-hour core introducing students to the conduct of political inquiry in the major areas of the discipline, an awareness of global issues and cultural diversity, and the techniques of original research.
- A 15-hour depth requirement in which students take at least one course from three of the major areas of political inquiry and acquire additional experience in the application of research techniques.
- A four-hour capstone experience designed to bring together knowledge gained in different courses into a coherent whole, to foster a capacity for lifelong learning, to connect the major to experiences outside the university and to provide the opportunity to work individually with a faculty member.

## Degree and Major Requirements

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	28-39
Major requirements (listed below)	33

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.  
 2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Language's placement test.

## Major Requirements

Core Requirements	Credit Hours
POSC 225. U.S. Government	4
POSC 201. Introduction to Western Political Theory	3
POSC 295. Political Research Methods <sup>1</sup>	4
Choose one of the following:	3
POSC 200. Global Politics	
POSC 230. International Relations	
POSC 240. Comparative Politics	
1 MATH 220 is a prerequisite for POSC 295.	

## Electives

In addition to the core requirements, political science majors must elect 15 hours of approved courses from the 300-level or above and at least one from three major areas of political inquiry. Students are encouraged to complete the core requirements before taking any course above the level of POSC 301.

Elective Courses	Credit Hours
Choose one course from three of the following areas:	9
<b>Comparative Politics</b>	
POSC 337. Politics of Russia and the Former Soviet Union	
POSC 340. Political Development in the Third World	
POSC 344. Politics of European Union	
POSC 345. Politics of Western Europe	
POSC 346. Politics of Central and Eastern Europe	
POSC 347. Comparative Public Policy	
POSC 348. The Politics of Cultural Pluralism	
POSC 349. Comparative Political Behavior	
POSC 350. Latin American Politics	
POSC 353. African Politics	
POSC 354. Politics of the Middle East	
POSC 355. East Asian Politics	
POSC 371. Topics in Comparative Politics	
POSC/WGS 383. Women in Politics in Comparative Perspective	
POSC/HIST 457. Comparative Empires	
<b>International Relations</b>	
POSC 361. Topics in International Relations	
POSC 370. U.S. Foreign Policy	
POSC/JUST 372. Ethics and International Politics	
POSC/JUST 392. Peace Studies	
POSC 395. International Law	
POSC 396. International Organizations	
POSC 397. Politics of International Economic Relations	
POSC 430. International Security and Conflict Management	
POSC 435. International Terrorism	
POSC 458. International Political Analysis	
<b>Political Theory</b>	
POSC 310. Political Theory: Ancient to Early Modern	
POSC 315. Political Theory: Early Modern to the 19th Century	
POSC 316. Contemporary Political Theory	
POSC 321. Political Theory and Ideology	
POSC 330. American Political Thought	
POSC 381. Topics in Political Theory	
<b>American Government</b>	
POSC 302. State and Local Government	
POSC 325. Constitutional Law	
POSC 326. Civil Rights	
POSC 351. Topics in American Politics	
POSC 358. Public Policymaking	
POSC 362. Political Behavior	
POSC 365. American Political Campaigning	

POSC 368. Interest Groups and Public Policy	
POSC 369. Political Parties and Elections	
POSC 380. The U.S. Presidency	
POSC 382. Religion and Politics	
POSC 384. Minority Group Politics	
POSC 385. The U.S. Congress	
POSC 386. The U.S. Judiciary	
POSC 391. Topics in Public Policy (when topic is appropriate)	
POSC 472. Media and Politics	
Two additional electives chosen from the 300 or 400 level	6
For three of these credit hours, students may also take one of the following courses:	
PPA 265. Public Administration	
POSC 300. Politics and Film	
POSC 301W. The Washington Semester Experience	
POSC 493. Political Communication Internship	
POSC 493W. Political Communication Internship in Washington	
POSC 495. Internship in Political Science	
POSC 495W. Washington Semester Internship in Political Science	
<b>Senior Capstone<sup>1</sup></b>	
POSC 492. Senior Seminar in Political Science <sup>2</sup>	4

33

1 Students should fulfill the senior capstone requirement for each major and minor separately. This means that senior experiences completed for one major or minor cannot normally be counted for another. Students who have questions about a particular situation should see the academic unit head or appropriate academic unit coordinator for clarification.

2 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

## Bachelor of Science in Public Policy and Administration

*Coordinator: Dr. Liliokanaio Peaslee*

Phone: (540) 568-5829 Email: [peaslelx@jmu.edu](mailto:peaslelx@jmu.edu)

Location: Miller Hall, Room 2167

The major in public policy and administration provides students with a general foundation in the nature of public policy, the public workplace and its political, legal and managerial environments. This major prepares students for professional employment and leadership in government and nonprofit organizations. The program consists of a core of courses offering general knowledge essential for understanding and working in the public arena. This core provides students with an appreciation of the political culture and economic environment of public work, measurement techniques and a basic understanding of the policy process.

Students are offered a choice between two concentration options: public policy or public management.

In the public policy concentration students acquire knowledge of the nature, dynamics, implementation and substance of public policy and its analysis. Courses address:

- Policy processes.
- Techniques for analyzing policy options.
- The dynamics and substance of particular policy issues.

The public management concentration emphasizes management and management-related skills. Courses address:

- The legal environment of public work.
- Organization theories.
- Management theories and applications.
- Management best practices.

In addition, courses in both concentrations heighten students' critical, analytical and communication skills through case studies, exercises and the intensive writing requirement. The public policy

concentration requires a senior seminar experience that seeks to bring policy theory and analytical skills to bear on a practical issue of public policy. Public management students must complete the dual capstone requirements of a public management seminar and an internship, requiring an integration of knowledge from both general studies and major studies by focusing students on specific cases and workplace applications.

Because the public policy and administration major develops techniques and skills applicable to varied career paths in public service, students are encouraged to choose a complementary minor with a narrower, substantive focus. The minors recommended for students' consideration include criminal justice, environmental information systems, environmental management, environmental studies, family studies, gerontology, health information systems, nonprofit studies, political communication, substance abuse intervention, telecommunications, urban and regional studies, communication studies, conflict analysis and intervention, sociology, technical and scientific communication, economics, human resource development, computer science, public health and integrated science and technology. Interested students may apply to participate in the Fifth Year Master of Public Administration degree program, which allows qualified students to earn an M.P.A. degree with one additional year of study. Students should apply for this program in their sophomore year. See the Graduate Catalog for more information.

## Degree and Major Requirements

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2,3</sup>	3
Scientific Literacy requirement <sup>2</sup>	3
University electives	33-34
Major requirements (listed below)	39-40
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirements.

3 For this requirement, public policy and administration majors should take MATH 220, a prerequisite for POSC 295, a required core course in the major.

### Major Requirements

Core Requirements	Credit Hours
POSC 225. U.S. Government	4
ECON 200. Introduction to Macroeconomics	3
PPA 200. Introduction to Public Policy	3
PPA 265. Public Administration	3
POSC 295. Political Research Methods <sup>1</sup>	4
	17

Public Policy Concentration Requirements	Credit Hours
Core Requirements	17
PPA 359. Policy Analysis	3
Choose two of the following:	6
POSC 302. State and Local Government	
POSC 351. Topics in American Politics	
POS 351W. Public Policymaking Topics in American Politics	
POSC 358. Public Policymaking	
POSC 368. Interest Groups and Public Policy	
POSC 380. The U.S. Presidency	
POSC 385. The U.S. Congress	
POSC 386. The U.S. Judiciary	
POSC 412. Seminar in Intergovernmental Relations	

Choose three substantive policy electives from the following:	9-10
POSC 347. Comparative Public Policy	
POSC 367. Immigration Politics and Policy	
POSC 391. Topics in Public Policy	
POSC 397. The Politics of International Economic Relations	
PPA 460. Regionalism and Urban Management	
PPA 461. Education and Social Policy	
PPA 462. Social Welfare and Local Government Policy	
PPA 482. Special Topics in Public Policy	
PPA 484. Environmental Regulatory Politics and Policy	
Approved ISAT course <sup>3</sup>	
Senior Capstone	4
PPA 492. Public Policy Senior Seminar <sup>4</sup>	

39-40

Public Management Concentration Requirements	Credit Hours
Core Requirements	17
ACTG 244. Accounting for Non-Business Majors	3
PPA 381. Budgetary Process	3
MGT 365. Human Resource Management	3
PPA 415. Legal Environment of Public Administration	3
Process, Issue and Application Course (choose one)	3
GEOG 215. Cartography and GIS	
GEOG 216. Earth Observation and GPS	
GEOG 344. Economic Geography and Development Issues	
GEOG 345. Geography of Poverty	
NPS 300. Introduction to Nonprofit Studies	
PPA 460. Regionalism and Urban Policy	
PPA 461. Education and Social Policy	
PPA 462. Social Welfare and Local Government Policy	
PPA 469. Philanthropy and Volunteerism	
PPA 470. Nonprofit Management and Leadership	
PPA 471. Financial Management for Nonprofit Organizations	
PPA 472. Contract Management	
PPA 473. Economic and Community Development	
PPA 475. Grant Writing and Project Management	
PPA 483. Emerging Issues in Public Policy and Administration	
PPA 484. Environmental Regulatory Policy and Politics	
SCOM 350. Organizational Communication	
Approved WRTC course <sup>3</sup>	
Required Capstone Courses	
PPA 420. Seminar in Public Management <sup>4</sup>	3
PPA 496. Internship in Public Management <sup>2</sup>	4

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1 MATH 220, POSC 225 and one of PPA 200, PPA 265, POSC 230 or POSC 240 are the prerequisites for POSC 295.

2 Students may substitute PPA 496W for either PPA 494 or PPA 496 with the approval of the public policy and administration coordinator.

3 Consult the public policy and administration coordinator.

4 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

### Senior Honors Projects

If a project's topic is appropriate, a PPA major may seek permission to count their completed Senior Honors Project as a three-credit policy elective within the public policy concentration or as a process, issue or application course toward the public management concentration. Students must consult with the PPA program coordinator prior to conducting an honors project to check on its potential applicability to the major.

### Cross Disciplinary Major

#### Bachelor of Arts in International Affairs

The major in international affairs provides a cross disciplinary understanding of foreign cultures and societies, the dynamics of

world politics and how other nations perceive the world and why they act the way they do. For a full description of this major, see International Affairs.

## Minor Requirements

### Political Communication Minor

The cross disciplinary minor in political communication is designed for students interested in pursuing careers in political management. For a full description of this minor, see Cross Disciplinary Studies.

### Political Science Minor

Check with the department office for availability of the minor.

<b>Courses</b>	<b>Credit Hours</b>
POSC 201. Introduction to Western Political Theory	3
POSC 225. U.S. Government	4
Choose one upper-level American government course	3
POSC 300. Politics and Film	
POSC 301W. The Washington Semester Experience	
POSC 302. State and Local Government	
POSC 325. Constitutional Law	
POSC 326. Civil Rights	
POSC 351. Topics in American Politics	
POSC 358. Public Policymaking	
POSC 362. Political Behavior	
POSC 365. American Political Campaigning	
POSC 368. Interest Groups and Public Policy	
POSC 369. Political Parties and Elections	
POSC 380. The U.S. Presidency	
POSC 384. Minority Group Politics	
POSC 385. The U.S. Congress	
POSC 386. The U.S. Judiciary	
POSC/SCOM/SMAD 472. Media and Politics	
Elective chosen from 300 level courses listed above or the following:	3
PPA 265. Public Administration	
POSC 310. Political Theory: Ancient to Early Modern	
POSC 315. Political Theory: Early Modern to the 19th Century	
POSC 316. Contemporary Political Theory	
POSC 321. Political Theory and Ideology	
POSC 330. American Political Thought	
POSC 381. Topics in Political Theory	
Choose Option One or Option Two	6
<i>Option One</i>	
POSC 230. International Relations	
Choose one of the following:	
POSC/JUST 331. Human Rights in Theory and Practice	
POSC 361. Topics in International Relations	
POSC 370. U.S. Foreign Policy	
POSC/JUST 372. Ethics and International Politics	
POSC/JUST 392. Peace Studies	
POSC 395. International Law	
POSC 396. International Organizations	
POSC 397. Politics of International Economic Relations	
POSC 430. International Security and Conflict Management	
POSC 435. International Terrorism	
POSC 458. International Political Analysis	
<i>Option Two</i>	
POSC 200. Global Politics or	
POSC 240. Comparative Politics	
Choose one of the following:	
POSC 337. Politics of Russia and the Former Soviet Union	
POSC 340. Political Development in the Third World	
POSC 344. Politics of the European Union	
POSC 345. Politics of Western Europe	
POSC 346. Politics of Central and Eastern Europe	

POSC 347. Comparative Public Policy
POSC 348. The Politics of Cultural Pluralism
POSC 349. Comparative Political Behavior
POSC 350. Latin American Politics
POSC 353. African Politics
POSC 354. Politics of the Middle East
POSC 355. East Asian Politics
POSC 371. Topics in Comparative Politics
POSC/WGS 383. Women and Politics in Comparative Perspective
POSC 440. Post-Conflict Societies

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### Public Policy and Administration Minor

The minor in public policy and administration seeks to give students a foundation in the nature and practice of public policy and public administration. Students get exposure to the application of policy and administration by doing an internship capstone course.

<b>Courses</b>	<b>Credit Hours</b>
POSC 225. U.S. Government	4
PPA 200. Introduction to Public Policy	3
PPA 265. Public Administration	3
Public Policy (Choose one):	3
POSC 347. Comparative Public Policy	
POSC 367. U.S. Immigration Politics and Policy	
POSC 391. Topics in Public Policy	
PPA 460. Regionalism and Urban Management	
PPA 461. Education and Social Policy	
PPA 462. Social Welfare and Local Government Policy	
PPA 482. Special Topics in Public Management	
PPA 484. Environmental Regulatory Policy	
Public Administration (choose one):	3
MGT 365. Human Resource Management	
PPA 381. Public Budgeting	
PPA 415. Legal Environment of Public Administration	
PPA 469. Philanthropy and Volunteerism	
PPA 470. Nonprofit Management	
PPA 471. Financial Management for Nonprofit Organizations	
PPA 472. Contract Management	
PPA 473. Economic and Community Development	
PPA 475. Grant Writing and Project Management	
PPA 483. Special Topics in Public Management	
Required Capstone (choose one)	4
PPA 494. Internship in Public Policy	
PPA 496. Internship in Public Management	
PPA 496W. Public Management Internship in Washington	

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## Washington Semester Program

*Dr. David Jones, Director*

Email: jones3da@jmu.edu

The political science department offers a Washington Semester Program. In the fall semester the focus is on U.S. policy and politics. In the spring the focus is on global and international politics. In both semesters, students have the opportunity to do a Washington-based internship and take a course from specialists in the field. Housing is arranged by JMU.

The U.S. policy and politics program is especially designed for students who are majoring or minoring in political science or public policy and administration. The global semester encourages students from all majors that have an international or global focus to enroll.

# Department of Psychology

*Dr. Kevin J. Apple, Department Head*

Phone: (540) 568-6114

Location: Miller Hall, Room 1120

Email: [applekj@jmu.edu](mailto:applekj@jmu.edu)

Website: <http://www.psyc.jmu.edu/undergraduate>

## Professors

J. Andre, K. Apple, S. Baker, K. Barron, D. Daniel, W. Evans, P. Gibson, M. Hall, C. Harris, N. Kerr Lawrence, S. Lovell, C. Lyons, M. Reis-Bergan, B. Saville, M. Stoloff, T. Zinn

## Associate Professors

J. Dyche, D. Holt, J. Irons, K. Jakobsen, J. Kurtz, M. Lee

## Assistant Professors

K. Fogler, K. Melchiori, M. Shoup-Knox, D. Szewedo, J. Taft-Young

## Lecturer

K. DuVall

## Mission

The mission of the Department of Psychology is to educate students in, and contribute to, the science of psychology.

## Goals

The vision of the Department of Psychology is to sustain and advance a nationally recognized department focused on promoting scientific proficiency within the cross disciplinary field of psychology. To that end, the curriculum is designed to provide students with a strong foundation in psychological science that reflects multiple perspectives within the discipline. The hallmarks of our program are learning opportunities that promote the skills necessary to conduct and evaluate research and to interpret findings. The department trains our students to be responsive to emerging trends and apply their knowledge of psychological science as responsible global citizens.

The Department of Psychology is a dynamic contributor to the General Education program and the university community through the delivery of high quality courses and other educational experiences emphasizing psychological science. We also contribute to the M.A. program in psychological science. Our faculty strive to create and implement creative and effective pedagogy, embracing the dual role of teacher/scholar. The department will foster a collegial and collaborative environment within which divergent opinions as well as cultural diversity are respected, valued and promoted.

## Co-curricular Activities and Organizations

- Active Minds. This organization promotes mental health, awareness and education and works to reduce the stigma of mental illness.
- Psi Chi. The local chapter of the national honor society in psychology is open to students with a strong interest in psychology and an exceptional academic record.
- Psychology Club. This club is open to all students with an interest in psychology.
- Psychology Service Organization. This organization strives to meet the needs of the JMU and local communities by sponsoring and participating in service projects.

## Special Admission Requirements

Students interested in completing the intermediate and advanced courses required for the psychology major must meet the department's progression standards and be fully admitted to the major.

Students who meet all of the following criteria will be allowed to change their status from declared to fully admitted and will be permitted to make progress in the psychology major beyond a few preliminary courses. Equivalent courses completed at another university for which the student has earned JMU approved transfer credit are acceptable.

- Complete PSYC 101. General Psychology, with a grade of "C-" or better. Equivalent courses completed at other institutions that transfer to JMU are acceptable.
- Complete MATH 220, MATH 205, MATH 231, MATH 235 or another acceptable math course shown on the psychology website with a grade of "C-" or better. Equivalent courses completed at other institutions that transfer to JMU are acceptable.
- Complete any General Education Psychology course (PSYC 101, PSYC 122 or PSYC 160) with a grade of "B" or higher. Earning a 4 on the AP Psychology exam meets this requirement. With departmental approval, grades from other institutions can fulfill this requirement.
- Complete an online orientation and application, available from the Department of Psychology website.

Students should apply for full admission to the major when they make the decision to pursue a psychology degree. Admission decisions are made at the end of each semester and during the summer. Students not admitted to the major may reapply the following semester.

## Retention

All psychology courses taken must carry a grade of "C-" or better to apply to the major. A psychology course completed with a grade of "D" may be credited toward graduation requirements but may not be included in courses credited toward the psychology major.

## Prerequisites

Psychology majors must complete PSYC 101 and two statistics and research methodology courses (PSYC 210-211 or PSYC 212-

213) before enrolling in courses numbered 330 and above. The prerequisites for PSYC 210 and PSYC 212 are any mathematics course numbered 205 or above and PSYC 101. Most psychology courses numbered 330 and above have specific prerequisites. See course listings for details. Non-psychology students may enroll in the 300- and 400-level courses only if they have fulfilled course prerequisites.

## Registration and Assessment

During registration, psychology majors will be given priority for course selection. Graduating majors must participate in assessment activities. Assessment information helps the faculty modify the curriculum to meet student needs.

## Degree and Major Requirements

A student must complete a minimum of 41 PSYC credits and at least 60 non-PSYC credits.

### Bachelor of Arts in Psychology

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required)	0-14
Philosophy course(s) (in addition to General Education courses)	3
Major requirements (listed below)	44
Electives	18-32
	120

#### Major Requirements

The courses listed below are required of all students pursuing a Bachelor of Arts degree, or any other bachelor's degree program except Bachelor of Science, regardless of whether psychology is their first or second major.

Major Requirements – B.A.	Credit Hours
PSYC 101. General Psychology	3
Methodology Core <sup>2</sup>	8
(choose one of the following sequences):	
PSYC 210. Psychological Measurement and Statistics and PSYC 211. Psychological Research Methods	
PSYC 212. Psychological Research Design and Data Analysis I and PSYC 213. Psychological Research Design and Data Analysis II	
SS Content Core – Psychology as a Social Science (choose at least three of the following):	9
PSYC 330. Psychology of Personality	
PSYC 335. Abnormal Psychology	
PSYC 345. Social Psychology	
PSYC 365. Developmental Psychology	
NS Content Core – Psychology as a Natural Science (choose at least three of the following):	9
PSYC/BIO 375. Sensation and Perception	
PSYC 380. Cognitive Psychology	
PSYC/BIO 385. Biopsychology	
PSYC 390. Psychology of Learning	
PSYC 395. Comparative Animal Behavior	
Upper Level Specialty Content Courses (choose at least one of the following):	3
PSYC 400. Advanced Topics	
PSYC 410. Psychology of the Workplace	
PSYC 415. Forensic Psychology	
PSYC 420. Advanced Psychological Statistics	
PSYC 425. School Psychology	
PSYC 427. Tests and Measurement	

PSYC 428. Educational Psychology	
PSYC 430. Clinical Psychology	
PSYC 435. Community Psychology	
PSYC 450. Child Abuse and Neglect	
PSYC 452. Child Psychopathology	
PSYC 460. Community Psychology within Developing Societies	
PSYC 475. Psychology of Adulthood	
PSYC 480. Applied Behavior Analysis	
Psychology electives (at least three hours must be at the 400 level)	9
Capstone course <sup>4</sup>	3
(choose one of the following):	
PSYC 492. History of Psychology	
PSYC 493. Laboratory in Psychology	
PSYC 495. Field Placement in Psychology	
PSYC 497. Senior Seminar in Psychology <sup>3</sup>	
PSYC 499. Honors Thesis <sup>3</sup>	
Sociocultural Competency (choose one of the following):	0
PSYC 220. Psychology and Culture	
PSYC 308. Health Psychology	
PSYC 310. Women and Gender	
PSYC 320. Diversity Issues in Psychology	
PSYC 325. Counseling Psychology	
PSYC 410. Psychology of the Workplace	
PSYC 460. Community Psychology within Developing Societies	
Other course section that meets the sociocultural competency requirement	

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 PSYC 210 and PSYC 211 are offered every semester; PSYC 212 is offered only during the fall semester; PSYC 213 is offered only during the spring semester.

3 Some sections of this course may meet the sociocultural awareness requirement depending on the content; when this course does meet the requirement it will be listed in the notes section of the course listing in MyMadison.

4 Prior approval is required for students to enroll in more than one psychology capstone course.

### Bachelor of Science in Psychology

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major requirements (including cognate, listed below)	47-51
Electives	18-32
	120

#### Major Requirements

The courses and cognate described below are required of all students pursuing a Bachelor of Science degree, regardless of whether psychology is their first or second major.

Major Requirements – B.S.	Credit Hours
PSYC 101. General Psychology	3
PSYC/BIO 385. Biopsychology	3
(choose one of the following sequences):	8
PSYC 210. Psychological Measurement and Statistics and PSYC 211. Psychological Research Methods	
PSYC 212. Psychological Research Design and Data Analysis I and PSYC 213. Psychological Research Design and Data Analysis II	
SS Content Core – Psychology as a Social Science (choose at least three of the following):	9
PSYC 330. Psychology of Personality	
PSYC 335. Abnormal Psychology	

PSYC 345. Social Psychology	
PSYC 365. Developmental Psychology	
NS Content Core – Psychology as a Natural Science (choose at least two of the following):	6
PSYC/BIO 375. Sensation and Perception	
PSYC 380. Cognitive Psychology	
PSYC 390. Psychology of Learning	
PSYC 395. Comparative Animal Behavior	
Upper Level Specialty Content Courses (choose at least one of the following):	3
PSYC 400. Advanced Topics	
PSYC 410. Psychology of the Workplace	
PSYC 415. Forensic Psychology	
PSYC 420. Advanced Psychological Statistics	
PSYC 425. School Psychology	
PSYC 427. Tests and Measurement	
PSYC 428. Educational Psychology	
PSYC 430. Clinical Psychology	
PSYC 435. Community Psychology	
PSYC 450. Child Abuse and Neglect	
PSYC 452. Child Psychopathology	
PSYC 460. Community Psychology within Developing Societies	
PSYC 475. Psychology of Adulthood	
PSYC 480. Applied Behavior Analysis	
Psychology electives (at least three hours must be at the 400 level)	9
Capstone course (choose one of the following) <sup>4</sup> :	3
PSYC 492. History of Psychology	
PSYC 493. Laboratory in Psychology	
PSYC 495. Field Placement in Psychology	
PSYC 497. Senior Seminar in Psychology <sup>3</sup>	
PSYC 499. Honors Thesis <sup>3</sup>	
Sociocultural Competency	0
Choose one of the following:	
PSYC 220. Psychology and Culture	
PSYC 308. Health Psychology	
PSYC 310. The Psychology of Women and Gender	
PSYC 320. Diversity Issues in Psychology	
PSYC 325. Counseling Psychology	
PSYC 410. Psychology of the Workplace	
PSYC 460. Community Psychology within Developing Societies	
Other course section that meets the sociocultural competency requirement	
	44

## Cognate Requirements

Courses	Credit Hours
Quantitative Competency	6-9
This may include credit hours that count toward General Education and degree requirements.	
Choose one of the following:	
Two 200-level MATH courses or	
One 200-level MATH course and six credits of additional MATH courses at any level	
Scientific Literacy	6-8
These courses are taken in addition to the General Education requirement. They may count toward the B.S. degree requirement, second major and/or minor requirements.	
Choose at least two courses from the list of courses meeting B.S. degree scientific literacy requirements.	

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 PSYC 210 and PSYC 211 are offered every semester; PSYC 212 is offered only during the fall semester; PSYC 213 is offered only during the spring semester.

3 Some sections of this course may meet the sociocultural awareness requirement depending on the content; when this course does meet the requirement, it will be listed in the notes section of the course listing in MyMadison.

4 Prior approval is required for students to enroll in more than one capstone course.

## Concentration

### Behavior Analysis Concentration

This concentration prepares students for employment with agencies that provide behavior analytic services and/or for pursuing a graduate degree in behavior analysis. This course sequence includes the course work requirements necessary to sit for the Board Certified Associate Behavior Analysis (BCABA®) national certification examination.

Required Courses	Credit Hours
PSYC 180. Introduction to Behavior Analysis <sup>1</sup>	3
PSYC 390. Psychology of Learning	3
PSYC 480. Applied Behavior Analysis	3
Choose one of the following:	3
PSYC 402. Independent Study: Practicum – Behavior Analysis <sup>2,3</sup>	
PSYC 403. Independent Research: Behavior Analysis <sup>2</sup>	
PSYC 402. Independent Study: Readings – Behavior Analysis <sup>2</sup>	
PSYC 402. Independent Study: Teaching – Behavior Analysis <sup>2</sup>	
Choose one of the following:	3-6
PSYC 493. Laboratory in Psychology <sup>2</sup>	
PSYC 497. Senior Seminar in Psychology <sup>2</sup>	
PSYC 499. Honors Thesis <sup>2</sup>	

15-18

1 Cannot be taken by students who have completed PSYC 390 or PSYC 480.

2 Only certain sections will qualify; consult with the concentration coordinator before enrolling.

3 This course will count toward the experience requirements for the Board Certified Associate Behavior Analysis (BCABA®) National Certification Examination.

With the assistance of their faculty advisers, students majoring in psychology select their area courses and psychology electives to meet their own individual needs and goals. Within the structure of the program, students may choose the courses of greatest interest to them.

### Recommended Schedule for Majors

The following program sample is intended as a guide. Courses must be taken in the sequence outlined; however, the semester during which a particular course is taken depends on a number of factors, including readiness to take MATH 220, the semester the psychology major is started and other majors or minors the student is completing.

Students are encouraged to meet regularly with their psychology academic adviser to plan their personal course schedule. Because of course sequencing requirements, even with the most compressed program, a minimum of five semesters (or four semesters and summer school) is required to complete the psychology major.

#### First Year

First Semester	Credit Hours
MATH 220. Elementary Statistics <sup>1</sup>	3
PSYC 101. General Psychology	3
General Education courses	9

15

Second Semester	Credit Hours
General Education, B.A./B.S. degree requirement, B.S. Psychology Cognate and/or minor program courses	15

15

**Second Year**

First Semester	Credit Hours
PSYC 210. Psychological Measurement and Statistics or PSYC 212. Psychological Research Design and Data Analysis I <sup>2</sup>	4
General Education, B.A./B.S. degree requirement, B.S. Psychology Cognate, minor program and/or Psychology elective courses	12

Second Semester	Credit Hours
PSYC 211. Psychological Research Methods <sup>3</sup> or PSYC 213. Psychological Research Design and Data Analysis II <sup>4</sup>	4
General Education, B.A./B.S. degree requirement, B.S. Psychology Cognate, minor program and/or Psychology elective courses	12

**Third Year**

Courses	Credit Hours
SS content core courses	9
NS content core courses	9
Minor program courses or electives	12

Fourth Year	Credit Hours
Psychology Upper level Specialty Content Course	3
Psychology 400 level elective	3
Psychology capstone course	3
Psychology, minor program or elective courses	21

1 A preliminary math course may be suggested after placement examinations. If suggested, the preliminary course should be taken first semester and MATH 220 second semester. Other 200-level mathematics courses may be substituted for MATH 220. Any MATH course numbered 205 or above is an acceptable prerequisite for the psychology major.

2 Any MATH course numbered 205 or above is a prerequisite for PSYC 210 and PSYC 212. MATH 220 is recommended.

3 PSYC 210 is a prerequisite for PSYC 211.

4 PSYC 212 is a prerequisite for PSYC 213.

**Recommended Courses**

The following courses are recommended for all psychology majors especially those who plan to pursue advanced study at the graduate level after earning their bachelor's degrees.

Participate in experiential learning, such as:

- PSYC 202. Directed Studies in Psychology
- PSYC 203. Directed Research in Psychology
- PSYC 402. Independent Study in Psychology
- PSYC 403. Independent Research in Psychology
- PSYC 495. Field Placement in Psychology
- PSYC 499. Honors Thesis.

Taking an advanced statistics course is highly recommended. Consider the following:

- MATH 280. SAS Programming and Data Management.
- MATH 321. Analysis of Variance and Experimental Design
- MATH 322. Applied Linear Regression
- MATH 324. Applied Nonparametric Statistics
- MATH 325. Survey of Sampling Methods
- MATH 327. Categorical Data Analysis

A minor or a selection of courses from other departments that complements the psychology major for the professional field you are pursuing might be very helpful. Discuss your professional goals with your faculty adviser and ask for recommendations. Consider taking courses that emphasize writing skills, quantitative skills, critical thinking and analysis and/or oral communication.

Students should discuss their career aspirations with their academic adviser throughout their academic program. Students interested in applying to graduate school should discuss the necessary preparation with their adviser early in their academic program. Students are encouraged to visit the department's Peer Advising Office in Miller Hall where materials are available about career and graduate school opportunities.

**Other Psychology Programs****Graduate Programs**

The Department of Graduate Psychology at James Madison University offers the following graduate degree programs:

**Master of Arts**

- Clinical Mental Health Counseling
- Psychological Sciences
- School Psychology

**Master of Education**

- School Counseling
- College Student Personnel Administration

**Educational Specialist**

- Counseling Psychology
- School Psychology

**Doctor of Philosophy**

- Assessment and Measurement
- Counseling and Supervision

**Doctor of Psychology**

- Combined/Integrated Program in Clinical and School Psychology

Additional information about these programs, including admission requirements and procedures, is available at <http://psyc.jmu.edu/gradpsyc>.

# Department of Social Work

*Dr. Lisa E. McGuire, Department Head*

Phone: (540) 568-6980

Location: Health and Behavioral Studies Building, Room 2084

Email: [m McGuire@jmu.edu](mailto:m McGuire@jmu.edu)

Website: <http://www.jmu.edu/socwork>

## Professors

B.J. Bryson, L. McGuire

## Associate Professors

C. Hunter, N. Poe, H. Yeom

## Assistant Professors

K. Myers, L. Trull

## Mission

The Department of Social Work prepares generalist social workers committed to strengthening community life for diverse individuals, families and organizations and promoting social justice through advocacy and action. It offers a program, accredited by the Council on Social Work Education, which leads to the B.S.W. degree. In addition, the department offers minors in family studies, gerontology and nonprofit studies.

The Department of Social Work is committed to the following:

- Preparing students to work effectively in a broad spectrum of social service agencies by providing an environment geared to addressing poverty, multiple forms of oppression, social injustice and other human rights violations.
- Preparing students for advanced academic study by providing an environment geared toward achieving academic excellence.
- Advancing excellence and integrity through the development of high quality academic programs as well as contributions to professional knowledge and service.
- Responding to the professional and the university's service region by providing supportive services and continuing education opportunities.

## Career Opportunities and Marketable Skills

### Career Opportunities

- Aging services
- Child and adult day care centers
- Children and youth services
- Community action agencies
- Criminal justice agencies
- Domestic violence programs
- Family service agencies
- Homeless shelters
- Hospitals/home health programs/hospices
- Income maintenance programs
- Legal services agencies
- Behavioral and mental health services
- Services to people with developmental disabilities
- Nursing homes and residential communities
- Public child welfare/child protection services
- Residential treatment facilities
- School programs

- Substance abuse programs
- Vocational rehabilitation services

### Marketable Skills

- Advocacy
- Assessment
- Case management/brokering
- Communication
- Community outreach
- Crisis intervention
- Group facilitation
- Intake/referral
- Intervention/service planning
- Interviewing
- Networking
- Policy analysis
- Problem solving
- Program development/evaluation
- Recording/writing
- Relationship-building/interpersonal
- Research
- Service provision
- Team/group/collaborative

## Co-curricular Activities and Organizations

The Social Work Organization (SWO) offers the opportunity to socialize, meet professionals and volunteer in the community. Membership in SWO is open to any student interested in a career in the helping professions.

Phi Alpha Honor Society for Social Work's purpose is to promote academic excellence among social work students. Membership in Phi Alpha is by invitation to students with a minimum of nine credit hours in required social work course, holding a major grade point average (GPA) of 3.25 and a cumulative GPA of 3.0.

National Association of Social Workers serves the critical and diverse needs of the entire social work profession. The National Association of Social Workers-Program Unit, a student unit of this nationally recognized organization, is under the auspices of the Whitney Young District, Virginia NASW. Membership is open to all social work majors and provides opportunities for both social and professional enrichment.

## Admission Requirements

### Social Work Program

Students may declare a major in social work at any time; however, they must apply for admission to the social work program the semester following completion of SOWK 287, Introduction to Social Work and SOWK 288, Social Welfare. For unconditional admittance, students must have a cumulative GPA of 2.0 with no single grade lower than a "C" (2.0) in SOWK 287 and SOWK 288, and have completed the 20 hours of community service work required in SOWK 287. Students are evaluated on the basis of community service and life experiences, academic performance, communication skills, work related habits, ability to work with others, motivation, value orientation and career plans. Students must complete this process or admission to upper-level courses will be restricted. See the Social Work Handbook or the social work website for guidelines.

Applications are reviewed by two or more social work faculty members who make a recommendation to the head of the social work department. The student will be notified of the decision in writing. Decisions are to admit, to admit conditionally, not to admit or to defer decision. You will have one opportunity per semester to resubmit the application. If you fail to submit or resubmit a document that is still incorrect, you will be required to wait until the next semester deadline to resubmit. While this could potentially slow your progression in the major, it acknowledges your role of accountability in the process, a quality that will be essential for professional practice.

If admitted conditionally, the conditions for acceptance will be described. If the decision is deferred, the student will be notified in writing as to why. If not admitted, the student may appeal the decision to the head of the Department of Social Work.

### Field Practicum Application

Students admitted into the social work practicum are seniors who have completed the core social work requirements, with no grade lower than a "C" (2.0) in SOWK 287, SOWK 288, SOWK 305, SOWK 317, SOWK 320, SOWK 335, SOWK 465, SOWK 466 and SOWK 467, have an overall GPA of 2.0, and who have completed 50 community service hours related to human services after SOWK 287, are eligible for field practicum.

During the field practicum, students spend four days a week for one semester completing a minimum of 472 hours of directed field practice. Students seeking admission to SOWK 481, Social Work Field Practicum I and SOWK 482, Social Work Field Practicum II must complete a field placement application and interview with the director of field placement. The field placement director, with the assistance of social work faculty members, will determine the acceptance and placement of students.

See the Social Work Student Handbook or the social work website for the field application, documentation of community service guidelines and guidelines for the placement process. Students must have no grade lower than a "C" (2.0) in SOWK 481, SOWK 482 and SOWK 494, which is taken concurrently with the field practicum.

## Degree and Major Requirements

### Bachelor of Social Work

#### Degree Requirements

Required Courses	Credit Hours
General Education courses <sup>1</sup>	41
Social Work core courses	43
Social Work electives	6
Electives	31-34

120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

#### Major Requirements

Core Courses	Credit Hours
SOWK 287. Introduction to Social Work	3
SOWK 288. Social Welfare	3
SOWK 305. Social Work Research Methods	3
SOWK 317. Skills for Generalist Social Work	3
SOWK 320. Human Behavior in the Social Environment	3
SOWK 335. Social Policy	3
SOWK 465. Social Work Practice in Mezzo Systems	3
SOWK 466. Social Work Practice in Micro Systems	3
SOWK 467. Social Work Practice in Macro Systems	3
SOWK 481. Social Work Field Practicum I	6
SOWK 482. Social Work Field Practicum II	6
SOWK 494. Professional Forum II: Transition to Professional Practice	3
SOWK Electives: Elective courses are offered on a rotating basis.	6
IPE 415. Ethical Decision Making in Healthcare: An Interprofessional Approach	1

49

The minimum requirement for the B.S.W. degree is completion of the General Education requirements, 42 credit hours of core social work courses, prerequisite courses as specified in course descriptions and elective hours, six of which must be in social work, for a total of 120 credit hours. If a grade of "C" (2.0) or above is not achieved the first time a social work course is taken, the student may repeat the course only once. All social work majors are expected to abide by the NASW Code of Ethics. Additionally, all majors participate in social work student outcome assessment measures.

#### Recommended Schedule for Majors

First Year	Credit Hours
Cluster One: Skills for the 21st Century	9-12
General Education courses <sup>1</sup>	18-21
	27-33

Second Year	Credit Hours
SOWK 287. Introduction to Social Work	3
SOWK 288. Social Welfare	3
General Education courses <sup>1</sup>	10-13
Electives	11-14

27-33

ThirdYear	Credit Hours
SOWK 305. Social Work Research Methods <sup>2</sup>	3
SOWK 317. Skills for Generalist Social Work	3
SOWK 320. Human Behavior in the Social Environment <sup>2</sup>	3
SOWK 335. Social Policy <sup>2</sup>	3
SOWK elective	3
Electives	15
	30

Fourth Year	Credit Hours
SOWK 465. Social Work Practice in Mezzo Systems <sup>2</sup>	3
SOWK 466. Social Work Practice in Micro Systems <sup>2</sup>	3
SOWK 467. Social Work Practice in Macro Systems <sup>2</sup>	3
IPE 415. Ethical Decision-Making in Health Care	1
SOWK elective	3
Elective	3
SOWK 481. Social Work Field Practicum I <sup>2</sup>	6
SOWK 482. Social Work Field Practicum II <sup>2</sup>	6
SOWK 494. Professional Forum II: Transition to Professional Practice <sup>2</sup>	3
	31

1 Certain General Education courses may also meet prerequisite requirements for social work courses. Pay close attention to General Education requirements when selecting the following courses: MATH 220, Cluster 3; ANTH 195, POSC 225 and SOCI 110, Cluster 4; PSYC 101 or PSYC 160, Cluster 5.

2 Check prerequisite requirements.

## Minor Requirements

### Family Studies Minor

Minor Adviser: Zanetta Ford

Email: fordzs@jmu.edu

The cross disciplinary minor in family studies is designed for undergraduates seeking enhancement of their major, desiring to increase understanding of self and relationships, and seeking to make a positive contribution to society. For a full description of the requirements for this minor, see Cross Disciplinary Programs.

### Gerontology Minor

Minor Adviser: B.J. Bryson

Email: brysonbj@jmu.edu

The cross disciplinary minor in gerontology is designed for any undergraduate major desiring a concentration of study of aging for personal understanding or career preparation. For a full description of the requirements for this minor, see Cross Disciplinary Programs.

### Nonprofit Studies Minor

Minor Adviser: Karen Ford

Email: fordka@jmu.edu

The nonprofit studies minor prepares students from a variety of disciplines to understand the unique role of nonprofit organizations in American society today. Emphasis is placed on history, theory, legal issues and management topics. The minor includes a capstone seminar and a field experience in a nonprofit agency with the focus to be determined in conjunction with the adviser. For a full description of the requirements for this minor, see Cross Disciplinary Programs.

# Department of Sociology and Anthropology

*Dr. Beth A. Eck, Department Head*

Phone: (540) 568-6213      Email: [eckba@jmu.edu](mailto:eckba@jmu.edu)

Location: Sheldon Hall, Room 123

Sociology Program

Website: <http://www.jmu.edu/socanth>

*Dr. Benjamin D. Brewer, Coordinator*

Phone: (540) 568-7391      Email: [brewerbd@jmu.edu](mailto:brewerbd@jmu.edu)

Location: Sheldon Hall, Room 212

Anthropology Program

*Dr. Liam M. Buckley, Coordinator*

Phone: (540) 568-6171      Email: [bucklelm@jmu.edu](mailto:bucklelm@jmu.edu)

Location: Sheldon Hall, Room 117

## Professors

L. Buckley, B. Eck, A. Paugh, S. Poulson

## Associate Professors

B. Brewer, B. Bryson, C. Colocousis, K. Dobransky, M. Ezzell, R. Lawler, J. Linder, M. Polanco, J. Solometo, J. Spear, K. Tanaka, M. Tracy

## Assistant Professors

D. Blanton, R. Howes-Mischel, S. Newman, L. Porter, D. Trouille

## Sociology Program

### Mission Statement

The mission of the sociology program is to develop students' ability to analyze the social world by using diverse sociological theories and research methods that stress the importance of social, cultural and historical contexts for understanding relationships between social actors and structures.

### Goals and Objectives

To fulfill its mission, the sociology program cultivates the sociological imagination, providing students the following sets of skills and experience. Upon completion of the B.A. or B.S. degree in sociology, students will be able to:

- Recognize and understand the social dimension of the human experience and the diverse social arrangements and practices found within and across societies and cultures.
- Recognize how developing a sociological lens is a practical skill for living a productive and meaningful life.
- Identify and understand sociology's major theories, schools of thoughts and analytical paradigms.
- Identify and understand sociology's origin, development and practice within its social and historical contexts.
- Demonstrate the use of skills in investigating the social world utilizing methodological components such as concept formation, measurement strategies, data analysis, summary and presentation of findings.
- Demonstrate the use of the scholarly tools needed to practice sociology, including rigor, perceptiveness, creativity, logical consistency, tenacity and discipline.

- Recognize the norms of the scholarly community and of a participatory society, including collegiality, openness to public scrutiny, testing reinterpretation and refutation.

### Career Opportunities and Marketable Skills

Working as a professional sociologist most often requires a graduate degree, but the following careers, some supplemented with collateral training, are representative of our previous graduates:

- Teacher, professor, social worker, researcher, case manager, biostatistician
- Admissions officer, demographer, data analyst, personnel interviewer
- Nursing home director, hospice coordinator, day care provider/director, epidemiologist
- Mediator, congressional aide, writer/author, advocacy worker, job analyst
- Population specialist, management trainee, sociologist, market research analyst
- Secret service agent, customs/immigration officer, labor relations specialist
- Personnel administrator, public relations specialist, public health statistician
- Urban/regional planner, race relations specialist, underwriter, fundraiser
- Education specialist, community services director
- Criminologist, probation/parole officer, police officer, corrections officer

A major in sociology provides skills and perspectives that enhance all careers. Students who study sociology gain:

- Increased general knowledge.

- Broadened viewpoints informed by sociological perspectives.
- Sensitivity to organizational issues and social change.
- Abilities in critical thinking, analysis, writing and communication, examination of attitudes and values, and enhancement of computer skills.
- Further information about careers in sociology is available from the American Sociological Association website under Careers and Jobs.

## Co-curricular Activities and Organizations

- Alpha Kappa Delta, the Sociological Honorary Society
- Student Research Symposium
- The Sociology Club

## Degree and Major Requirements

### Bachelor of Arts in Sociology

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	23-37
Major requirements (listed below) and electives	39
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Language's placement test.

#### Major Requirements

To earn the B.A. degree with a sociology major, students must complete a minimum of 39 credit hours in sociology. Of these credit hours, 18 are required courses; the remaining 21 credit hours are electives chosen from over 30 sociology courses.

Students must earn at least a "C-" in all sociology classes or any course that is substituted for a sociology core course. If a student earns below a "C-" in a course, he/she can re-take the course once in order to meet the "C-" standard.

Courses	Credit Hours
SOCI 110. Social Issues in a Global Context	3
SOCI 140. Microsociology: The Individual in Society	3
SOCI 200. Development of Sociological Thought and Method <sup>1</sup>	3
SOCI 231. Introduction to Social Statistics <sup>2</sup>	3
SOCI 300. Sociological Inquiry <sup>3</sup>	3
SOCI 480. Senior Seminar <sup>4,5,6</sup>	3
Sociology electives <sup>7</sup>	21
	39

1 Prerequisite for SOCI 200: SOCI 110, SOCI 140 or SOCI 101.

2 Students may substitute SOCI 231 with MATH 220, PSYC 210 or COB 191, but must take an additional sociology course to complete the required 39 hours of sociology.

3 Prerequisite for SOCI 300: SOCI 200 and SOCI 231 (or equivalent), sociology majors only.

4 Prerequisite for SOCI 480: SOCI 300.

5 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

6 Students may fulfill the senior seminar requirement by completing a supervised internship with a substantial writing expectation. Students must secure their own internship placement before enrolling in the internship course and should consult an adviser or the sociology program coordinator for details. Students may also

fulfill the senior seminar requirement by successfully completing the SOCI 499 Honors Thesis sequence.

7 If a course other than SOCI 231 is used to meet the statistics requirement, 24 elective credits will be required to reach the 39 credit hour total.

## Bachelor of Science in Sociology

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
University electives	32-33
Major requirements (listed below)	39
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

### Major Requirements

To earn the B.S. degree with a sociology major, students must complete a minimum of 39 credit hours in sociology. Of these credit hours, 18 are required courses; the remaining 21 credit hours are electives chosen from over 30 sociology courses. Students must observe the prerequisite sequencing of required courses as shown in the course descriptions.

Students must earn at least a "C-" in all sociology classes or any course that is substituted for a sociology core course. If a student earns below a "C-" in a course, he/she can re-take the course once in order to meet the "C-" standard.

Courses	Credit Hours
SOCI 110. Social Issues in a Global Context	3
SOCI 140. Microsociology: The Individual in Society	3
SOCI 200. Development of Sociological Thought and Method <sup>1</sup>	3
SOCI 231. Introduction to Social Statistics <sup>2</sup>	3
SOCI 300. Sociological Inquiry <sup>3</sup>	3
SOCI 480. Senior Seminar <sup>4,5,6</sup>	3
Sociology electives <sup>7</sup>	21
	39

1 Prerequisite for SOCI 200: SOCI 110, SOCI 140 or SOCI 101.

2 Students may substitute SOCI 231 with MATH 220, PSYC 210 or COB 191, but must take an additional sociology course to complete the required 39 hours of sociology.

3 Prerequisite for SOCI 300: SOCI 200 and SOCI 231 (or equivalent), sociology majors only.

4 Prerequisite for SOCI 480: SOCI 300.

5 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

6 Students may fulfill the senior seminar requirement by completing a supervised internship with a substantial writing expectation. Students must secure their own internship placement before enrolling in the internship course and should consult an adviser or the sociology program coordinator for details. Students may also fulfill the senior seminar requirement by successfully completing the SOCI 499 Honors Thesis sequence.

7 If a course other than SOCI 231 is used to meet the statistics requirement, 24 elective credits will be required to reach the 39 credit hour total.

## Concentrations

The sociology program encourages majors to select electives that create a coherent program of study suited to their special needs and interests. Such a focus would involve four or more courses from the following concentration groupings<sup>1</sup>:

### Communities, Inequalities and Public Policy

SOCI/GERN 280. Social Gerontology

SOCI 304. Social Deviance

- SOCI 311. Sociology of the Environment
- SOCI 318. Sociology of Immigration
- SOCI 321. Politics in Society
- SOCI/REL 322. Sociology of Religion
- SOCI/CRJU 325. Criminology
- SOCI 327. Juvenile Delinquency
- SOCI 335. Disability and Society
- SOCI 336. Race and Ethnicity
- SOCI/WGS 337. Sociology of Gender
- SOCI 341. Sociology of Education
- SOCI 347. Queer Theories of Gender and Inequality
- SOCI/ANTH 352. Birth, Death, Sex: Exploring Demography
- SOCI 354. Social Inequality
- SOCI 357. Sociology of Disasters
- SOCI 360. Social Movements
- SOCI 367. Sociology of Sexuality
- SOCI 369. Law and Society
- SOCI 372. Sociology of the Community
- SOCI 374. Sociology of Families
- SOCI 375. Medical Sociology

### **SOCI 385. Madness and Society Environments, Technologies and Innovation**

- SOCI 311. Sociology of the Environment
- SOCI 315. Technology and Society
- SOCI 344. Work and Society
- SOCI 348. Introduction to Developing Societies
- SOCI 354. Social Inequality
- SOCI 357. Sociology of Disasters
- SOCI 360. Social Movements
- SOCI 361. Sociology of Organizations
- SOCI 366. Sociology of Knowledge
- SOCI 367. Sociology of Sexuality
- SOCI 375. Medical Sociology
- SOCI 385. Madness and Society

### **Markets and Cultures**

- SOCI 306. Japanese Culture and Society
- SOCI 315. Technology and Society
- SOCI 318. Sociology of Immigration
- SOCI 341. Sociology of Education
- SOCI 342. Social Movements in the Middle East
- SOCI 344. Work and Society
- SOCI 346. Leisure in Contemporary Society
- SOCI/SOWK 348. Introduction to Developing Societies
- SOCI 358. Sociology of Consumption
- SOCI 361. Sociology of Organizations
- SOCI 363. Sociology of Culture
- SOCI 367. Sociology of Sexuality
- SOCI 368. Contemporary American Culture

### **Political and Global Analysis**

- SOCI 304. Social Deviance
- SOCI 306. Japanese Culture and Society
- SOCI 318. Sociology of Immigration

- SOCI 321. Politics in Society
- SOCI 335. Disability and Society
- SOCI 336. Race and Ethnicity
- SOCI/WGS 337. Sociology of Gender
- SOCI 342. Social Movements in the Middle East
- SOCI 344. Work and Society
- SOCI 347. Queer Theories of Gender and Inequality
- SOCI/SOWK 348. Introduction to Developing Societies
- SOCI/ANTH 352. Birth, Death, Sex: Exploring Demography
- SOCI 354. Social Inequality
- SOCI 360. Social Movements
- SOCI 361. Sociology of Organizations
- SOCI 363. Sociology of Culture
- SOCI 375. Medical Sociology

<sup>1</sup> Within any of the defined concentrations students may gain credits toward completing the concentration through certain special topics or other courses. On occasion, courses taken outside the major or university may qualify. For special topics courses in sociology, see the instructor of record for that course. For other questions or possibilities see an adviser or the sociology program coordinator.

### **Recommended Schedule for Majors<sup>1</sup>**

The following is an example of a four-year course of study for a student seeking a degree in sociology:

First Year	Credit Hours
SOCI 110. Social Issues in a Global Context	3
SOCI 140. Microsociology: The Individual in Society	3
Sociology elective	3
<hr/>	
	9

Second Year	Credit Hours
SOCI 200. Development of Sociological Thought and Method	3
SOCI 231. Social Statistics	3
Sociology electives	3
<hr/>	
	9

Third Year	Credit Hours
SOCI 300. Sociological Inquiry	3
Electives	6-9
<hr/>	
	9-12

Fourth Year	Credit Hours
Sociology electives	6-9
SOCI 480. Senior Seminar (majors take this any time after completing SOCI 300)	3
<hr/>	
	9-12

<sup>1</sup> Transfer students on a two-year course of study should change "Year" in this sequence to "Semester."

### **Minor Requirements**

#### **Sociology Minor**

To minor in sociology, a student must complete a minimum of 18 credit hours of sociology course work including three core credit hours and 15 elective credit hours.

Core Requirements	Credit Hours
SOCI 200. Development of Sociological Thought and Method	3
Sociology electives	15
<hr/>	
	18

# Anthropology Program

## Mission Statement

Anthropology is unique among the social sciences in that it celebrates humans as biological organisms and as innovative, creative, culture-bearing beings. Through course work, field schools, study abroad, independent studies and internships, students learn about cultural, linguistic, and biological diversity, human biological characteristics and the human past as revealed by archaeology. The anthropology program provides globally-oriented courses that stress critical thinking, method and theory, gathering and interpreting data, intensive reading and writing, hands-on learning, and the research methods and techniques used by anthropologists to understand contemporary human problems.

## Goals

The Anthropology program has the following goals:

- To introduce students to the nature of culture and of diverse cultural systems, their social organization and how anthropologists interpret cultural differences and similarities.
- To introduce students to the relevance of human biology for understanding contemporary human populations and biological variation and disease, and to provide them with the fundamentals of evolutionary theory and the fossil and genetic evidence that supports it.
- To develop student understanding of cultural origins and the development of human societies through the analysis of material remains (artifacts) left by prehistoric and historic cultures.
- To encourage an integrative approach to understanding the human condition that incorporates the contributions of all sub-disciplines of anthropology.

## Career Opportunities and Marketable Skills

An undergraduate degree in Anthropology provides a solid foundation for a wide range of rewarding careers. Students with a B.A. or B.S. degree in anthropology have gone on to become:

- Graduate students in archaeology, cultural anthropology, biological anthropology, linguistics and area studies programs.
- Professors of anthropology in each of the sub-disciplines
- Professional students in law, medicine, education, international affairs, public policy and public health
- Americorps and Peace Corps volunteers
- Archivists
- Business executives
- City planners and government officials
- College librarians
- Field archaeologists
- Cultural affairs directors
- Historical preservationists
- Museum and zoo curators and staff
- International aid workers and development consultants
- Management trainees
- Nurses, medical technicians and physicians assistants
- Forensic analysts
- Coroners

- Technical writers
- Conservation scientists and practitioners

The anthropology major is a liberal arts program that stresses such marketable skills as:

- Data analysis
- Computer skills
- Critical thinking
- Global knowledge
- Research skills
- Rigorous writing and presentation skills

## Co-curricular Activities and Organizations

- Lambda Alpha, Anthropology Honors Society
- Student Anthropology Club

## Degree and Major Requirements

### Bachelor of Arts in Anthropology

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives (beyond major)	25-39
Major requirements (listed below)	40-41
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

### Bachelor of Science in Anthropology

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific Literacy requirement <sup>2</sup>	3-4
University electives	35-39
Major requirements (listed below) and electives	40-41
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 MATH 220, Statistics, is strongly recommended for those students who have not taken that course or an equivalent as part of their General Education.

#### Major Requirements

To earn a B.A. or B.S. degree in anthropology, students complete 40-41 credit hours in the major. Given the diverse opportunities the discipline provides, the major is designed to allow students the opportunity to work closely with their advisers to develop a curriculum appropriate to their personal and professional interests. Those students wishing to do so may elect to pursue a concentration in one of the three sub-disciplines of cultural, biological or archaeological anthropology.

The concentrations guide students in choosing courses to enhance opportunities for graduate school or allow them to pursue an area of personal interest within the larger discipline of anthropology. Up to two elective courses from a discipline outside of anthropology may be applied to the major. Elective courses from outside of the program must be approved by the student's adviser

and must be at the 300- or 400-level. Students must receive at least a "C-" in a class to have it count toward the major.

### General Program

The general program provides students with a holistic introduction to the breadth of anthropology highlighting experience in the sub-disciplines of cultural, archaeological and biological anthropology, as well as introductory experiences in linguistics. The program is designed to provide students with a well-rounded understanding of the discipline in preparation for advanced graduate training or as an adjunct to their personal and professional aspirations.

Required Courses	Credit Hours
ANTH 195. Cultural Anthropology	3
ANTH 196. Biological Anthropology	3
ANTH 197. Archaeology	3
ANTH 201. The Discipline of Anthropology	1
ANTH 375. History of Theory in Sociocultural Anthropology <sup>1</sup>	3
One course from the following:	3-4
ANTH 315. Human Evolution	
ANTH 316. Human Evolutionary Psychology	
ANTH 435. Ethnographic Genres and Methods	
ANTH 455. Archaeology: Methods of Analysis and Interpretation	
One elective from each of the following: cultural anthropology, biological anthropology and archaeology	9
Other electives <sup>2,3</sup>	15
	40-41

1 Students should take two of ANTH 195, ANTH 196 or ANTH 197 and at least one anthropology elective before taking ANTH 375.

2 Students may take up to two adviser approved electives at the 300 or 400 level from courses outside of the program.

3 Students should consider including ANTH 305, Language and Culture, as one of their electives.

## Concentrations

### Archaeology

Archaeology is the study of the development and change of human societies from the prehistoric past to the present through the recovery, analysis and interpretation of material remains. Our program emphasizes an anthropological approach to archaeology and has close ties to anthropology's other subdisciplines. Archaeology has developed its own body of theories and methods for addressing the human story, many of which are focused on understanding what human material culture reveals about peoples' lives.

The archaeology concentration builds student expertise in a variety of areas of archaeological practice, including field methods, the analysis and interpretation of archaeological data, and an understanding of the culture histories of many world regions. Elective courses and independent projects allow students to explore a variety of facets of archaeological theory and practice, with an emphasis on hands-on experience and engagement with real world data and artifacts. Students work with faculty to determine what electives within and outside the program best serve their scholarly and professional interests. Archaeology concentrators can benefit from expertise gained in upper-level electives in history, the geographic sciences, geology, art history, and biology. Intensive training in field methods, though not required for the concentration, is strongly encouraged and is provided by a summer archaeological field

school. Those interested in historical archaeology should consider the cross-disciplinary historical archaeology minor.

Required Courses	Credit Hours
ANTH 195. Cultural Anthropology	3
ANTH 196. Biological Anthropology	3
ANTH 197. Archaeology	3
ANTH 201. The Discipline of Anthropology	1
ANTH 375. History of Theory in Sociocultural Anthropology <sup>1</sup>	3
ANTH 410. Spatial Analysis for Anthropologists or ANTH 490 <sup>2</sup>	3-4
ANTH 455. Archaeology: Methods of Analysis and Interpretation	4
One upper division course in cultural and biological anthropology	6
One regional archaeology course (ANTH 250, ANTH 325, ANTH 327, ANTH 333)	3
Electives <sup>3,4</sup>	10-11
	40-41

1 Students should take two of ANTH 195, ANTH 196 or ANTH 197 and at least one anthropology elective before taking ANTH 375.

2 Students electing to take ANTH 490 Special Studies to satisfy this requirement will complete a project that requires the analysis and interpretation of archaeological data.

3 Students may take up to two adviser-approved electives at the 300 or 400 level from courses outside of the program. Field Geophysics (GEOL 442 ), Introduction to Public History (ARTH/HIST 396), and Introduction to Museum Work (ARTH/HIST 394) are particularly recommended.

### Biological Anthropology

The focus of biological anthropology is the study of human biology from an evolutionary perspective. Biological anthropology is interested in understanding how and why the human species became what it is today. Thus, it involves the study of human evolution, human biology and its variation, human ecology (how humans interrelate with their environment) and primate behavior and biology (to place humans in the proper comparative context). Biological anthropologists also recognize that human culture, and learned behavior in general, are fundamentally important to understanding the human condition which leads them to emphasize a bio-cultural approach in which both biology and culture are integrated into a holistic understanding of humanity.

Students work closely with biological anthropology faculty to choose electives from both within and outside of the department to refine their own research and scholarly interests. Upper-level electives in biology, psychology and/or geographic sciences are recommended depending on the student's particular goals. Students might consider taking a minor or second major in these disciplines. Students are strongly encouraged to gain practical experience in biological anthropology through study abroad, internships or independent study with faculty.

Required Courses	Credit Hours
ANTH 195. Cultural Anthropology	3
ANTH 196. Biological Anthropology	3
ANTH 197. Archaeology	3
ANTH 201. The Discipline of Anthropology	1
ANTH 375. History of Theory in Sociocultural Anthropology <sup>1</sup>	3
ANTH 376/WGS 376 Anthropology of Reproduction	3
One upper-division course in archaeology and cultural anthropology	6
Choose two of the following courses:	6
ANTH 315. Human Evolution	
ANTH 316. Human Evolutionary Psychology	
ANTH 317. Primate Evolutionary Ecology	
At least one additional upper level course in biological anthropological topics	3
Electives <sup>2,3</sup>	12

1 Students should take two of ANTH 195, ANTH 196 or ANTH 197 and at least one anthropology elective before taking ANTH 375.

2 Students may take up to two adviser approved electives at the 300 or 400-level from courses outside of the program. BIO 270 (human physiology) and BIO 290 (human anatomy) are accepted electives.

3 In addition to biological anthropology courses, students are encouraged to take electives from across the breadth of cultural and linguistic anthropology and archaeology.

## Cultural Anthropology

Cultural anthropology is at the core of anthropology. It provides students with in-depth experience in the interpretation and comparison of cultures. It is closely linked to the humanities and to other social sciences. Students learn what culture is, how different cultural systems and forms of social organization work, how language both reflects and constitutes culture, and methodological and theoretical frameworks for interpreting cultural differences and similarities. Students work closely with cultural anthropology faculty to choose a series of electives from both within and outside of the department to refine their own research interests.

Students are encouraged (but not required) to become proficient in a foreign language beyond the level required for the B.A. and to develop a regional area of specialization through course work or a minor (e.g., Latin American studies, Africana studies, Middle Eastern studies, Asian studies). Outside upper-level electives are recommended in history, sociology, economics, religion, modern foreign languages and political science. Students are encouraged to pursue study abroad, ethnographic field school and internship opportunities.

Required Courses	Credit Hours
ANTH 195. Cultural Anthropology	3
ANTH 196. Biological Anthropology	3
ANTH 197. Archaeology	3
ANTH 201. The Discipline of Anthropology	1
ANTH 375. History of Theory in Sociocultural Anthropology <sup>1</sup>	3
ANTH 435. Ethnographic Genres and Methods	4
One regional cultural anthropology course (ANTH 265, ANTH 280, ANTH 295, ANTH 306, ANTH 364, ANTH 368, ANTH 389, ANTH 436)	3
One upper-division course in archaeology and biological anthropology	3
Electives <sup>2, 3</sup>	15

1 Students should take two of ANTH 195, ANTH 196 or ANTH 197 and at least one anthropology elective before taking ANTH 375.

2 Students may take up to two adviser approved electives at the 300 or 400 level from courses outside of the program.

3 Suggested electives include ANTH 305, additional area studies courses and upper-level topical courses.

## Minor Requirements

### Anthropology Minor

Students complete a minor in anthropology by completing 18 hours in anthropology including the core courses ANTH 195, Cultural Anthropology; ANTH 196, Biological Anthropology and ANTH 197, Archaeology. Students must receive at least a "C-" in a class to have it count toward the minor.

### Historical Archaeology Minor

The minor is designed for students interested in the field of historical archaeology, a discipline that integrates the research interests and methods of archaeology and history. For a full description of this program, refer to the cross disciplinary Historical Archaeology program.

# Sport and Recreation Management

*Dr. Michael J. O'Fallon, Director*

Phone: (540) 568-5174

Location: Godwin Hall, Room 355

Email: ofallomj@jmu.edu

Website: <http://www.jmu.edu/hartschool>

## Associate Professors

B. Carr, M. O'Fallon, J. Pate, D. Shonk, J. Wallace-Carr

## Assistant Professors

E. Anaza, M. Sato

## Lecturers

A. Bosley, A. Flannery, N. Marrin, T. Martin

## Mission

The mission of the sport and recreation program is to develop a community of learners through quality education that integrates theory, practice, and personal growth in the hospitality, sport and recreation industries.

We are dedicated to the development of future leaders in sport and management professions through a course of study that maximizes the potential of individuals and society.

Sport and recreation management is committed to providing:

- An outstanding undergraduate program based on the criteria of relevant professional associations, which will enable graduates to be successful in their professional endeavors.
- A program that builds upon the strong liberal studies background provided through General Education.
- The opportunities that challenge students to think critically, to use technology and to appreciate the global community.
- The research and development projects that push back the boundaries of knowledge and promote effective practice in sport and recreation management.

## Career Opportunities

Graduates with this degree will be employed in professional sport organizations, semi-professional sport organizations, collegiate athletics, sport marketing agencies, sport broadcasting venues, facility management in both sport and recreation, community recreation agencies, commercial recreation agencies, theme parks, military recreation as well as hotels, resorts and other hospitality and entertainment venues.

Careers in sport and recreation management are plentiful. The listing below offers examples of possible career paths and is not meant to be comprehensive.

- Fitness/Health Club Manager
- Sportscaster
- Aerobics Instructor
- Sports Agent
- Athletic Coach
- Athletic Director
- Sports Event Coordinator
- Media Relations Specialist
- Sports Information Specialist
- YMCA Youth Leader
- Recreation Professional
- Sports Marketing Specialist

- Community Center Director
- Corporate Fitness Leader
- Director of Stadium Operations
- Director of Ticket Operations
- Professional Sports Scout
- Promotion Director
- Youth Programs Director
- Campus Recreation Director
- Athletic Contract Manager
- Sports Camp Director

## Co-Curricular Activities

In order to enhance the educational, experiential, networking and professional opportunities for our students, sport and recreation management (SRM) offers and encourages involvement in a wide variety of co-curricular activities and SRM-related conferences and organizations. Co-curricular activities also include required practicum and internship experiences for which academic credit is given. Below is a list of SRMs most prominent activities:

## Conferences and Events

- Sports Events Marketing Experience (SEME)
- Sports Industry Networking and Career Conference (SINC)
- National Intramural Recreational Sports Association (NIRSA) Annual Conference and Recreational Sports Expo
- National Recreation and Parks Association (NRPA) National Conference
- Association of Outdoor Recreation Education Annual Conference

## Professional Organizations

- National Intramural Recreational Sports Association (NIRSA)
- National Recreation and Parks Association (NRPA)
- North American Society for Sport Management (NASSM)
- Association of Outdoor Recreation and Education

Society of Health and Physical Educators (SHAPE; formerly American Alliance for Health, Physical Education, Recreation and Dance)

## JMU Clubs and Organizations

- Phi Epsilon Kappa
- SRM Major's Club (SLAM)
- Sports Clubs

## Practicums and Internships

SRM requires its students to complete a practicum and an internship. Both count as academic credit hours. These are opportunities for the student to gain valuable experience by working in his/her field of choice in a sport or recreation-related agency. The opportunities are almost endless.

While enrolled in SRM 482. Internship in Sport and Recreation Management, students may only take one additional course (three or four credit hours). The additional course must be approved in advance by the site supervisor and the director of SRM.

## Degree and Major Requirements

### Bachelor of Science in Sport and Recreation Management

Required Courses	Credit Hours
General Education <sup>1</sup>	41-44
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Sport and Recreation Management core courses	9
Major requirements	36
General Business Minor for Sport and Recreation Management <sup>2</sup>	18
University Electives	6-10
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> Successful completion of these courses with a 2.0 GPA will qualify the student for a general business minor; however, it is the responsibility of the student to complete the necessary paperwork in the College of Business to apply for the minor.

## Major Requirements

Required Courses	Credit Hours
SRM/HM 201. Foundations of Hospitality, Sport and Recreation Management	3
SRM/HM 202. Foundations of Leadership in Hospitality, Sport and Recreation Management	3
SRM/HM 203. Foundations of Ethics and Law in Hospitality, Sport and Recreation Management	3
	9
Major Courses	Credit Hours
SRM 241. Introduction to Sport and Recreation Management	3
SRM 242. Sociology and Psychology of Sport and Recreation Management	3
SRM 282. Practicum in Sport and Recreation Management	3
SRM 333. Management in Sport, Recreation and Fitness Settings	3
SRM 334. Introduction to Sport Media	3
SRM 337. Programming and Assessment in Sport and Recreation Management	3
SRM 434. Ethical and Legal Issues in Sport and Recreation	3
SRM 435. Sport Marketing and Sales	3
SRM 436. Facilities and Events in Sport and Recreation Management	3
SRM 438. Human Resources in Sport and Recreation Management	3
SRM 482. Internship in Sport and Recreation Management	6
	36

## Minor Requirements

### General Business Minor for Sport and Recreation Management

No more than 30 credit hours may be taken in the College of Business. Students in sport and recreation management must declare the business minor through the College of Business.

General Business Minor Courses	Credit Hours
CIS 204. Computer Information Systems for Non-Business Majors	3
ACTG 244. Accounting for Non-Business Majors <sup>1</sup>	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Finance for the Non-Financial Manager	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3
	18

<sup>1</sup> Successful completion of COB 242 will substitute for ACTG 244.

## Recommended Schedule

First Year	Credit Hours
General Education	21
SRM/HM 201. Foundations of Hospitality, Sport and Recreation Management	3
SRM/HM 202. Foundations of Leadership in Hospitality, Sport and Recreation Management	3
SRM/HM 203. Foundations of Ethics and Law in Hospitality, Sport and Recreation Management	3
	30
Second Year	Credit Hours
General Education	9
SRM 241. Introduction to Sport and Recreation Management	3
SRM 242. Sociology and Psychology of Sport and Recreation Management	3
SRM 282. Practicum in Sport Recreation	3
CIS 204. Computer Information Systems for Non-Business Majors	3
ECON 201. Principles of Economics (Micro)	3
ACTG 244. Accounting for Non-Business Majors	3
Quantitative Requirement	3
	30
Third Year	Credit Hours
General Education and University Electives	12
SRM 333. Management in Sport and Recreation	3
SRM 334. Introduction to Sport Media	3
SRM 337. Programming and Assessment in Sport and Recreation Management	3
FIN 345. Finance for the Non-Financial Manager	3
MKTG 380. Principles of Marketing	3
MGT 305. Management and Organizational Behavior	3
	30
Fourth Year	Credit Hours
University Electives	12
SRM 434. Ethical and Legal Issues in Sport and Recreation	3
SRM 435. Sport Marketing and Sales	3
SRM 436. Facilities and Event Management in Sport and Recreation Management	3
SRM 438. Human Resources in Sport and Recreation Management	3
SRM 482. Internship in Sport and Recreation Management	6
	30

# School of Theatre and Dance

*Mr. Rubén G. Graciani, Interim School Director*

Phone: (540) 568-6342

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## Professors

D. Beck, T. Dean, R. Graciani, P. Johnson, S. Miller-Corso, S. O'Hara, C. Thompson, K. Trammell

## Associate Professors

K. Arecchi, E. Becher-McKeever, J. Burgess, R. Finkelstein, K. Sherrill, J. Matos

## Assistant Professors

R. Corriston, I. De Sanctis, Z. Dorsey, B. Lambert, R. Lustig, J. Stewart, J. Streeter

## Mission

The School of Theatre and Dance is rooted in the belief that the relevant artist is the thinking artist who couples the mastery and embodiment of concrete skills with knowledge of and sensitivity to the cultural environments of ideas, artistic forms and other persons. The school trains and educates artists, scholars and teachers in the rich traditions and current practices of dance, theatre and musical theatre. Dedicated to the value of the intensive B.A., the school's programs blend liberal arts education and critical thinking with intensive, pre-professional training and practice. Faculty foster an environment that values and cultivates creative, passionate, disciplined, curious, innovative, engaged, articulate, collaborative and independent-thinking artists and scholars. Committed to a teaching approach that emphasizes mentorship and individual attention to students, faculty members of the school empower students in the development of their own personal strengths, provide them with tools and opportunities to realize their potential, and equip them for successful work in professional environments, graduate programs and to be lifelong learners.

## Goals

To realize this mission, the School of Theatre and Dance strives to:

- Develop in students the ability to work productively and sensitively in creative and collaborative processes.
- Offer multiple opportunities for students to self-initiate and self-produce work in a context supportive of experimentation.
- Produce performances and creative experiences of high quality.
- Present performances by and learning experiences with visiting artists.
- Motivate students to take active responsibility for their work, processes and careers.
- Promote, support and enable faculty professional development so that teachers continue to provide the education for students that only growing, current and active creative artists and scholars can provide.
- Inspire and prepare students to be advocates for the arts.
- Foster an understanding of the roles of the artist and the arts in society.
- Advance dynamic partnerships with diverse communities.

## Career Opportunities

For information about career opportunities in theatre and dance, contact the appropriate coordinator:

- Theatre Coordinator: Zachary Dorsey, [dorseyza@jmu.edu](mailto:dorseyza@jmu.edu)
- Dance Coordinator: Kate Trammell, [trammekx@jmu.edu](mailto:trammekx@jmu.edu)
- Musical Theatre Coordinator: Kate Arecchi, [arecchk@jmu.edu](mailto:arecchk@jmu.edu)

## Co-curricular Activities and Organizations

The School of Theatre and Dance offers a number of co-curricular activities and organizations. They allow students to apply and experiment with the theories they learn in the classroom and gain practical experience in their field.

- Alpha Psi Omega
- Associate Dance Ensemble
- JMU Summer Theatre
- Contemporary Dance Ensemble
- Dance Studio Productions
- Dance Theatre
- Studio Theatre Productions
- Experimental Series Productions
- Workshop Productions
- Mainstage Productions
- National Honor Society for Dance Arts
- Stratford Players
- Virginia Repertory Dance Company
- USITT Student Chapter

## Special Admission and Retention Requirements

Admission to the dance major is competitive and an audition/interview is required. Contact the school office by calling (540) 568-6342 or visit the School of Theatre and Dance website for current audition information.

Admission to the musical theatre major is competitive and an audition/interview is required. Contact the school office by calling (540) 568-6342 or visit the School of Theatre and Dance website for current audition information.

Admission to the theatre major is competitive and an audition or portfolio review and interview is required. Contact the school

office by calling (540) 568-6342 or visit the School of Theatre and Dance website for current audition information.

A grade of "C" or better must be achieved in all courses that apply to a major in the School of Theatre and Dance. All School of Theatre and Dance majors must complete the General Education program. Theatre/Musical Theatre majors cannot take THEA 210. Introduction to Theatre, to meet the visual and performing arts requirements. Courses from other academic units may not be counted both for the School of Theatre and Dance majors and for another major.

## Degree and Major Requirements

### Bachelor of Arts in Dance

The School of Theatre and Dance offers a B.A. in dance. A dance major must fulfill degree and major requirements.

#### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	14-28
Major requirements (listed below)	48-49

120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

### Dance Major Requirements

All students pursuing a B.A. degree in dance must complete the core requirements.

Core Courses	Credit Hours
Choose one of the following:	2-3
DANC 142. Elementary Ballet	
DANC 143. International Folk Dance	
DANC 144. Ballroom Dance	
DANC 147. Tap Dance	
DANC 325. Dance in Community (3 credits)	
DANC 390. New Directions in Dance	
THEA 251. Acting I: Basic Acting	
THEA/DANC 100. Theatre and Dance Colloquium (4 enrollments)	0
THEA/DANC 171. Performance Production	3
THEA/DANC 250. The Collaborative Artist: Sophomore Studio	3
	8-9

Program Requirements	Credit Hours
Core Courses	8-9
DANC 245. Dance Improvisation	2
DANC 248. History of Dance	3
DANC 320. Anatomy and Somatic Studies for the Dancer	3
DANC 345. Dance Composition I	3
DANC 445. Dance Composition II	3
DANC 449. The Dance Professional	3
DANC 479. Methods of Teaching Dance	3
Technique Courses	
Two semesters for a total of four credits: <sup>1</sup>	4
DANC 240. Intermediate Modern Dance I	
Two semesters for a total of four credits:	4
DANC 340. Intermediate Modern Dance	
One semester for a total of two credits:	2

DANC 440. Advanced Modern Dance	
Select four credits from the following courses:	4
DANC 242. Intermediate Ballet I	
DANC 342. Intermediate Ballet II	
Ensemble Courses	
DANC 110. Associate Group Dance Repertory I	1
DANC 210. Associate Group Dance Repertory II	1
DANC 211. A, B. Contemporary Dance Ensemble Repertory I	2
DANC 311. A, B. Contemporary Dance Ensemble II	2

48-49

1 The student is required to complete 10 credits in modern and four credits in ballet technique, with placement to be assessed in conference with dance faculty. Modern, ballet and jazz technique classes all have an advanced level course in the curriculum. The requirements listed above are the minimum level expected of dance major students. Most majors will take additional technique courses as university electives throughout their study in the dance program.

### Recommended Schedule for Dance Majors

#### First Year

DANC 110. Associate Ensemble (fall)
DANC 171. Performance Production
DANC 210. Associate Ensemble (spring)
DANC 240. Intermediate Modern (fall and spring)
DANC 242. Intermediate Ballet
DANC 245. Dance Improvisation
THEA/DANC 100. Theatre and Dance Colloquium

#### Second Year

DANC 143. Folk or DANC 144. Ballroom, or DANC 390. New Directions in Dance or DANC 325. Dance in Community
DANC 211. Contemporary Dance Ensemble Repertory I (fall)
DANC 311. Contemporary Dance Ensemble Repertory II (spring)
DANC 340. Intermediate Modern II (fall and spring)
DANC 342 or DANC 442. Intermediate or Intermediate Ballet II
DANC 345. Dance Composition
DANC 248. History of Dance
THEA/DANC 100. Theatre and Dance Colloquium
THEA/DANC 250. The Collaborative Artist: Sophomore Studio

#### Third Year

DANC 320. Anatomy and Somatic Studies for the Dancer
DANC 445. Dance Composition II
DANC 479. Methods of Teaching Dance
DANC 411 or DANC 312. Contemporary Dance Ensemble Repertory III or Virginia Repertory Dance Company
Other dance technique courses to fit the student's schedule.
THEA/DANC 100. Theatre and Dance Colloquium

#### Fourth Year

DANC 449. The Dance Professional
Other dance technique courses to fit the student's schedule.

### Teacher Licensure in Dance

In addition to general education and theatre and dance requirements, students desiring PreK-12 teaching licensure in dance must complete 16 credits of additional course work in kinesiology, health science, education, psychology and 12 credits of student teaching. It is necessary to be admitted to the teacher education program prior to enrolling in professional education courses.

#### Course Requirements

Students seeking licensure are encouraged to consult regularly with the faculty adviser of dance education. The undergraduate degree leading to licensure must include the following:

- Credit must be earned in each area: ballet, folk, jazz and modern dance (8 credits)

- Credit must be earned beyond the beginning level of ballet, jazz and modern dance (3 credits)
- Credit must be earned in dance composition, dance improvisation and dance production (minimum of 7 credits)
- Credit must be earned in human anatomy, kinesiology, and injury prevention and care for dance (9 credits)
- Credit must be earned in history of dance (3 credits)

Required Courses	Credit Hours
ATEP 205. Introduction to Athletic Training (spring, junior)	3
DANC 325. Dance in Community	3
DANC 490. Special Studies in Dance: Teaching Practicum (prior to student teaching)	2
EDUC 300. Foundations of American Education	3
DANC 480. Student Teaching	12
PSYC 160. Life Span Human Development (may double count)	3
KIN 202. Biological Foundations in Kinesiology and Recreation (fall, junior)	3
READ 420. Content Area Literacy, K-12	2
	<hr/> 30

## Bachelor of Arts in Musical Theatre

The School of Theatre and Dance offers a B.A. in musical theatre. A musical theatre major must fulfill degree and major requirements.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	0-14
Major requirements (listed below)	62
	<hr/> 120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

### Musical Theatre Major Requirements

All students pursuing a B.A. degree in musical theatre must complete the core requirements listed below.

Required Courses	Credit Hours
Choose one of the following:	2
DANC 140. Elementary Modern Dance	
DANC 142. Elementary Ballet	
DANC 143. International Folk Dance	
DANC 144. Ballroom Dance	
DANC 147. Tap Dance	
DANC 245. Dance Improvisation	
THEA/DANC 100. Theatre and Dance Colloquium (4 enrollments)	0
THEA/DANC 171. Performance Production	3
THEA/DANC 250. The Collaborative Artist: Sophomore Studio	3
	<hr/> 8

Required Courses	Credit Hours
Core Requirements	8
Program Requirements	
Choose three of the following (One credit each from scenery, lighting, costumes or management)	3
THEA 204/304. Scenery Practicum	

THEA 205/305. Lighting Practicum	
THEA 206/306. Costume Practicum	
THEA 207/307. Management Practicum	
THEA 208/308. Performance Practicum	1
THEA 211. Performance Analysis	3
THEA 251. Acting I: Basic Acting	3
THEA 253. Musical Theatre Laboratory <sup>1</sup>	2
THEA 273. Design Aspects of Performance	3
THEA 315. The European Theatre Tradition to 1800	3
THEA 316. The European Theatre Tradition from 1800	3
THEA 351. Acting II: Intermediate Acting	3
THEA 353. Music Theatre Performance	2
THEA/MUS 357. Music Theatre History and Analysis	3
Choose one of the following:	3
THEA 441. Senior Seminar in Theatre	
THEA 442. Senior Seminar (1 credit) and THEA 449. Honors Thesis (2 credits)	
THEA 454. Advanced Music Theatre Performance	2
THEA 455. Auditioning for Musical Theatre	2
DANC 146. Jazz Dance	2
DANC 246. Intermediate Jazz	2
DANC 346. Intermediate Jazz II/Musical Theatre Styles	2
MUAP 114. Group Voice for Musical Theatre <sup>1</sup>	2
MUAP 214. Private Voice for Musical Theatre <sup>2</sup>	4
MUS 100. Keyboarding Skills I	1
MUS 101. Keyboarding Skills II	1
MUS 140. Introduction to Music Theory and Aural Skills	4

62

1 Two enrollments of one credit each.

2 Four enrollments of one credit each.

### Recommended Schedule for Musical Theatre Majors

#### First Year

THEA 171. Performance Production  
 THEA 211. Performance Analysis  
 THEA 251. Acting I: Basic Acting  
 THEA 253. Musical Theatre Laboratory  
 DANC 146. Jazz Dance  
 MUAP 114. Group Voice  
 Dance Core  
 Other technique courses to fit the student's schedule

#### Second Year

THEA/DANC 250. The Collaborative Artist: Sophomore Studio  
 THEA 273. Design Aspects of Performance  
 THEA 351. Acting II: Intermediate Acting  
 THEA 353. Music Theatre Performance  
 THEA 357. Music Theatre History & Analysis  
 DANC 246. Intermediate Jazz  
 MUS 100/101. Keyboard Skills I & II  
 MUAP 214. Private Voice  
 Practicum  
 Other technique courses to fit the student's schedule

#### Third Year

DANC 346. Intermediate Jazz II/Musical Theatre Styles  
 THEA 315. The European Theatre Tradition to 1800  
 THEA 316. The European Theatre Tradition from 1800  
 THEA 454. Advanced Music Theater Performance  
 MUS 140. Introduction to Music Theory and Aural Skills  
 MUS 214. Private Voice  
 Practicum  
 Other technique courses to fit the student's schedule

#### Fourth Year

THEA 441. Senior Seminar in Theatre  
or THEA 442. Senior Seminar AND THEA 499. Honors Thesis  
THEA 455. Auditioning for Musical Theatre Practicum  
Other technique courses to fit the student's schedule

## Bachelor of Arts in Theatre

The School of Theatre and Dance offers a B.A. in theatre. A theatre major must fulfill degree and major requirements.

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign Language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	17-28
Major requirements (listed below)	48
	120

<sup>1</sup> The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

<sup>2</sup> The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level of the student's chosen language (typically 232) or by placing out of that language through the Department of Foreign Languages, Literatures and Cultures' placement test.

### Theatre Major Requirements

All students pursuing a B.A. degree in theatre must complete the core requirements.

Core Courses	Credit Hours
Choose one of the following:	2
DANC 140. Elementary Modern Dance	
DANC 142. Elementary Ballet	
DANC 143. International Folk Dance	
DANC 144. Ballroom Dance	
DANC 146. Jazz Dance	
DANC 147. Tap Dance	
DANC 245. Dance Improvisation	
THEA/DANC 100. Theatre and Dance Colloquium (4 enrollments)	0
THEA/DANC 171. Performance Production	3
THEA/DANC 250. The Collaborative Artist: Sophomore Studio	3
	8

Required Courses	Credit Hours
Core Requirements	8
Program Requirements:	
Choose four of the following (One credit each from scenery, lighting, costumes, management or performance)	4
THEA 204/304. Scenery Practicum	
THEA 205/305. Lighting Practicum	
THEA 206/306. Costume Practicum	
THEA 207/307. Management Practicum	
THEA 208/308. Performance Practicum	
THEA 211. Performance Analysis	3
THEA 251. Acting I: Basic Acting	3
THEA 273. Design Aspects of Performance	3
THEA 315. The European Theatre Tradition to 1800	3
THEA 316. The European Theatre Tradition from 1800	3
THEA 481. Theory and Performance Studies	3
Choose one of the following:	3
THEA 441. Senior Seminar in Theatre	
THEA 442. Senior Seminar (1cr.) and THEA 499. Honors Thesis (2cr.)	
Performance Requirements (choose one)	3
THEA 351. Acting II: Intermediate Acting	

THEA 355. Directing	
Design/ Technology Requirements (choose one)	3
THEA 271. Technical Theatre	
THEA 331. Technical Costuming	
THEA 332. Survey of Costume History	
THEA 333. Costume Design	
THEA 374. Stage Lighting	
THEA 375. Sound Design	
THEA 376. Scene Design	

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Concentration Courses	Credit Hours
Theatre majors may fulfill the requirements for one or more concentrations or complete nine THEA credits not already applied to the major. <sup>1</sup>	9

#### Theatre Studies Concentration

Choose any nine THEA credits not already applied to the major or six THEA credits and one of the following courses:

THEA 449. London Theatre
THEA/ENG 485. American Theatre
ENG 317. Shakespeare's Tragedies and Romances
ENG 318. Shakespeare's Comedies and Histories
ENG 320L. Shakespeare on the Page and Stage in London
ENG 333. Modern Drama
ENG 334. Contemporary Drama

#### Performance Concentration

THEA 452. Acting III: Contemporary Scene Study
THEA 453. Acting IV: Approaches to Heightened Language
THEA 460. Auditioning and Professional Issues

#### Design/Technology Concentration

Choose two courses not already applied to the major:

THEA 333. Costume Design
THEA 374. Stage Lighting
THEA 375. Sound Design
THEA 376. Scene Design

Choose one course not already applied to the major:

THEA 271. Technical Theatre
THEA 331. Technical Costuming
THEA 332. Costume and Fashion History
THEA 336. Stage Makeup
THEA 371. Advanced Technical Theatre
THEA 471. Stage Management
THEA 473. Advanced Design and Rendering
THEA 390/490. Special Topics (with permission) <sup>2</sup>

#### Theatre Education Concentration

Students who complete the theatre education concentration earn K-12 teaching licensure in theatre. This concentration requires 12 THEA credits.

THEA 320. Theatre Teaching Methods – Primary Level
THEA 321. Theatre Teaching Methods – Secondary Level
THEA 310. Theatre for Young Audiences
THEA 325. Theatre Teaching Practicum

For the theatre education concentration, the following courses (20 credit hours) are required in addition to the concentration courses with THEA designations.

PSYC 160. Life Span Human Development (may double count)
EDUC 360. Foundations of American Education
THEA 480. Student Teaching
READ 420. Content Area Literacy, K-12

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<sup>1</sup> Students in concentrations receive concentration-related advising. In order to formally pursue a concentration, student must apply for the concentration, which can happen as early as the fall of sophomore year for the theatre education

concentration and as early as the spring of sophomore year for the theatre studies, performance and design/technology concentrations.

2 THEA 390, Directed Projects; THEA 490, Special Studies; THEA 499, Honors; No more than four hours of practicums may be applied to the theatre major, and no more than 10 hours of special studies (including practicums) may be applied to the theatre major.

## Recommended Schedule for Theatre Majors

### First Year

THEA 171. Performance Production  
 THEA 211. Performance Analysis  
 THEA 251. Acting I: Basic Acting  
 Theatre Major General Requirements

### Second Year

THEA/DANC 250. The Collaborative Artist: Sophomore Studio  
 THEA 273. Design Aspects of Performance  
 THEA 315. The European Theatre Tradition to 1800  
 THEA 316. The European Theatre Tradition from 1800  
 Theatre Major General Requirements  
 Theatre Major Performance or Design/Technology Requirement  
 Dance Core Requirement

### Third Year

THEA 481. Theory and Performance Studies  
 Theatre Major General Requirements  
 Theatre Major Performance or Design/Technology Requirements  
 Concentration Requirements

### Fourth Year

THEA 441. Senior Seminar in Theatre  
 or THEA 442. Senior Seminar AND THEA 499. Honors Thesis  
 Theatre Major Performance or Design/Technology Requirements  
 Concentration Requirements

## Teacher Licensure in Theatre

In addition to general education and theatre and dance requirements, students desiring PreK-12 teaching licensure in theatre must complete eight credits of additional course work in education and psychology and 12 credits of student teaching. Within the major requirements, students interested in licensure must complete 12 hours of theatre education courses as part of their theatre education concentration. It is necessary to be admitted to the teacher education program prior to enrolling in professional education courses. For a complete description of admission and retention policies and procedures for teacher education, refer to the College of Education.

Students seeking licensure are encouraged to consult regularly with the program adviser of theatre education. The undergraduate degree leading to licensure must include the following minimum requirements in theatre:

- Theatre education concentration requirements (12 credits)
- All theatre major core requirements (8 credits)
- All theatre major non-concentration requirements (25 credits)
- Directing to fulfill the major performance requirement (3 credits)

The following is a list of the required courses leading to PK-12 theatre licensure and a suggested sequence of when each may be taken. The first four theatre courses are concentration requirements; THEA 355 fulfills the performance requirement for the major and Virginia teacher licensure.

Required Theatre Courses	Credit Hours
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THEA 310. Theatre for Young Audiences (second or third year)	3
THEA 320. Topics in Theatre (Methods – Primary) (second or third year)	3
THEA 321. Topics in Theatre (Methods – Secondary) (second or third year)	3
THEA 490. Special Studies in Theatre (Practicum) (fall semester fourth year)	3
THEA 355. Directing (must be taken to fulfill the concentration performance requirement)	3
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	15

### Required Education and Psychology Courses

**Credit Hours**

PSYC 160. Life Span Human Development	3
EDUC 300. Foundations of American Education	3
READ 420. Content Area Literacy. K-12	2
THEA 480. Student Teaching	12
<hr/>	
	20

## Minor Requirements

The School of Theatre and Dance offers a minor with options in theatre or dance. No audition or portfolio review is required for the theatre minor or dance minor. A grade of “C” or better must be achieved in all School of Theatre and Dance courses that apply to a minor in the School of Theatre and Dance.

### Theatre Minor

*Theatre Minor Adviser: Zachary Dorsey*

Phone: (540) 568-2337

Email: dorseyza@jmu.edu

Courses	Credit Hours
Choose one of the following:	3
THEA 171. Performance Production	
THEA 273. Design Aspects of Performance	
Choose one of the following:	3
THEA 210. Introduction to Theatre	
THEA 211. Performance Analysis	
Electives selected from the theatre-designated courses with the approval of the minor adviser	15
<hr/>	
	21

### Dance Minor

*Dance Minor Adviser: Suzanne Miller-Corso*

Phone: (540) 568-3924

Email: mille2sm@jmu.edu

Courses	Credit Hours
DANC 245. Dance Improvisation	2
DANC 248. History of Dance	3
Electives from contemporary dance techniques and/or folk and ballroom techniques with approval of minor adviser	10
Electives selected from dance-designated courses and/or dance related courses at the 300 or 400 level with approval of minor adviser.	6
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	21

### Creative Writing Minor

The cross disciplinary minor in Creative Writing is designed to give students an opportunity to develop their writing talents across a number of literary forms and communication contexts.

### Film Studies Minor

The cross disciplinary minor in Film Studies is designed for students who wish to extend their critical understanding of visual communication and narrative form by studying how movies tell stories, convey information and influence audiences.

## **Credit by Examination**

A student may earn credit for a course in the School of Theatre and Dance by passing an examination. The school administers credit by examination tests during only the first two weeks of a fall or spring semester. The tests will not be offered during summer sessions. A student can take a credit by examination test only once during a semester.

A student must request permission for credit by examination by the end of the semester that precedes the semester in which he/she wants to take the examination. Theatre and dance majors who want to meet a major requirement through examination must take the examination before their final year of study. The school does not offer credit by examination for performance or design courses such as acting, directing, scene design, lighting design, costume design, makeup, stage management, dance technique, composition and ensembles.

# School of Writing, Rhetoric and Technical Communication

*Dr. Traci A. Zimmerman, Director*

Phone: (540) 568-6004

Location: Harrison Hall, Room 2252

Email: [zimmererta@jmu.edu](mailto:zimmererta@jmu.edu)

Website: <http://www.jmu.edu/wrtc/undergraduate.html>

## Professors

L. Burton, M. Hawthorne, S. O'Connor, K. Schick, T. Zimmerman

## Associate Professors

S. Aley, J. Almjeld, L. Bednar, A. Crow, J. Featherstone, S. Ghiaciu, E. Gumnior, M. Klein, S. Lunsford, M. Moghtader, E. Pass, M. Smith, J. Zimmerman

## Assistant Professors

H. Comfort, L. De Hertogh, S. McCarthy, C. Molloy, A. Parrish, V. Rouillon

## Instructors

C. Allen, K. Jefferson, C. Martin, K. McDonnell, L. Schubert

## Mission

The School of Writing, Rhetoric and Technical Communication is a community committed to preparing its students—both writers and technical and scientific communicators—for lives of enlightened, global citizenship.

## Goals

The goals of WRTC are to help students:

- Develop into accomplished writers, editors and technical communicators.
- Evaluate the effectiveness of all forms of communication based upon the principles of rhetoric.
- Demonstrate proficiency in critical and ethical thinking as well as technological and analytical skills.
- Create for themselves an area of expertise applicable to work as professional communicators.

## Career Opportunities

In the WRTC major, students learn the kinds of research, analytical and reasoning skills that will allow them to become successful professionals in a wide range of fields. WRTC graduates can expect career opportunities in writing, editing or production positions with a variety of business, educational or industry employers, including the computer hardware and software industry, law firms, journalism, health care providers, pharmaceutical manufacturers, education, engineering companies, publishing houses, environmental organizations, not-for-profit or political organizations, and technical translation groups of multinational corporations.

## Professional Activities and Organizations

### Internships

The WRTC internship is a requirement for all B.A. and B.S. students. It allows students to utilize the preparation that they received from their WRTC coursework to design, write, edit and

produce professional deliverables for internship providers in academia, business, industry and government.

### *Lexia*

*Lexia* is a student-run, online journal that publishes innovative student work in WRTC. Its mission is to publish a range of quality texts that best represent the work of WRTC students and the disciplines of writing, rhetoric and technical communication. *Lexia* is created and managed by students enrolled in WRTC 328. These practicum students develop the criteria used to evaluate essays, read and discuss each submission, and work individually with winning essayists to polish their work for publication online.

### Pre-Law

Pre-law at JMU is not a major, minor or concentration, but a number of WRTC students elect to pursue law school after graduation. The director of WRTC serves the College of Arts and Letters as a pre-law adviser and can assist students in selecting courses that will best provide the intellectual challenge and skills necessary for success in law school.

### STC Student Chapter

The Society for Technical Communication offers a unique opportunity for members to seek recognition for their work and obtain professional contacts. STC is the world's largest and oldest professional association dedicated to the advancement of the field of technical communication. The Society's members span the field of the technical communication profession from students and academics to practitioners and managers.

The James Madison University STC Student Chapter was established in the fall of 1999, offering students a venue for exploring networking and applied skills.

## Service to the University

### Interdisciplinary Liberal Studies

WRTC faculty are active participants in creating and sustaining the interdisciplinary liberal studies (IDLS) major for teacher education students, K-8.

## Honors Program

WRTC faculty regularly offer Honors seminars.

## Madison Writing Awards

The Madison Writing Awards (MWA) is a university-wide competition that celebrates writing across the curriculum in all undergraduate academic programs, regardless of medium and genre, from traditional papers to multimodal productions. These awards reflect the commitment of James Madison University, the College of Arts and Letters, and the School of Writing, Rhetoric and Technical Communication to prepare students for educated and enlightened global citizenship through the outlets of writing and rhetoric. The MWA biennial awards ceremony features a showcase of winning pieces as well as the presentation of cash prizes.

## Degree and Major Requirements

The study of writing, rhetoric and technical communication includes two concentrations in the undergraduate major: technical and scientific communication and writing and rhetoric. The WRTC major emphasizes scholarly, humanistic and social scientific perspectives on the function and application of communication technologies, with instruction in areas such as:

- literacy studies
- rhetorical traditions
- writing pedagogy
- editing
- website theory and design
- publications management
- knowledge and information management
- writing for professional communities such as government, medical, scientific and academic

In addition to offering students the rhetorical tools with which to excel as professional communicators, the B.A. and B.S. programs also prepare graduates for academic studies in writing, rhetoric and technical communication at the master's level as well as for professional programs such as law school.

The B.A. and B.S. programs in WRTC unite three disciplines into a flexible yet historically and theoretically grounded degree program. The WRTC degree teaches students to think in ways that cross disciplinary lines and to demonstrate accomplishment in multiple genres of writing, rhetoric and technical communication.

Students work with their WRTC advisers to design a program that fits their unique educational needs and career aspirations.

Course requirements differ between the B.A. and B.S. programs and students are advised to maintain regular contact with their WRTC adviser to ensure timely graduation. Requirements and eligible courses for the B.A. and B.S. in each of the two concentrations are outlined below.

## Bachelor of Arts in Writing, Rhetoric and Technical Communication

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Foreign language classes (intermediate level required) <sup>2</sup>	0-14
Philosophy course (in addition to General Education courses)	3
University electives	25-39
Major requirements	37
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 The foreign language requirement may be satisfied by successful completion of the second semester of the intermediate level (typically 232) of the student's chosen language or by placing out of that language through the Department of Foreign Language, Literature and Cultures' placement test.

## Bachelor of Science in Writing, Rhetoric and Technical Communication

### Degree Requirements

Required Courses	Credit Hours
General Education <sup>1</sup>	41
Quantitative requirement <sup>2</sup>	3
Scientific literacy requirement <sup>2</sup>	3-4
University electives	35-36
Major requirements	37
	120

1 The General Education program contains a set of requirements each student must fulfill. The number of credit hours necessary to fulfill these requirements may vary.

2 In addition to course work taken to fulfill General Education requirement.

### Major Requirements

B.A. and B.S. students must complete 16 hours of core requirements.

Major Requirements	Credit Hours
Core requirements	16
Concentration requirements	12
Students must choose a concentration in either technical and scientific communication or writing and rhetoric.	
WRTC electives	9
	37

Core Requirements	Credit Hours
WRTC 200. Introduction to Studies in Writing, Rhetoric and Technical Communication	3
WRTC 201. Theory and Methods in Writing, Rhetoric and Technical Communication	3
WRTC 300. Professional Editing	3
WRTC 301. Language, Law and Ethics	3
WRTC 495. Internship in Writing, Rhetoric and Technical Communication	3
WRTC 496. Capstone in Writing, Rhetoric and Technical Communication	1
	16

## Prerequisites

Prerequisites for most WRTC 200 and above level courses require completion of WRTC 200 and WRTC 201. Students may enroll in some courses for which they have not taken the prerequisite courses with permission of the instructor.

## Concentrations

All students must choose a concentration in either technical and scientific communication (TSC) or writing and rhetoric (WR). In addition to the 16 credit hours of core requirements, students must take an additional 21 credit hours of WRTC electives, 12 of which are concentration-specific.

### Technical and Scientific Communication Concentration

All TSC concentrators must take WRTC 350 and choose three additional WRTC courses from the following list of TSC electives. In addition, TSC concentrators must take one WR elective, one crossover elective and one community-based learning elective.

TSC Concentration Courses	Credit Hours
WRTC 350. Foundations of Technical Communication	3
TSC Electives (Choose three):	9
WRTC 352. Online Design I	
WRTC 354. Document Design	
WRTC 356. Web Theory and Design	
WRTC 358. Writing About Science and Technology	
WRTC 450. Digital Rhetoric	
WRTC 452. Online Design II	
WRTC 454. Publication Management	
WRTC 456. Usability Testing	
WRTC 458. Scientific and Medical Communication	
WR Electives (Choose one):	3
WRTC 330. Rhetorical Analysis and Criticism	
WRTC 332. Computers and Writing	
WRTC 334. Introduction to Popular Writing	
WRTC 336. Tutoring Writing	
WRTC 338. Genre Theory	
WRTC 340. Writing as Leading	
WRTC 342. Writing Place	
WRTC 430/SCOM 343. Contemporary Rhetorical Theory and Practice	
WRTC 432. Rhetoric of the Personal Narrative	
WRTC 434. Advanced Popular Writing	
WRTC 436. Teaching Writing	
Crossover Electives (Choose one):	3
WRTC 310. Semiotics	
WRTC 312. Studies in Literacy	
WRTC 314. Writing in the Public Sphere	
WRTC 316. Research Methodologies in WRTC	
WRTC 318. Intercultural Professional Communication	
WRTC 326/SCOM 354. Environmental Communication and Advocacy	
WRTC 328. Practicum in WRTC (1-3 credits)	
WRTC/SCOM/SMAD 359. Digital Communications Consulting	
WRTC 410. Sociolinguistics	
WRTC 412. Language and Information Management	
WRTC 414. Major Theorists in WRTC	
WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology	
WRTC/SCOM/WGS 420. Feminist Rhetorics	
WRTC 426. Special Topics in Writing, Rhetoric and Technical Communication	
Community-Based Learning Electives (Choose one):	3
WRTC 478. Writing in the Legal Professions	

WRTC 480. Writing for Business and Industry  
 WRTC 482. Writing for Government  
 WRTC 484. Writing for Nonprofits  
 WRTC 486. Writing in the Community  
 WRTC 488. Writing in the Health Sciences

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### Writing and Rhetoric Concentration

All writing and rhetoric (WR) concentrators must take WRTC 330 and choose three additional WRTC courses from the following list of WR electives. In addition, WR concentrators must take one TSC elective, one crossover elective and one community-based learning elective.

WR Concentration Courses	Credit Hours
WRTC 330. Rhetorical Analysis and Criticism	3
WR Electives (Choose three):	9
WRTC 332. Computers and Writing	
WRTC 334. Introduction to Popular Writing	
WRTC 336. Tutoring Writing	
WRTC 338. Genre Theory	
WRTC 340. Writing as Leading	
WRTC 342. Writing Place	
WRTC 430/SCOM 343. Contemporary Rhetorical Theory and Practice	
WRTC 432. Rhetoric of the Personal Narrative	
WRTC 434. Advanced Popular Writing	
WRTC 436. Teaching Writing	
TSC Electives (Choose one):	3
WRTC 350. Foundations of Technical Communication	
WRTC 352. Online Design I	
WRTC 354. Document Design	
WRTC 356. Web Theory and Design	
WRTC 358. Writing About Science and Technology	
WRTC 450. Digital Rhetoric	
WRTC 452. Online Design II	
WRTC 454. Publication Management	
WRTC 456. Usability Testing	
WRTC 458. Scientific and Medical Communication	
Crossover Electives (Choose one):	3
WRTC 310. Semiotics	
WRTC 312. Studies in Literacy	
WRTC 314. Writing in the Public Sphere	
WRTC 316. Research Methodologies in WRTC	
WRTC 318. Intercultural Professional Communication	
WRTC 326/SCOM 354. Environmental Communication and Advocacy	
WRTC 328. Practicum in WRTC (Variable Credit 1-3)	
WRTC/SCOM/SMAD 359. Digital Communications Consulting	
WRTC 410. Sociolinguistics	
WRTC 412. Language and Information Management	
WRTC 414. Major Theorists in WRTC	
WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology	
WRTC/SCOM/WGS 420. Feminist Rhetorics	
WRTC 426. Special Topics in Writing, Rhetoric and Technical Communication	
Community-Based Learning Electives (Choose one):	3
WRTC 478. Writing in the Legal Professions	
WRTC 480. Writing for Business and Industry	
WRTC 482. Writing for Government	
WRTC 484. Writing for Nonprofits	
WRTC 486. Writing in the Community	
WRTC 488. Writing in the Health Sciences	

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## Recommended Schedule for B.A. Majors

Students are encouraged to begin their WRTC course work as soon as possible in their degree plans. The following sample program of study illustrates how a WRTC major might earn a B.A. degree.

### First Year

First Semester	Credit Hours
Foreign language course <sup>1</sup>	3-4
General Education Cluster One	9
General Education Cluster Three	3

15-16

Second Semester	Credit Hours
Foreign language course	3-4
WRTC 200. Introduction to Studies in WRTC	3
General Education Cluster Three course	3
General Education courses	6

15-16

### Second Year

First Semester	Credit Hours
Foreign language course	0-3
WRTC 201. Theory and Methods in WRTC	3
B.A. Degree philosophy course	3
General Education Cluster Three course	4
General Education courses	0-9

16

Second Semester	Credit Hours
Foreign language course	0-3
WRTC 300. Professional Editing	3
WRTC 301. Language, Law and Ethics	3
WRTC concentration requirement:	3
WRTC 330. Rhetorical Analysis and Criticism (for WR)	
WRTC 350. Foundations of Technical Communication (for TSC)	
General Education course	3
University electives	3

15-18

### Third Year

First Semester	Credit Hours
WRTC concentration-specific electives	6
General Education courses	6
University elective	3

15

Second Semester	Credit Hours
WRTC concentration-specific elective	3
WRTC elective	3
General Education courses	3-6
University electives	6

15-18

### Fourth Year

First Semester	Credit Hours
WRTC electives	3-6
University electives	6-9

15-18

Second Semester	Credit Hours
WRTC elective	0-3
WRTC 495. Internship in WRTC	3
WRTC 496. Capstone in WRTC	1
University electives	9

15-16

<sup>1</sup> Completion of an intermediate level foreign language is required for the B.A. degree (usually six hours if begun at the intermediate level) unless the language requirement is satisfied by an exemption test. In that case, university electives may be substituted for additional hours indicated as foreign language courses.

## Recommended Schedule for B.S. Majors

Students are encouraged to begin their WRTC course work as soon as possible in their degree plans. The following sample program of study illustrates how a WRTC major might earn a B.S. degree.

### First Year

First Semester	Credit Hours
General Education Cluster One courses	9
General Education Cluster Three courses	3-6
General Education courses	3

15-18

Second Semester	Credit Hours
WRTC 200. Introduction to Studies in WRTC	3
WRTC 201. Theory and Methods in Writing, Rhetoric and Technical Communication	3
General Education Cluster Three courses	3-4
General Education courses	6

15-16

### Second Year

First Semester	Credit Hours
WRTC 300. Professional Editing	3
General Education Cluster Three course	0-4
General Education courses	9-12

15-16

Second Semester	Credit Hours
WRTC 301. Language, Law and Ethics	3
WRTC concentration requirement:	3
WRTC 330. Rhetorical Analysis and Criticism (for WR)	
WRTC 350. Foundations of Technical Communication (for TSC)	
B.S. Quantitative requirement	3
General Education courses	9

15-18

### Third Year

First Semester	Credit Hours
WRTC concentration-specific electives	6
B.S. Scientific Literacy requirement <sup>1</sup>	3
University electives	9

15-18

Second Semester	Credit Hours
WRTC concentration-specific elective	3
WRTC elective	3
University electives	9

15

**Fourth Year**

<b>First Semester</b>	<b>Credit Hours</b>
WRTC elective	3-6
University electives	9
<hr/>	
	15-18

<b>Second Semester</b>	<b>Credit Hours</b>
WRTC electives	3
WRTC 495. Internship in Writing, Rhetoric and Technical Communication	3
WRTC 496. Capstone in Writing, Rhetoric and Technical Communication	1
University electives	9
<hr/>	
	13-16

1 Completion of the B.S. degree requires a student to complete either a natural science or a social science course in addition to those required for the General Education program.

**Minor Requirements  
Writing, Rhetoric and Technical  
Communication Minor**

The minimum requirement for a minor in WRTC is 18 credit hours.

<b>Minor Requirements</b>	<b>Credit Hours</b>
WRTC 200. Introduction to Studies in Writing, Rhetoric and Technical Communication	3
WRTC 201. Theory and Methods in Writing, Rhetoric and Technical Communication	3
WRTC 300. Professional Editing	3
WRTC 301. Language, Law and Ethics	3
Choose any two WRTC electives	6
<hr/>	
	18

# Course Descriptions

Semester course listings are available on the university's website. Consult the Registrar's Office website or <https://mymadison.jmu.edu/> for information about dates, deadlines and registration procedures. Some courses are not offered every semester.

If a course has a separate laboratory period, the number of lecture hours and the number of laboratory hours per week will be shown in parentheses immediately following the course title. The abbreviations shown in this section are also listed on MyMadison and student transcripts.

Subject	Abbreviation
Accounting.....	ACTG
Africana Studies.....	AFST
AIRS.....	AIRS
American Studies.....	AMST
Anthropology.....	ANTH
Arabic.....	ARAB
Architectural Design.....	ARCD
Art.....	ART
Art Education.....	ARED
Art History.....	ARTH
Astronomy.....	ASTR
Athletic Training Education Program.....	ATEP
Biology.....	BIO
Biotechnology.....	BIOT
Business.....	COB
Business Analytics.....	BSAN
Business and Marketing Education.....	BMED
Business Law.....	BLAW
Chemistry.....	CHEM
Chinese.....	CHIN
Classics.....	CLAS
Communication Sciences and Disorders.....	CSD
Communication Studies.....	SCOM
Computer Information Systems.....	CIS
Computer Science.....	CS
Continuing Education.....	CE
Criminal Justice.....	CRJU
Cross Disciplinary Studies.....	CDS
Dance.....	DANC
Disability Studies.....	DST
Early Childhood Education.....	ECED
Economics.....	ECON
Education.....	EDUC
Elementary Education.....	ELED
Engineering.....	ENGR
English.....	ENG
Environment.....	ENVT
Environmental Management.....	ENVM
Exceptional Education.....	EXED
Family Studies.....	FAM
Finance.....	FIN
Foreign Language.....	FL
Foreign Language Education.....	FLED
French.....	FR
General Business.....	BUS
Geographic Science.....	GEOG
Geology.....	GEOL
German.....	GER
Gerontology.....	GERN
Graphic Design.....	GRPH
Greek.....	GRK
Health.....	HTH
Health Services Administration.....	HSA
History.....	HIST
Honors.....	HON
Hospitality Management.....	HM
Human Resource Development.....	HRD
Humanitarian Affairs.....	HUMN

Courses that may be used to satisfy requirements in General Education: The Human Community are identified both within their academic unit listing of courses (i.e., English) and under the General Education program's list of course descriptions in this section. Courses that are approved for the General Education program are included under the description for each cluster.

See the General Education section of this catalog for additional information.

Subject	Abbreviation
Inclusive Early Childhood Education.....	IECE
Independent Scholars.....	IND
Individualized Study.....	IS
Industrial Design.....	INDU
Integrated Science and Engineering.....	CISE
Integrated Science and Technology.....	ISAT
Intelligence Analysis.....	IA
Interdisciplinary Liberal Studies.....	IDLS
Interdisciplinary Science.....	ISCI
Interdisciplinary Social Science.....	ISS
International Affairs.....	INTA
International Business.....	IB
Interprofessional Education.....	IFE
Italian.....	ITAL
Japanese.....	JAPN
Justice Studies.....	JUST
Kinesiology.....	KIN
Korean.....	KOR
Latin.....	LAT
Learning, Technology and Leadership Education.....	LTLE
Management.....	MGT
Marketing.....	MKTG
Materials Science.....	MATS
Mathematics.....	MATH
Mathematics Education.....	MAED
Media Arts and Design.....	SMAD
Middle and Secondary Education.....	MSSE
Middle Education.....	MIED
Military Science.....	MSCI
Music.....	MUS
Music Education.....	MUED
Music Industry.....	MUI
Music Instruction, Applied.....	MUAP
Nonprofit Studies.....	NPS
Nursing.....	NSG
Nutrition.....	NUTR
Persian.....	PERS
Philosophy.....	PHIL
Physics.....	PHYS
Political Science.....	POSC
Portuguese.....	PORT
Psychology.....	PSYC
Public Policy and Administration.....	PPA
Reading Education.....	READ
Religion.....	REL
Russian.....	RUS
Social Work.....	SOWK
Sociology.....	SOCI
Spanish.....	SPAN
Sport and Recreation Management.....	SRM
Swahili.....	SWA
Teaching English as a Second Language.....	TESL
Technical Translation.....	TR
Theatre.....	THEA
University Studies.....	UNST
Vocational Education.....	VOED
Women's and Gender Studies.....	WGS
Writing, Rhetoric and Technical Communication.....	WRTC

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## Accounting

**ACTG 244. Accounting for Non-Business Majors.** *3 credits.*

For non-business majors only. Introduces basic business and accounting topics such as revenue, investments, expenditures, liabilities, credit, cash management and taxation. Heavy emphasis is placed on the measurement of operating performance and interpretation and use of accounting data for organizational decision-making. Not recommended for students seeking admission to MBA programs. *Prerequisite: Sophomore standing or higher.*

**ACTG 302. Introduction to the Profession: Role of Accountants.** *1 credit. Fall only.*

This class relies heavily on discussions with practicing accountants in public accounting, industry and government. Topics include career preparation and the role of accountants in business and capital markets. Written assignments are used to enhance communication skills. *Prerequisites: Completion of both COB 241 and COB 242 with a "B" or better. Prerequisite or corequisite: COB 300.*

**ACTG 303. Basic Spreadsheet Skills for Analysis and Reporting of Accounting Information.** *1 credit.*

This class provides students with hands-on learning and practice with basic Excel skills necessary in the workplace. Topics include creating and printing professional documents, navigating through workbooks, creating and editing formulas, using basic logical and statistical functions and creating charts. *Prerequisite or corequisite: ACTG 302 or permission of the department head.*

**ACTG 304. Advanced Spreadsheet Skills for Analysis and Reporting of Accounting Information.** *1 credit.*

This class provides students with hands-on learning and practice with advanced Excel skills. This class focuses on preparing students to become Microsoft Certified Application Specialists in Excel. Topics include customizing charts, using advanced financial, logical, and statistical functions, pivot tables and pivot charts, evaluation of formulas and collaboration of workbooks. *Prerequisite: Completion of ACTG 303 with grade of "C-" or better.*

**ACTG 313. Accounting Information Systems.** *3 credits.*

Covers the use of accounting systems for the collection, organization, analysis and reporting of accounting data. Topics include: internal controls, documentation of accounting systems, transaction processing cycles, auditing information technology, e-commerce, computer and information systems security, and integration of business functions in the accounting process. *Prerequisite or corequisite: ACTG 303.*

**ACTG 343. Corporate Financial Reporting I.** *3 credits.*

Provides a theoretical framework to explain and critically evaluate financial reporting by businesses. In addition to studying the authoritative standards for preparing financial statements, students develop the ability to read, use, analyze and interpret financial statements. Students gain an understanding that managers can shape the financial information communicated to investors and creditors. *Prerequisite or corequisite: ACTG 302 or permission of the department head.*

**ACTG 344. Corporate Financial Reporting II.** *3 credits.*

Continues the development of a theoretical framework to read, use, analyze, interpret, explain and critically evaluate financial reporting by businesses. Selected topics include financial instruments, leases, pensions, deferred taxes, stockholders' equity and other corporate reporting issues. *Prerequisite: ACTG 343 with a grade of "C-" or better.*

**ACTG 377. Federal Income Tax Accounting.** *3 credits.*

Designed to introduce students to the federal income tax system, including individual and business entity taxation. Topics include income, exclusions, deductions and property transactions. Also facilitates development of research skills. *Prerequisite or corequisite: ACTG 302 or permission of the department head.*

**ACTG 410. Auditing.** *3 credits.*

A study of techniques available for gathering, summarizing, analyzing and interpreting the data presented in financial statements and procedures used in verifying the fairness of the information. Also emphasizes ethical and legal aspects and considerations. *Prerequisites: ACTG 313, ACTG 303 and ACTG 344 with grades of "C-" or better.*

**ACTG 420. Operational Auditing.** *3 credits. Not currently offered.*

This course is a study of the basic principles and techniques of operational auditing. It covers organizing and conducting operational audit engagements and addresses regulatory compliance issues. *Prerequisites: ACTG*

*313 and ACTG 343 with grades of "C-" or better. Prerequisite or corequisite: ACTG 344.*

**ACTG 440. Advanced Information Technology for Accountants.** *3 credits. Not currently offered.*

This course is offered only for accounting majors seeking a minor in CIS. Topics include legacy systems, the systems development life cycle, telecommunications, distributed processing, networking and information security, taught from an accounting perspective. *Prerequisite: ACTG 313 with a grade of "C-" or better and declared CIS minor.*

**ACTG 475. Accounting Decision Making and Control.** *3 credits.*

The study of cost accounting concepts and information used by business organizations to make strategic, organizational and operational decisions. Topics include the role of planning and control in attaining organizational goals and objectives; the relationship among cost structure, cost behavior, and operating income; traditional and activity-based costing approaches to product costing, differential analysis in decision making; and ethical issues for accountants. *Prerequisite: ACTG 343 with a grade of "C-" or better. Prerequisite or corequisite: ACTG 304.*

**ACTG 483. International Accounting and Financial Reporting.** *3 credits.*

Designed to develop a fundamental knowledge of the assumptions, environmental considerations and techniques underlying the collection and reporting of financial information on an international scale. *Prerequisite: COB 300. Open to international business majors only.*

**ACTG 490. Special Studies in Accounting.** *1-6 credits each semester.*

Designed to give capable students in accounting an opportunity to do independent study under faculty supervision. Admission only by recommendation of the instructor and permission of the director.

**ACTG 499. Honors.** *6 credits.*

See catalog section "Graduation with Honors."

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## Africana Studies

**AFST 200. Introduction to Africana Studies.** *3 credits.*

An introductory survey of basic theoretical concepts to analyze the Black experience, with special focus on the general historical process common to Africa and the African Diaspora. May be used for general education credit.

**AFST 400. Selected Topics in Africana Studies.** *3 credits.*

Selected topics are studied in depth. Course may be repeated when content changes.

**AFST 401. Internship in Africana Studies.** *3 credits.*

This internship course provides the student with the opportunity to apply knowledge learned in the classroom in a practical/real-world setting(s). It prepares students for working independently in the field. Any internship experience must be approved by the internship coordinator in advance, and details of supervision and evaluation should be spelled out in advance by the supervising faculty member. If the internship is through an academic unit, it must be approved for credit by the Africana Studies internship coordinator in advance of the experience.

**AFST/ARTH 488. African-American Art.** *3 credits.*

This course examines visual arts produced by people of African descent in the United States from the colonial period until the present. Course themes include debates about the relationship between racial identity and artistic production; the complex interchange between African-American art and the cultural traditions of Africa and Europe; black artists' engagement with popular representations of African-Americans; and the intersection of race with class, gender and sexuality. *Prerequisites: ARTH 206, AFST 200 or permission of the instructor.*

**AFST 489. Africana Studies Senior Research Experience.** *1 credit.*

In this research-oriented experience, students design and complete research projects relevant to their interests in Africana Studies, as well as connect their projects to previous course work and experiences within the Africana Studies minor. *Prerequisites: AFST 200, senior standing and permission of the instructor.*

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## AIRS

**AIRS 100. Leadership Laboratory.** *0 credits.*

This course is a mandatory laboratory in leadership and followership development for Air Force Reserve Officer Training Course (AFROTC) cadets. As a complement to the air science classes, this laboratory focuses on applying leadership principles and understanding leaders' responsibilities while emphasizing the benefits of practical experience. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: Any Air Force ROTC class.*

**AIRS 110. The Foundations of the United States Air Force I.** 1 credit. Fall only.

This course introduces the United States Air Force and Air Force Reserve Officers Training Corps. Topics include mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities and communication skills. JMU students will take AFROTC classes at the University of Virginia for JMU credit. AFROTC cadets and students interested in joining Air Force ROTC must also register for AIRS 100, Leadership Laboratory.

**AIRS 120. The Foundations of the United States Air Force II.** 1 credit. Spring only.

This course introduces the United States Air Force and Air Force Reserve Officers Training Corps. Topics include mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities and communication skills. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

**AIRS 210. The Evolution of Air and Space Power I.** 1 credit. Fall only.

This course examines general aspects of air and space power through a historical perspective, from the first balloons and dirigibles to the space age global positioning systems of the Persian Gulf War. Topics include principles of war, tenets of air and space power, historical Air Force leaders, and employment of air and space power. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

**AIRS 220. The Evolution of Air and Space Power II.** 1 credit. Spring only.

This course examines general aspects of air and space power through a historical perspective, from the first balloons and dirigibles to the space age global positioning systems of the Persian Gulf War. Topics include principles of war, tenets of air and space power, historical Air Force leaders, and employment of air and space power. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

**AIRS 310. Concepts of Air Force Leadership and Management I.** 3 credits. Fall only.

This course studies leadership, management fundamentals and professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required of Air Force junior officers. The class examines Air Force leadership and management situations, using case studies as a means of demonstrating and applying the concepts under consideration. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

**AIRS 320. Concepts of Air Force Leadership and Management II.** 3 credits. Spring only.

This course studies leadership, management fundamentals and professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required of Air Force junior officers. The class examines Air Force leadership and management situations, using case studies as a means of demonstrating and applying the concepts under consideration. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

**AIRS 410. National Security Affairs/Preparation for Active Duty I.** 3 credits. Fall only.

This course examines the national security process, regional studies, advanced leadership ethics and Air Force doctrine. Topics include the military as a profession, officership, military justice, civilian control of the military, preparation for active duty and current issues affecting the military profession. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

**AIRS 420. National Security Affairs/Preparation for Active Duty II.** 3 credits. Spring only.

This course examines the national security process, regional studies, advanced leadership ethics and Air Force doctrine. Topics include the military as a profession, officership, military justice, civilian control of the military, preparation for active duty and current issues affecting the military profession. JMU students will take AFROTC classes at the University of Virginia for JMU credit. *Corequisite: AIRS 100.*

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## American Studies

**AMST 200. Introduction to American Studies.** 3 credits.

This course will highlight the student's role in interrogating the cultural and political function of representations of America in literature, history, philosophy, religion, popular culture, music and art. Students will gain an understanding of why definitions of American identity matter and learn about

the contemporary debates that inform the discipline of American Studies today. Questions about the changing role of national studies in the face of globalization are central. May be used for general education credit.

**AMST 490. Special Studies in American Studies.** 3 credits.

Independent study of a topic appropriate to the cross disciplinary method of American studies.

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## Anthropology

**Key**

A=Archaeology	F=Field Experience
B=Biological Anthropology	R=Required for All Anthropology Majors
C=Cultural Anthropology	W=Writing Intensive

**ANTH 195. Cultural Anthropology.** 3 credits (C, R).

An introduction to the nature of culture and its relationship to language, economics, politics, kinship and other institutions in diverse cultures. The course also provides an overview of the theories, methods and ethical responsibilities involved in the study of cultural systems and ethnographic writing. May be used for general education credit.

**ANTH 196. Biological Anthropology.** 3 credits (B, R).

An introduction to the origins, evolution and genetic variability of humans and their relationship to nonhuman primates. Examination of the fossil record, the relationship between biology and culture and human genetics are included. Theories and methods used in the study of biological anthropology are also introduced. May be used for general education credit.

**ANTH 197. Archaeology.** 3 credits (A, R).

An introduction to the goals, methods and theory of anthropological archaeology. The course examines the variety of techniques archaeologists use to reconstruct the past from material remains. Archaeological ethics and the impact of the past on contemporary society are also considered.

**ANTH 201. The Discipline of Anthropology.** 1 credit (R).

This required course introduces students to the subdisciplines of cultural, biological, linguistic and archaeological anthropology and the logic of their integration within the larger discipline of anthropology. Students will be introduced to current research questions within anthropology and how they are addressed from the perspective of the various subdisciplines. *Prerequisites: Major status or permission of the instructor. It is recommended that students have had at least one of the introductory-level ANTH courses (ANTH 195, ANTH 196 or ANTH 197).*

**ANTH 205. Buried Cities, Lost Tribes: The Rise and Fall of Early Human Societies.** 3 credits (A).

This course takes an archaeological and comparative perspective on the origins of human institutions, including art, architecture, religion, centralized political formations and urban life. The development and collapse of early societies in multiple world regions, including Mesopotamia, Egypt, the Indus Valley, Mesoamerica and the Andes will be explored. May be used for general education credit.

**ANTH 250. Anthropology of the American Southwest.** 3 credits (A).

This course examines the development of Southwestern societies from early hunter-gatherers to the Native American communities of today. Major issues of anthropological interest, such as the adoption of agriculture, the development of village life, migration and abandonment, the spread of religious "cults," the extent of Mesoamerican influence and the effects of the Spanish conquest are explored.

**ANTH 265. Peoples and Cultures of Latin America and the Caribbean.** 3 credits (C).

Anthropological and historical perspectives on the cultures of Latin America and the Caribbean through such themes as colonialism, nationalism, ethnicity, development, aesthetic traditions, gender, religion and urban and rural resistance movements.

**ANTH 280. Peoples and Cultures of Sub-Saharan Africa.** 3 credits (C).

This is an introductory course emphasizing cultural diversity of sub-Saharan African societies. Basic anthropological concepts are used in analyzing African economics, political systems, marriage patterns and family organization, religious beliefs and the impacts of colonialism and post-colonial development practices.

**ANTH 295. Peoples and Cultures of East Asia.** 3 credits (C).

This introductory course examines the peoples and cultures of the core East Asian countries – China, Japan and Korea. The course is organized around anthropological perspectives on topics such as nationalism, consumption, gender, ethnicity and development but also emphasizes the cultural, social and

historical characteristics of various groups in these nations, in addition to important cultural flows within region.

**ANTH 300. The Anthropology of Food.** 3 credits (C).

This course explores anthropological approaches to food production, distribution, preparation and consumption in the contemporary world. Topics include food preferences and taboos, food and the senses, ritual and identity, technological risks, diet and nutrition, cuisine and class and the political economy of food. *Prerequisite:* Any lower-level course in anthropology or permission of the instructor.

**ANTH/SCOM 305. Language and Culture.** 3 credits (C).

An introduction to linguistic anthropology. Explores the complex relationships between language and culture through topics such as language acquisition and socialization; language, thought and worldview; language and identity; multilingualism; how and why languages change; literacy; and the politics of language use and language ideologies.

**ANTH/SOCI 306. Japanese Society and Culture.** 3 credits (C).

This introductory course takes a critical and interdisciplinary approach to exploring Japan. We will apply Sociological, Anthropological, and Demographic perspectives to comparatively understand, analyze, and discuss Japanese society and culture. Students will read and discuss issues related to history, socio-demographic change, gender, work, social class, race/ethnicity, family, health care, and aging in Japanese society.

**ANTH 312. The Native Americans.** 3 credits (A).

A study of the nature of Indian societies occupying different environmental areas of North America at the time of earliest historic contact. Indian groups such as Shawnee, Mandan, Nuunamit, Natchez, Creek, Iroquois and Sioux will be considered.

**ANTH 315. Human Evolution.** 3 credits (B).

An overview of the fossil record and other evidence for human evolution. Discusses the emergence of the hominids as a lineage distinct from other apes. Provides evidence for the evolution of bipedalism, tool use, hunting/gathering, major increases in brain size, language and material culture and the hypotheses that have been developed to explain the emergence of these characteristics. *Prerequisites:* ANTH 196, or BIO 114 and BIO 124, or permission of the instructor.

**ANTH 316. Human Evolutionary Psychology.** 3 credits (B).

An exploration of human behavior from an evolutionary perspective. Emphasis is placed on the critical evaluation of adaptive hypotheses purported to explain fundamental human behaviors such as survival and mating strategies, reproduction and parenting, kinship and cooperation, dominance and aggression, cultural evolution and religion. *Prerequisite:* ANTH 196 or permission of the instructor.

**ANTH 317. Primate Evolutionary Ecology.** 3 credits (B).

This course explores the interface between an organism and its environment, illustrated with examples from the primates. Behaviors related to feeding, moving, grouping and socializing are considered from an evolutionary perspective. Topics to be discussed include feeding ecology, functional anatomy, the ecology of primate social systems, ranging behaviors, community ecology and the role humans play in shaping primate communities. *Prerequisite:* ANTH 196 or permission of the instructor.

**ANTH 318. The Evolution of Primate Sexuality and Reproduction.** 3 credits (B).

A survey of non-human primate sexuality from an evolutionary perspective. Emphasis is placed on the diversity of behavioral, anatomical and physiological aspects of mating and reproduction across the order Primates. Where appropriate, comparisons with human sexuality are made. *Prerequisite:* ANTH 196 or permission of the instructor.

**ANTH 319. Human Osteology.** 3 credits (B).

An analysis of the individual bones and teeth that comprise the human skeleton. Emphasis is placed on learning individual bones and teeth as well as the numerous osteological and dental landmarks that characterize them. Applied topics such as bone growth and the analysis of age, sex, stature, pathology and geographic ancestry will also be addressed. *Prerequisite:* ANTH 196 or permission of the instructor.

**ANTH 322. Human Variation and Adaptation.** 3 credits (B).

This course will assess human biology from an evolutionary and anthropological perspective, emphasizing an integrative, holistic understanding. The origin and current distribution of human biological variation will be explored, including geographic, sex and individual variation. Health and disease, growth and development, aging, nutrition and mental health will also be addressed. *Prerequisite:* ANTH 196 or permission of the instructor.

**ANTH 323. Anthropology and Photography.** 3 credits (C).

This course explores the anthropological use of photographic data for the description, analysis, communication and interpretation of human behavior. Topics include phenomenological, cross-cultural and historical understanding of still photography; the social life of photographs; visual cultural production and the consumption of photographs; and still photography after colonialism, globalization, and postmodernity.

**ANTH 324. Mindfulness and Anthropology.** 3 credits (C).

Mindfulness provides ways of attending to the world in its present moment in a nonjudgmental manner. Students study and practice contemporary mindfulness practices, while applying these techniques to the holistic collection, analysis and presentation of ethnographic data. The course considers recent ethnographic practice and theory in the context of mindfulness, including the anthropology of poetic expression, the senses and embodied experience.

**ANTH 325. Aztec, Maya and Their Predecessors.** 3 credits (A).

Survey of the Olmec, Toltec, Teotihuacan, Maya and Aztec civilizations and the factors leading to their development, persistence and decline.

**ANTH 327. Ancient North American Civilizations.** 3 credits (A).

Studies the emergence of Native American societies prior to historic contact. Emphasizes prehistoric developments in the eastern United States.

**ANTH/HIST 331. Historical Archaeology.** 3 credits (A).

The course introduces students to the purposes, subject matter, methodology and historical background of the discipline of historical archaeology. Building on research issues and methodologies of anthropological archaeology and history, the multidisciplinary aspects of this field are introduced through field trips, projects, guest lectures, readings and classroom presentations.

**ANTH 333. Celts, Vikings and Tribal Europe: Art and Culture from 500 to 1100 AD.** 3 credits (A).

Building on a heritage of archaeology, art, history, material culture, mythology and literature, the course introduces students to the cultures and traditions of the Celtic, Viking (Norwegian, Danish and Swedish) and Germanic tribal and theocratic cultures that shaped the early civilizations of northern Europe, Britain and Ireland from ca. 500 A.D. to 1100 A.D.

**ANTH 340. The Invention of Race.** 3 credits (C).

Examines the historical and cultural construction of race in Western thought. Themes include the origins of racial thinking, the slave trade, race and religion, race and science, the ways race is implicated in colonialism and nationalism and the relation between race and other social qualities, including gender, class, sexuality and ethnicity.

**ANTH 350. Magic, Witchcraft and Religion.** 3 credits (C).

Anthropological study of religion in society. The influence of religion on the development of social, legal, governmental and economic aspects of culture is emphasized.

**ANTH/SOCI 352. Birth, Death, Sex: Exploring Demography.** 3 credits (B,C).

Fertility (birth) and mortality (death) and their biological and social determinants in cross-cultural and evolutionary/historical frameworks. Exploration of the dynamic between the material constraints on and symbolic significance of, reproduction, sexuality and death within a cultural context. Critical examination of population growth as a global "problem." Basic demographic methods. *Prerequisite:* Any lower-level course in anthropology or sociology or permission of the instructor.

**ANTH 360. Medical Anthropology.** 3 credits (C).

This course takes an anthropological approach to the study of health, illness and healing; how do different cultural systems and social institutions influence the experience and interpretation of different bodily states? Material covers critical analyses of Western medicine and ethnomedicine in both specific cultural settings and their global circulation. Topics include disease epidemics, illness narratives, public health, suffering, pharmaceuticals, disability and health care systems. *Prerequisite:* ANTH 195 or permission of the instructor.

**ANTH 364. U.S./Latin American Borders.** 3 credits (C).

This course examines the experiences of Latin American migrants to the United States. It stresses the cultural expression of those experiences, globalization and its effects on local communities in Latin America, the U.S. responses to migration and migrants.

**ANTH 366. Anthropology of War.** 3 credits (A, C).

This course examines the causes, conduct and consequences of warfare in non-state societies using both ethnographic and archaeological data. Case studies drawn from throughout the world are used to examine topics such as the co-evolution of war and society, the impact of colonialism on native

warfare, the process of making peace and claims about the biological "inevitability" of war.

**ANTH/SOCI 368. Contemporary American Culture.** 3 credits (C).

This course analyzes contemporary American society in relation to popular cultural formations and representations. Cultural expressions found in music, literature, theatre, film, television, cyberspace and sports will be examined with respect to values, sentiments, identity constructions and lived experiences of differentially situated social actors.

**ANTH 370. Topics in the Anthropology of Gender.** 3 credits (C).

This course examines the many ways in which gender is constructed and negotiated in different historical and social contexts. Topics will vary with the instructor to include both cultural and biocultural perspectives.

**ANTH 373. Anthropological Perspectives on Environment and Development.** 3 credits (C).

This seminar provides a history of key ideas and figures in environmental anthropology, as well as examines why this field is, by necessity, interdisciplinary. Within this context, we will use specific case studies to examine ways in which the concepts and theories of "development" and "environment" have been produced, perpetuated, manipulated and challenged in different geographic and politico-economic circumstances. *Prerequisite:* ANTH 195 or permission of the instructor.

**ANTH 375. History of Theory in Sociocultural Anthropology.** 3 credits (C, R, W).

An examination of the major theoretical traditions in social and cultural anthropology. Important theoreticians and the historical contexts in which their work emerged are discussed. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites:* ANTH 195 and junior standing.

**ANTH/WGS 376. Anthropology of Reproduction.** 3 credits (C).

This course provides students with a critical and cross-cultural perspective on human reproduction. Examining how individuals draw on social and symbolic resources to sort out complicated private decisions, we will discuss how reproductive experiences are embedded in local, national and transnational politics. Topics covered may include: cross-cultural perspectives on childbearing and childlessness, kinship, and the globalization of new reproductive technologies such as in vitro fertilization. *Prerequisite:* ANTH 195 or permission of the instructor.

**ANTH 377. Space/Culture/Power.** 3 credits (C).

An introduction to social-scientific approaches to space. We will think critically about how people across cultures shape—and are shaped by—the spaces we occupy. Drawing on examples from around the world we examine the intersections of space, culture and power through such topics as segregation, maps, architecture, prisons, schools, migration politics and more. The course encourages students to think of space—and its intersections with culture and power—in new and sophisticated ways. *Prerequisite:* ANTH 195.

**ANTH/SOCI 388. Prisons, Punishment and the State.** 3 credits (C)

The course investigates the nature of punishment and the particular forms of punishment meted out by the state. Questions include: What is the purpose of punishment? Why does the state choose incarceration as its standard punishment? What forms of punishment exist in other cultures? We focus on the contexts in which prisons emerged in the US and what they say about our society. Discussions center on power, race, class, gender, age and the political economics of the criminal justice system. *Prerequisite:* ANTH 195 or permission of the instructor.

**ANTH 389. Ethnographic Experience in Dominica.** 3 credits (C)

This course is an anthropological case study of Dominica, an independent post-colonial island nation in the Eastern Caribbean. The course entails extensive background study of the island's history, culture and languages, combined with hands-on ethnographic, service-learning and cross-cultural experiences during an Alternative Spring Break in Dominica. *Prerequisite:* Permission of the instructor.

**ANTH/SOCI 390. Topics in Cultural Studies.** 3 credits (C).

This course explores contemporary culture through a "cultural studies" lens, an interdisciplinary perspective interested in using empirical knowledge to encourage more just human relations. Specific topics of investigation will vary by semester, but each course will cover cultural studies' intellectual history and its application to cultural expressions found in everyday life, film, music and text.

**ANTH 391. Study Abroad.** 1-6 credits (May be A, B, C, F).

Designed to encourage students to enhance their academic programs through studying abroad. Arrangements must be made with a faculty member who will

direct the study with preparatory instructions and final requirements. May be repeated up to 12 credits.

**ANTH 395. Special Topics in Anthropology.** 3 credits (May be A, B or C).

Examination of selected topics which are of current importance to anthropology. May be repeated for credit when course content changes.

**ANTH 405. Topics in Linguistic Anthropology.** 3 credits (C).

Examines current issues in the anthropology of language. Topics vary by semester, but each course will include hands-on analysis of social interaction and /or investigation of contemporary case studies of language policy, ideologies and use.

**ANTH 410. Spatial Analysis for Anthropologists.** 4 credits (A, B and C).

The course teaches students how to identify and solve anthropological problems with spatial dimensions. Hands-on experience is stressed in the acquisition, analysis and display of spatial data using Geographic Information Systems software. Topics include the mapping of race and ethnicity, the spatial distribution of cultural variables and human modification and use of the landscape. *Prerequisite:* ANTH 195, ANTH 196 or ANTH 197.

**ANTH 411. Topics in Ethnographic Film.** 3 credits (C).

An examination of current issues in the study of ethnographic film. The course studies the changing role, practice and methods of film in anthropological research and scholarship. Topics include methods and genres of ethnographic film composition; the scientific status of filmed data; cross-cultural visual literacies; narrative form as social scientific inquiry; film and sensory data; sound, subtitles and translations; "indigenous media;" and audience reception. *Prerequisite:* ANTH 195.

**ANTH 415. Anthropological Genetics.** 3 credits (B).

Surveys the theory and methods of evolutionary genetics as applied to human evolution and human diversity. Emphasizes human evolution as illuminated by genetics, as well as the intersection of human genetics with social issues such as racism, bioethics and eugenics. *Prerequisite:* ANTH 196.

**ANTH 430. Primate Conservation Biology.** 3 credits (B).

A discussion-based course that examines the impact of human activities on biodiversity, with an emphasis on the primates. Concepts and theories in conservation biology will be explored and applied to understanding the threats to wild primates and evaluating conservation strategies. Cultural and political perspectives and philosophical and ethical arguments for conserving biodiversity will also be considered. *Prerequisite:* ANTH 196 or BIO 124 or permission of the instructor.

**ANTH 435. Ethnographic Genres and Methods.** 4 credits (C,F).

Explores ethnographic methods and conventions of ethnographic writing through close reading, analysis and production of ethnographic texts. Students develop critical skills in assessing ethnographic practice by examining how ethnographies are shaped by authors' fieldwork experiences, intellectual traditions and theoretical perspectives. Students engage in fieldwork and craft their own ethnographic accounts. *Prerequisite:* ANTH 375.

**ANTH/HIST 436. Afro-Latin America.** 3 credits (C).

Latin America and the Caribbean were the first and largest parts of the Western Hemisphere to be populated by Africans. Afro-Latin America examines cultural formations Africans brought to these regions. Beginning with an overview of the slave trade, it examines the histories of Africans and African-descent people throughout Latin America, as well as contemporary Afro-Latin American culture(s). *Prerequisites:* One course in either Latin American or Africana studies (any discipline); upper-division status or permission of the instructor.

**ANTH 455. Archaeology: Methods of Analysis and Interpretation.** 4 credits (A, F).

A review of the nature of inquiry, recent theory and the means by which archaeologist acquire, analyze and interpret their data. In addition to practical training in methods of analysis used in contemporary practice, students will gain experience in designing, conducting and reporting archaeological research. *Prerequisites:* ANTH 195 and ANTH 197.

**ANTH 485. Anthropology Course Assistantship.** 1-3 credits.

Students participate as course assistants in anthropology. Assistantships provide students with a sense of what it is like to teach an anthropology course by allowing them to work closely with faculty members through different phases of course preparation, presentation and evaluation. Assistantships also allow for a deeper understanding of course material by providing opportunities for student assistants to lead discussion and to help their peers review the material outside of the classroom. *Prerequisites:* Students must have junior /senior standing, must have earned a grade of "B" or better in the course for which he/she will serve as assistant and may register by faculty invitation only. May be repeated up to six

credits; only three credits can count toward the major. A student may only serve as a course assistant to the same course twice.

**ANTH 486. Internship in Anthropology.** 1-6 credits (May be A, B or C).

Designed to encourage students to enhance their academic programs by employing and refining anthropological skills through internships in public or private agencies. Arrangements must be made with a faculty member who will oversee the internship. *Prerequisite:* By permission only. May be repeated up to six credits.

**ANTH 490. Special Studies in Anthropology.** 1-3 credits (May be A, B or C).

Course offers students an opportunity to do independent study under staff supervision. *Prerequisite:* Admission only by recommendation of the instructor. More than one repeat requires department head approval.

**ANTH/ARTH/HIST 492. Material Culture.** 3 credits (A).

A broad introduction to the multidisciplinary "field" of material culture studies through readings, written assignments, in-class exercises and field trips. The course introduces ways of looking at and learning from objects and examines how scholars from several disciplines have used material culture in their work. *Prerequisite:* HIST 395. Instructor's permission required to waive HIST 395 prerequisite for non-history majors.

**ANTH 494. Field Techniques in Archaeology.** 4-8 credits (A, F).

Laboratory course directed at teaching students the basic field techniques and procedures of historic and prehistoric archaeology. Classroom lectures will present techniques and relevant aspects of method and theory.

**ANTH/HIST 496. Research Thesis.** 3 credits (A).

Students will gather, analyze and interpret archaeological/historical data over two semesters. Students will work on a project that demonstrates theory, research design, data gathering and analysis, culminating in a written thesis. The course meets the capstone requirement for the historical archaeology minor but is also available to students in history and anthropology. *Prerequisite:* Junior or senior standing.

**ANTH 499. Honors Thesis.** 6 credits. (May be A, B, or C). Three semesters.

An independent research topic initiated and completed by qualified senior majors who want to graduate with distinction.

## Arabic

**ARAB 101. Elementary Arabic I.** 4 credits.

The fundamentals of modern standard Arabic through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If a student has had two or more years of the language in high school, he/she will not receive credit for the course.

**ARAB 102. Elementary Arabic II.** 4 credits.

The fundamentals of modern standard Arabic through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite:* ARAB 101.

**ARAB 109. Accelerated Review of Elementary Arabic.** 3 credits.

Reviews elementary Arabic grammar, reading, writing, speaking and listening skills in Arabic. One hour of work a week in the language laboratory. For students who have had no more than two or three years of Arabic in high school and qualify through the placement exam. Native speakers are excluded. *Prerequisite:* Permission of the department head or sufficient score on the foreign language placement exam.

**ARAB 111. Intensive Arabic I.** 6 credits.

The fundamentals of Arabic through intensive listening, speaking, reading and writing. This four-week course is the equivalent of ARAB 101-102.

**ARAB 212. Intensive Arabic II.** 6 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading at the intermediate level. This four-week course is the equivalent of ARAB 231-232. *Prerequisite:* ARAB 102, ARAB 109 or ARAB 111, or permission of the instructor.

**ARAB 231. Intermediate Arabic I.** 3 credits.

A thorough review of first-year grammar and vocabulary building. Conversation, composition and reading will be chosen to reach competency at the lower intermediate level Arabic. *Prerequisite:* ARAB 102, ARAB 109 or ARAB 111, or permission of the instructor.

**ARAB 232. Intermediate Arabic II.** 3 credits.

A thorough review of grammar and vocabulary building, conversation, composition and reading. *Prerequisite:* ARAB 231 or permission of the instructor.

**ARAB 300. Arabic Grammar and Communication.** 3 credits.

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Arabic. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite:* ARAB 212 or ARAB 232 or permission of the instructor.

**ARAB 307. A History of Islamic Civilization, 600-1600 A.D.** 3 credits.

A study of society, economics, politics, culture and the arts of the Islamic world from the rise of Islam to the establishment of the gunpowder empires (Ottoman, Safavid, and Mughal). Instruction is in English.

**ARAB 308. Contemporary Islamic Civilization.** 3 credits.

A study of society, economics, politics, culture and the arts of the Islamic world, with a focus on the Arabic-speaking regions, from 1700 A.D. to the present. Instruction is in English.

**ARAB 320. Arabic Oral and Written Communication.** 3 credits.

Intensive training in the use of modern, everyday Arabic with emphasis on conversation and composition. Readings in Arabic will provide a context for discussion and writing. *Prerequisite:* ARAB 300 or permission of the instructor.

**ARAB 330. Business Arabic.** 3 credits.

A study of commercial and trade vocabulary and customs in conjunction with practice in commercial communication, including letter writing, interviews and interpretations. Instruction is in Arabic. *Prerequisite:* ARAB 300 or permission of the instructor.

**ARAB 339. Literatures of the Islamic World 600-1500 A.D.** 3 credits.

A thorough analysis of selected passages from important authors from early Arabic and Persian literature up to the beginning of the 16th century AD. The material studied will include Arabic poetry and prose from the period just before the rise of Islam to about 1500, and Persian poetry and prose from the spread of the use of New Persian in the 10th century to about 1500. *Prerequisite:* ARAB 300 or permission of the instructor.

**ARAB 340. Intermediate Arabic Conversation.** 3 credits.

Course emphasizes oral communication at the intermediate level. Students will use the vocabulary they have learned in the previous Arabic language classes. In addition, students will acquire new vocabulary from in- and out-of-class conversational situations. *Prerequisite:* ARAB 212 or ARAB 232 or permission of the instructor.

**ARAB 371. Advanced Arabic Grammar and Translation.** 3 credits.

Arabic/English translation applied in several fields. In this course students analyze the main grammatical differences between Arabic and English with the focus on producing accurate and idiomatic translations into both languages. *Prerequisite:* ARAB 300 or permission of the instructor.

**ARAB 385. The Arabian Nights.** 3 credits.

This course introduces the collection of popular tales known as "The Arabian Nights" or "The Thousand and One Nights." Readings also include medieval and modern European short stories that are adapted from the "Nights", or which appropriate themes and techniques from the "Nights." Instruction is in English. *Prerequisites:* ARAB 300 or permission of the instructor.

**ARAB 400. Advanced Arabic Writing and Conversation.** 3 credits.

Discussions and writings deal with topics of current interest. *Prerequisite:* ARAB 300 or permission of the instructor.

**ARAB 410. Media Arabic.** 3 credits.

An introduction to the vocabulary and language of Arabic press media and to the history of mass media in the Arabic speaking world. The focus is on print and Internet media, although media broadcasting in other forms is also covered. *Prerequisite:* ARAB 300 or permission of the instructor.

**ARAB 411. Colloquial Egyptian Arabic I.** 3 credits.

This course provides an introduction to Egyptian Colloquial Arabic (ECA), the most widely spoken and understood Arabic dialect. Students will learn the phonological, morphological, syntactic, and semantic particularities of ECA, and the major differences between Modern Standard Arabic and ECA, while developing their listening and speaking skills necessary for personal everyday life. *Prerequisite:* ARAB 300 or the permission of the instructor.

**ARAB 412. Colloquial Egyptian Arabic II.** 3 credits.

This course is a continuation of Colloquial Egyptian Arabic I. It is the second part of an intensive introduction to Egyptian Colloquial Arabic (ECA). Students will build on previously learned material through scenarios of everyday life. *Prerequisite:* ARAB 300 or the permission of the instructor.

**ARAB 413. Colloquial Levantine Arabic I (Jordanian/Palestinian).** 3 credits.

This course provides an introduction to Jordanian and Palestinian Colloquial Arabic (JCA and PCA), the Arabic dialects spoken in Jordan and Palestine/Israel. Students will learn the phonological, morphological,

syntactic, and semantic particularities of JCA and PCA, and the major differences between them and Modern Standard Arabic, while developing their listening and speaking skills necessary for personal everyday life. *Prerequisite: ARAB 300 or the permission of the instructor.*

**ARAB 414. Colloquial Levantine Arabic II (Syrian/Lebanese).** 3 credits.

This course provides an introduction to Syrian and Lebanese Colloquial Arabic (SCA and LCA), the Arabic dialects spoken in Syria and Lebanon. Students will learn the phonological, morphological, syntactic, and semantic particularities of SCA and LCA, and the major differences between them and Modern Standard Arabic, while developing their listening and speaking skills necessary for personal everyday life. *Prerequisite: ARAB 300 or the permission of the instructor.*

**ARAB 429. Introduction to Qur'anic Arabic.** 3 credits.

An introduction to the Arabic vocabulary and grammar of the Qur'an and hadith literature. The course provides an intensive overview of Arabic grammar, from basic to advanced topics. Students will gain the ability to read excerpts from the Qur'an and other Islamic religious texts in Arabic. *Prerequisite: ARAB 300 or permission of the instructor.*

**ARAB 446. Special Topics in Arabic Literature.** 3 credits.

Study of a particular topic in Arabic Literature. May cover all or specific Arabic literature genre. May be repeated if content changes. *Prerequisite: ARAB 300 or permission of the instructor.*

**ARAB 447. Special Topics in Arabic Civilization and Culture.** 3 credits.

Students will study a particular topic in the civilization and/or culture of Arabic countries. Course may be repeated if content changes. *Prerequisite: ARAB 300 or permission of the instructor.*

**ARAB 448. Special Topics in Arabic Linguistics.** 3 credits.

Students will study a particular topic in Arabic linguistics. Topics could include an introduction to Arabic sociolinguistics and psycholinguistics. Course may be repeated if content changes. *Prerequisite: ARAB 300 or permission of the instructor.*

**ARAB 490. Special Studies in Arabic.** 1-4 credits.

Special topics or independent studies in Arabic. *Prerequisite: Permission of the instructor.*

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## Architectural Design

All 200-level ARCD courses are restricted to declared art, art history, graphic design, architectural design and industrial design majors during the fall and spring semesters. ARCD courses at the 300-level and above are restricted to declared ARCD majors. During May and summer sessions, ARCD courses are open to all students who meet the additional stated course prerequisites. Non-majors wishing to enroll in an ARCD course during the fall and spring semesters may request permission of the instructor.

**ARCD 200. Architectural Design Studio I.** 6 credits.

This studio focuses on the design process through the creation of objects and architectural spaces. Projects involve investigations into syntax and design language, program interpretation, materiality, ritual, use and the constructed order of built space. Emphasis is placed on experimentation, risk and play. Design projects will incorporate constructed drawings, sketching, diagramming, model-building and writing.

**ARCD 202. Architectural Design Studio II.** 6 credits.

Design studio building on the fundamentals of ARCD 200. Projects will address both three-dimensional design of spaces and the objects within the spaces. Projects will include questions of ritual, ergonomics, material properties, mechanism and prototypes. Introduction of workshop, digital graphics and photography incorporated in studio work, with an emphasis on fabrication and constructed full-scale objects. *Prerequisite: ARCD 200.*

**ARCD 208. Portfolio Review.** 0 credits.

Portfolio review required to enroll in architectural design courses at 300 level and above. *Prerequisite: ARCD 200. Corequisite: ARCD 202.*

**ARCD/INDU 220. CAD: 3D Modeling.** 3 credits.

This course will introduce students to principles used in 3D Cad and BIM modeling. Technologies to draw three dimensionally on the computer will be considered as a discipline within itself, and students will be instructed to use the machine for design exploration. Various software packages will be utilized during the semester.

**ARCD 300. Architectural Design Studio III.** 6 credits.

Intermediate design studio building upon skills of ARCD 200-202 sequence. Projects will be of greater complexity, scope and technical requirement. Design studies will incorporate drawing, diagramming, models, digital studies and writing. Legal, industry and engineering requirements will be integrated into the learned poetics of design. *Prerequisite: ARCD 208.*

**ARCD 302. Architectural Design Studio IV.** 6 credits.

Intermediate design studio building upon skills of ARCD 300. Projects will be an extension of ARCD 300 but with greater complexity, scope and technical requirements. Design studies will incorporate drawing, diagramming, models, digital studies and writing. Legal, industry and engineering requirements will be integrated into the learned poetics of design. *Prerequisite: ARCD 300.*

**ARCD 330. Materials and Methods I.** 3 credits.

A lecture course introducing components and materials used in construction and building systems. *Prerequisite: ARCD 208.*

**ARCD 332. Materials and Methods II.** 3 credits.

The second lecture class in a required sequence focused on building systems and materials. Topics introduced in ARCD 330 are studied in greater depth with an emphasis on understanding the interrelationships among elements found in a complete construction documents package. *Prerequisite: ARCD 330.*

**ARCD 390. Independent Studies in Architectural Design.** 1-3 credits.

Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with the consent of the instructor.

**ARCD 392. Topics in Architectural Design.** 3 credits. *Offering varies.*

Study of selected topics in architectural design at the intermediate level. May be repeated when course content changes. See MyMadison for current topics. *Prerequisite: ARCD 208.*

**ARCD 400. Architectural Design Studio V.** 6 credits.

An upper-level design studio building upon the design rigor and technical craft acquired in the ARCD 300-302 sequence. Expansion of the design role into collaborative teams, interdisciplinary teams, actual clients, service projects and competition projects. *Prerequisite: ARCD 302.*

**ARCD 402. Architectural Design Studio VI.** 6 credits.

Final upper-level architectural design studio culminating in a thesis project. Complete student initiative across every phase of the project. *Prerequisite: ARCD 400.*

**ARCD 440. Professional Design Practices.** 3 credits.

Procedures and practices in the architectural design profession. *Prerequisite: ARCD 302 or permission of the instructor.*

**ARCD 470. Contemporary Design Theory.** 3 credits.

Seminar format class which explores influential ideas in contemporary design, including critical regionalism, postmodernism, minimalism, the neo-avant-garde, green design, Marxism and post-structuralism. *Prerequisite: ARCD 208 and ARTH 206.*

**ARCD 490. Independent Studies Architectural Design.** 1-3 credits, repeatable. *Offering varies.*

Independent activity, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with consent of the instructor.

**ARCD 491. Studio Assistant.** 1-3 credits, repeatable. *Offering varies.*

An on-campus program monitored on an individual basis designed to provide practical studio experience in the visual arts. Students will learn safe studio practices and management skills, including material use, inventory control and the proper operation of equipment found within various individual classroom studios. *Prerequisite: Permission of the instructor.*

**ARCD 492. Topics in Architectural Design.** 3 credits. *Offering varies.*

Study of selected topics in architectural design at the advanced level. May be repeated when course content changes. See MyMadison for current topics. *Prerequisite: ARCD 208.*

**ARCD 496. Internship.** 0 credits.

An off-campus program prepared and monitored on an individual basis. Internships are designed to provide practical experience in professional design settings. *Prerequisite: Permission of the instructor.*

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## Art

All ART courses, with the exception of ART 200, are restricted to declared art, art history, graphic design, architectural design and industrial design majors during the fall and spring semesters. During May and summer sessions, ART courses are open to all students who meet the additional stated course prerequisites. Non-majors wishing to enroll in an ART course during fall and spring semesters may request the permission of the instructor.

**ART 102. Two-Dimensional Design (0, 6).** *3 credits.*

Application and appreciation of the principles and elements of design, with emphasis on line, form, color and texture as applied to two-dimensional space.

**ART 104. Drawing I (0, 6).** *3 credits.*

An introductory course composed of problems in landscape, perspective, figure and still-life in several media.

**ART 106. Three-Dimensional Design (0, 6).** *3 credits.*

A course exploring the basic problems in three-dimensional design.

**ART 108. Drawing II (0, 6).** *3 credits.*

A continuation of ART 104 involving more complex problems with emphasis on composition and expressive possibilities of a variety of media including ink, pencil, conte, charcoal and experimental materials. *Prerequisite:* ART 104.

**ART 200. Art in General Culture.** *3 credits. Offered fall and spring.*

An exploratory course that aims to develop a non-technical, general cultural understanding of the space arts, such as architecture, painting, sculpture and industrial design. Emphasis is on the contemporary. May be used for general education credit.

**ART 205. Professional Practices in Art.** *3 credits.*

A required course for studio art majors focused on the exploration and exchange of ideas related to embarking on a studio career. Contemporary issues and responsibilities faced by emerging artists are emphasized. Students will investigate various visual art disciplines offered by JMU, write an artist's statement, and construct a website and digital portfolio. *Corequisites:* ART 102 and ART 104.

**ART 220. Introductory Ceramics: Potter's Wheel (0, 9).** *3 credits.*

Explores the aesthetics, conceptualization and design of functional objects. Investigates tactility and the process of realizing form and the effective use of the wheel as a creative tool. Introduces historic and contemporary approaches, firing techniques and glaze application. *Prerequisites:* ART 102, ART 104 and ART 106.

**ART 222. Introductory Ceramics: Handbuilding (0, 9).** *3 credits.*

Forming techniques will be explored for both vessel and sculptural work. Addresses construction concerns such as timing, structure and mass. Conceptual issues of hand-formation and ceramic sculpture discussed. Introduces historic and contemporary approaches, firing techniques and glaze application. *Prerequisites:* ART 102, ART 104 and ART 106.

**ART 230. Introduction to Fiber Processes (0, 9).** *3 credits.*

Introduction to and practice in basic weaving and other fiber arts. Emphasis will be placed on floor loom weaving and surface design on the fabric. *Prerequisites:* ART 102 and ART 104.

**ART 232. Introduction to Fiber Arts: Structures.** *3 credits.*

In this introductory level studio course, students develop skills and cultivate conceptual concerns related to the fibers medium related to structural forms. Traditional and experimental materials will be used to explore such techniques as knitting, crochet, looping, felting, offloom weaving and embroidery. Topics will include the historical relevance of fibers; its relationship to ideas such as labor and identity; and what textiles have to offer within the expanded field of contemporary art. *Prerequisites:* ART 102 and ART 104.

**ART 234. Introduction to Fiber Arts: Surfaces.** *3 credits.*

In this introductory level studio course, students develop skills and cultivate conceptual concerns related to the fibers medium related to surface design. Traditional and experimental materials will be used to explore such techniques as quilting, dyeing, piecing, shibori, dye printing and embroidery. Topics will include the historical relevance of fibers; its relationship to ideas such as labor and identity; and what textiles have to offer within the expanded field of contemporary art. *Prerequisites:* ART 102 and ART 104.

**ART 240. Metal and Jewelry (0, 9).** *3 credits.*

An introduction to designing and executing jewelry and related objects through various fabrication and finishing techniques, and the exploration of metal as a medium of personal aesthetic expression. *Prerequisites:* ART 102 and ART 104.

**ART 252. Introductory Painting (0, 9).** *3 credits.*

Introduction to basic materials and techniques in oil or acrylic painting. This class extends previous practice with design and drawing through introductory experiences in painting. *Prerequisites:* ART 102 and ART 104.

**ART 260. Introductory Photography: Black and White (0, 9).** *3 credits.*

A creative approach to photography with emphasis on understanding materials and techniques. (Students must provide a fully manual 35mm camera and a light meter which may be built into the camera or separate.) *Prerequisites:* ART 102 and ART 104.

**ART 270. Printmaking: Screenprint (0, 9).** *3 credits.*

An introduction to the history and techniques of screenprinting. Lectures, demonstrations and projects will involve photographic and nonphotographic

stencils, related digital processes and color registration. *Prerequisites:* ART 102 and ART 104.

**ART 272. Printmaking: Relief and Intaglio (0, 9).** *3 credits.*

An introduction to the history and techniques of relief and intaglio printing. Lectures, demonstrations and projects will involve oil based and water soluble inks, linocut, woodcut, wood engraving, collagraph, drypoint, engraving, line etching, aquatint, softground, color registration and related photographic processes. Formerly ART 354. *Prerequisites:* ART 102 and ART 104.

**ART 274. Printmaking: Lithography (0, 9).** *3 credits.*

An introduction to the history and techniques of lithography printing. Lectures, demonstrations and projects will involve stone and plate lithography, color registration and related photographic processes. *Prerequisites:* ART 102 and ART 104.

**ART 276. Introductory Book Arts: Materials and Structures.** *3 credits.*

This course offers students an opportunity to engage in the techniques, structures, tools, and materials used in creating artists' books. A broad range of studio practice will be explored as they examine the relationship of verbal, visual and structural content in books. Students will complete group and individual projects. *Prerequisites:* ART 102 and ART 104.

**ART 280. Sculpture (0, 9).** *3 credits.*

Problems in three-dimensional form using traditional and modern techniques. Processes of modeling in clay, mold making, casting, carving in wood and stone and welded metal sculpture are explored. *Prerequisite:* ART 106.

**ART 304. Methods of Art Criticism.** *3 credits.*

The practical analysis and interpretation of works of art through oral and written forms. Emphasis is on the practice of art criticism in public settings such as the school classroom, art museum and college art studio.

**ART/PHIL 305. Seminar in Aesthetics.** *3 credits.*

Readings and discussions in the persistent philosophical problems of the arts centering on consideration of the work of art, the artist and the audience. *Prerequisite:* ART 200, ARTH 205, ARTH 206 or PHIL 101.

**ART 320. Intermediate Ceramics: Molds & Casting (0, 9).** *3 credits.*

Mold-making systems and processes for ceramic slip casting and press molding. Conceptual issues of multiples, reproductions and material transformation discussed. Also suitable for students wanting to utilize molds with other materials in their artistic production. *Prerequisite:* ART 220 or ART 222.

**ART 322. Intermediate Ceramics: Surface Development (0, 9).** *3 credits.*

Research and experimentation with ceramic materials and finishes, glaze formulation, and application for finishing ceramic artwork. Forming processes may include any combination of the potter's wheel, handbuilding and mold making. *Prerequisite:* ART 220 or ART 222 or by permission.

**ART 330. Intermediate Fiber Processes (0, 9).** *3 credits.*

Introduction to surface design techniques such as painting and printing on fabric. Further work may be in this area (in which case no prerequisites apply) or in weaving or other fiber techniques. *Prerequisite:* ART 230 or permission of the instructor.

**ART 340. Intermediate Metal and Jewelry (0, 9).** *3 credits, repeatable.*

An intermediate course offering further exploration of metal as a medium of personal aesthetic expression as well as more advanced technical experience and experimentation. *Prerequisite:* ART 240.

**ART 350. Figure Drawing (0, 9).** *3 credits.*

An introductory course with problems stressing the fundamental skills, approaches and concepts involved in drawing the human figure. *Prerequisites:* ART 104 and ART 108.

**ART 352. Intermediate Painting.** *3 credits.*

Intermediate experiences in materials and techniques in oil, acrylic and non-traditional painting media. This class extends previous experiences introduced in ART 252, with a focus on developing a more personal iconography and content. A variety of materials, techniques, surfaces and philosophies of working are discussed in lecture, demonstration, and in both individual and group critique. *Prerequisite:* ART 252.

**ART 354. Watercolor (0, 9).** *3 credits.*

Study of and practice in transparent and opaque watercolor techniques. *Prerequisites:* ART 102 and ART 104.

**ART 360. Intermediate Photography: Digital (0, 9).** *3 credits.*

An intensive exploration of digital photography with an introduction to digital camera techniques, combinations of traditional and digital photographic methods, image manipulation and modes of output. *Prerequisite:* ART 260.

**ART 362. Intermediate Photography: Experimental Black and White (0, 9). 3 credits.**

Intensive exploration of advanced black and white photography using alternative cameras, pinhole, a variety of film speeds and papers and sequential concepts. *Prerequisite:* ART 260.

**ART 364. Intermediate Photography: Large Format (0, 9). 3 credits.**

An exploration of medium format and view camera techniques, film exposure and advanced black and white printing. *Prerequisite:* ART 260.

**ART/GRPH 375. Letterpress. 3 credits.**

This studio course offers students an opportunity to engage in the process and product of letterpress printing through various techniques and conceptual approaches. Instruction focuses on text and image relationships by integrating metal and wood type, and other type-high surfaces. Emphasis will be placed on the acquisition of skills and vocabulary and the creative use of type and image. The course will address the history of letterpress and its contribution to contemporary art and design. *Prerequisite:* ART 276; *Also for GRPH credit:* GRPH 208.

**ART/GRPH 376. Intermediate Book Arts: Concept, Content, Form. 3 credits.**

This course challenges the student to develop a limited edition hand-made artists' book. The appropriate format for each individual's concepts are identified, adapted, customized, applied and produced. Content development, book design, integration of various media and the functionality of various bookmaking materials are explored. We will consider the artists' book as a sculptural form and locate it within the broader context of contemporary writing and visual art. *Prerequisites:* ART 276; *ENG 391, ENG 392 or ENG 393. For GRPH credit:* GRPH 306.

**ART 380. Intermediate Sculpture (0, 9). 3 credits.**

A study in casting techniques for sculpture using the lost wax process. Foundry operations, cold cast methods, ceramic shell and fiberglass are also explored. *Prerequisite:* ART 280.

**ART 390. Independent Studies in Art. 1-3 credits.**

Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with the consent of the instructor.

**ART 392. Topics in Art. 3 credits.**

Study of selected topics in art at the intermediate level. May be repeated when course content changes. See MyMadison for current topics.

**ART 420. Advanced Ceramics: Portfolio Development (0, 9). 1-3 credits, repeatable.**

Self-directed, focused course of study with supervision of the instructor. This course is the culmination of ceramic study, resulting in a body of work suitable for exhibition and that is representative of the student's research and development. *Prerequisites:* ART 320 and ART 322 or permission of the instructor.

**ART 430. Advanced Fiber Processes (0, 9). 1-3 credits, repeatable.**

A series of fiber projects selected by the student with the approval of the instructor. *Prerequisite:* ART 330.

**ART 432. Digital Processes in Fibers(0, 9). 3 credits.**

In this upperdivision course, students develop skills and conceptual concerns pertaining to screenprinting. Additionally, this class surveys a range of digital technologies specifically applicable to fibers. Students will leave this course with the knowledge of several software interfaces, practical experience planning for image generation and a portfolio of advanced fibers work. *Prerequisite:* ART 230, 232 or 234.

**ART 434. Collaboration in Fiber Arts (0, 9). 3 credits.**

The course will examine social practice in fiber arts including art and activism, network art, Social Aesthetics, poststudio practices and Relational Aesthetics. This course will place a strong emphasis on contemporary examples of art and social practice. Through group activities, discussions, student led seminars and participatory projects, the class will work together to address contemporary issues in collaboration. *Prerequisite:* ART 230, 232, or 234.

**ART 440. Advanced Metal and Jewelry (0, 9). 1-3 credits, repeatable.**

A series of metal arts projects selected by the student with the approval of the instructor. *Prerequisite:* ART 340.

**ART 450. Advanced Figure Drawing. 1-3 credits, repeatable.**

An advanced drawing course stressing inventive and in-depth approaches to portraying the human figure. *Prerequisite:* ART 350.

**ART 452. Advanced Painting (0, 9). 1-3 credits, repeatable.**

Advanced problems in media selected by the student with the advice of the instructor. *Prerequisite:* ART 352.

**ART 454. Advanced Watercolor (0, 9). 1-3 credits, repeatable.**

Advanced problems in the use of watercolor and related water-based media. *Prerequisite:* ART 354.

**ART 460. Advanced Photography: Alternative Processes (0, 9). 3 credits.**

Advanced study in photography focusing on alternative processes and experimental approaches including non-silver 19th century techniques, Polaroid and liquid emulsion among others. *Prerequisite:* ART 360, ART 362 or ART 364.

**ART 462. Advanced Photography: The Prehistory of Photography, Magic and Illusion. 3 credits.**

An exploration of the culture and trends leading to the invention of photography, facilitating the formation of concepts and objects which create wonder. *Prerequisite:* ART 360, ART 362 or ART 364.

**ART 464. Advanced Photography: The Photograph as Document. 3 credits.**

An exploration of technical, conceptual and theoretical approaches to making documentary-based photographic work using film, digital or video cameras. *Prerequisite:* ART 360, ART 362 or ART 364.

**ART 466. Advanced Photography: Performance for the Lens. 3 credits.**

An exploration of technical, conceptual and theoretical approaches to making, staging and directing performance-based photographic work using film, digital or video cameras. *Prerequisite:* ART 360, ART 362 or ART 364.

**ART 468. Advanced Photography: Screen-Based Photo/Video. 3 credits.**

An exploration of technical, conceptual and theoretical approaches to making screen-based photographic projects culminating in a fully developed online presentation. *Prerequisite:* ART 362.

**ART 469. Photography: Portfolio Development (0, 9). 1-3 credits, repeatable.**

An intensive exploration in photography focusing on a theme or process that results in a cohesive body of work from a self-directed project and a written artist's statement. *Prerequisite:* ART 360, ART 362 or ART 364.

**ART 470. Advanced Printmaking (0, 9). 1-3 credits, repeatable.**

Advanced projects in printmaking to be determined by the student and instructor. *Prerequisite:* ART 270, ART 272 or ART 274 as appropriate.

**ART 480. Advanced Sculpture (0, 9). 1-3 credits, repeatable.**

Advanced study in sculpture focusing on projects chosen by the student in consultation with the instructor from an array of materials and processes used in contemporary sculpture. *Prerequisite:* ART 380.

**ART 490. Independent Studies in Art. 1-3 credits, repeatable.**

Independent activity, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with consent of the instructor.

**ART 491. Studio Assistant. 1-3 credits, repeatable.**

An on-campus program monitored on an individual basis designed to provide practical studio experience in the visual arts. Students will learn safe studio practices and management skills, including material use, inventory control and the proper operation of equipment found within various individual classroom studios. *Prerequisite:* Permission of the instructor.

**ART 492. Topics in Art. 3 credits. Offering varies.**

Study of selected topics in art, art history, graphic design or interior design at the advanced level. May be repeated when course content changes. See MyMadison for current topics.

**ART 493. Contemporary Art Theory. 3 credits.**

This is a reading, research and discussion seminar designed for upper level undergraduate and first-year graduate level studio art majors addressing historic and contemporary issues surrounding vision, the senses and aesthetics in the theory and practice of art.

**ART 494. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits.**

Introduction to the interdisciplinary studio through discussion of the history of interdisciplinary art and exposure to contemporary examples from dance, theatre, music, creative writing, visual art, film and video. Emphasis on production of original work that evidences the use of another media or collaborative work by artists from different disciplines. *Prerequisites:* Permission of the instructor(s) and advanced skill level in one or more of the creative arts.

**ART 495. Capstone Seminar: Three-Dimensional Art. 3 credits.**

A team-taught, intensive seminar for B.F.A. in studio art seniors with concentrations in metals/jewelry, ceramics, fibers or sculpture, or with an emphasis in integrated 3D. Capstone seminar is designed to be a transition into professional life, to help students organize and prepare themselves for graduation

and to provide opportunities to work with faculty on professional concerns beyond the studio. *Corequisite: ART 497.*

**ART 496. Internship in Art.** 1-8 credits.

A program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. *Prerequisites: Permission of the instructor and ARTH 394 if in museums and galleries.*

**ART 497. Capstone Studio: Three-Dimensional Art.** 3 credits.

An intensive studio for B.F.A. in studio art seniors with concentrations in metals/jewelry, ceramics, fibers or sculpture, or with an emphasis in integrated 3D. Working closely with their concentration adviser, students refine their artistic voice, build their portfolio and develop their senior thesis presentation. The course culminates in a professional-quality body of work ready for exhibition. *Corequisite: ART 495.*

**ART 499. Honors.** 6 credits total for three semesters (1, 3, 2).

## Art Education

**ARED 300. Elementary Art Education Methods (1, 4).** 3 credits.

A study of the aims, philosophy, management, and current methods of art education in elementary school with an emphasis on child growth and development in visual expression. Experiences include developing thematic lessons with art techniques and materials suitable from Kindergarten through grade five with emphasis on instructional art content, lesson plan preparation, teaching strategies, assessment of student learning, and professional dispositions. *Prerequisites: PSYC 160, EDUC 300 and permission of instructor.*

**ARED 302. Secondary Art Education Methods.** 3 credits.

The study of art education methods, philosophy and contemporary practices as they relate to public education secondary school and lifelong learning with adults. Experience with concepts and ideas relevant to secondary curriculum with a focus on instructional art content, lesson plan preparation, teaching strategies, assessment of student learning and professional dispositions. *Prerequisites: PSYC 160, EDUC 300 and permission of instructor.*

**ARED 390. Independent Studies in Art Education.** 1-3 credits.

Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with the consent of the instructor.

**ARED 392. Topics in Art Education.** 3 credits.

Study of selected topics in art education at the intermediate level. May be repeated when course content changes. See MyMadison for current topics.

**ARED 400. Visual Arts Across the Curriculum (1, 4).** 3 credits.

Explores ways in which the art teacher can promote relationships among art and other subjects within the public school curriculum. Emphasis will be placed on how art experiences can be used to teach skills and concepts associated with other subjects. Includes a range of intensive non-art classroom field experiences at the middle grade level. *Prerequisites: ARED 300, ARED 302, EDUC 300, PSYC 160 and permission of instructor.*

**ARED 480. Student Teaching.** 8 credits.

Enables students to apply, in the public school classrooms and the comprehensive child development programs, those skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors, students are provided activities designed to familiarize them with the classroom teacher's role. Two sections of student teaching are completed for a total of sixteen credits. Sections must include the elementary level and secondary level. *Prerequisite: ARED 300, ARED 302 and ARED 400, the appropriate education courses, and permission of the coordinator of field experiences.*

**ARED 490. Field Experiences in Art Education.** 1 credit.

Field experiences tied to the appropriate methods course at the elementary, middle, or high school levels under faculty supervision and an assigned cooperating teacher in the public schools. Practicum field experiences are arranged, approved, and directed by the methods course instructor in conjunction with the coordinator of field experiences. Offered only with the consent of the instructor. *Corequisites concurrent with the appropriate methods course: ARED 300, ARED 302 or ARED 400.*

**ARED 491. Studio Assistant.** 1-3 credits, repeatable.

An on-campus program monitored on an individual basis designed to provide practical studio experience in the visual arts. Students will learn safe studio practices and management skills, including material use, inventory control and the proper operation of equipment found within various individual classroom studios. *Prerequisite: Permission of the instructor.*

**ARED 496. Internship in Art Education.** 1-8 credits.

A program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. *Prerequisites: Permission of the instructor and ARTH 394 if in museums and galleries.*

## Art History

**ARTH 205. Survey of World Art I: Prehistoric to Renaissance.**

3 credits. Offered fall and spring.

An introduction to the art and architecture of the world from cave painting through European pre-Renaissance art. Includes ancient through medieval art in Europe and the Near East, as well as Asian and African arts. May be used for general education credit.

**ARTH 206. Survey of World Art II: Renaissance to Modern.** 3 credits.

Offered fall and spring.

Introduction to art and architecture of the world from the Renaissance through Modern ages. Includes European Renaissance, Baroque, Enlightenment, 19th and 20th centuries, as well as Asian and African arts. May be used for general education credit.

**ARTH 210. African Art and Culture in the Humanities.** 3 credits.

An interdisciplinary introduction to African art and culture with topics focusing on life ways, music, religion, philosophy, art, literature and cinema. This course provides a strong background for upper-division course work in the arts of African and the African Diaspora, as well as for students pursuing degrees in history and anthropology.

**ARTH 300. Art History Seminar.** 3 credits.

Exploration of various methodological approaches in the history of art, including connoisseurship, iconography, formalism, psychological studies and interpretations of art and society. Students will examine contrasting interpretations of major works of art. Seminar format. *Prerequisite: ARTH 205, ARTH 206 or permission of the instructor.*

**ARTH 303. History of Design.** 3 credits.

This course is an investigation into the domains of graphic and industrial design. The material will explore these disciplines through reading, lecture and an acquired visual literacy of the contextual, ideational and philosophic agendas.

**ARTH 304. History of Photography.** 3 credits.

A survey of photography as an art form from its discovery to the present day. Emphasis is on 20th-century developments and recent contemporary trends.

**ARTH 305. History of Decorative Arts.** 3 credits.

A history of the decorative arts in Europe and America from c. 1200 to c. 1930. This course provides a stylistic and contextual analysis, concentrating on domestic furnishings, including textiles, furniture, metals, ceramics and glass. *Prerequisite: ARTH 205 or ARTH 206.*

**ARTH 310. African Art: The Sahara and Northern Sahel.** 3 credits.

An introduction to the arts and cultures of northern and northwestern Africa. The diverse, rich heritage of Africa's arts will be explored through the major style areas of Saharan and northern sub-Saharan Africa including prehistoric rock arts, Egypt, northern Africa, Christian northeastern Africa and Islamic North Africa.

**ARTH 312. African Art: Sub-Saharan.** 3 credits.

A survey of the arts and cultures of sub-Saharan Africa, focusing on the major style areas of the continent. Coverage will include: the historic sites of Nigeria, the Guinea Coast, and central, eastern and southern Africa. *Prerequisite: ARTH 205 or ARTH 206.*

**ARTH 313. Masterpieces of Italian Renaissance Art.** 3 credits. (Semester in Florence only).

A survey of Italian Renaissance painting and sculpture (1280-1550), including the works of Giotto, Donatello, Masaccio, Fra Angelico, Botticelli, Leonardo and Michelangelo. Weekly visits to the Uffizi, San Marco, the Accademia and other Florentine museums.

**ARTH 314. Masterpieces of Spanish Art.** 3 credits. (Semester in Salamanca).

A survey of art in Spain from prehistoric cave painting through 20th-century art. Emphasis is given to 17th-18th century Baroque and modern artists including El Greco, Velasquez, Goya, Gaudi and Picasso. Visits to Altamira, the Alhambra, the Prado, Toledo, Santillana del Mar and other sites.

**ARTH 316. Masterpieces of British Art.** 3 credits. (Semester in London).

Survey of painting and sculpture in Britain (1530-1860) concentrating on 18th/19th-century painting. British art is viewed in the context of European civilization. Weekly visits to London museums including the Portrait Gallery, Sir John Soane's House, the Wallace Collection and the Tate Gallery.

**ARTH 320. Travel Study in Art History.** *3 credits.*

Art history credit is available to students participating in formal travel study programs with an emphasis on art history. Students maintain a journal with an emphasis on their art history experiences and write a research paper. *Prerequisites:* Permission of the program leader and art history coordinator.

**ARTH 322. Ancient Art.** *3 credits.*

A comparative study of major examples of art and architecture from the ancient world. Certain selected topics in pottery, painting and numismatic arts will be studied in depth. *Prerequisite:* ARTH 205.

**ARTH 332. Islamic Art and Architecture.** *3 credits.*

This course will consider art from the age of the prophet Muhammad through the sixteenth century. The political and cultural contexts in which Islamic art developed will lay the foundations for understanding later traditions. These may include the role of the mosque in Muslim society; calligraphy and illustrated books; palace building and the arts of luxury; and modes of figural representation, including issues of gender. *Prerequisite:* ARTH 205.

**ARTH 340. Early Medieval Art.** *3 credits.*

Survey of Early Christian, Hiberno-Saxon and Byzantine art 300-1200. Examines painting, mosaics, manuscripts illumination and the development of church design in Italy and the Byzantine World. Considers cross-fertilization of Pagan, Christian, Islamic and Barbarian arts in Western Europe in the Early Middle Ages. *Prerequisite:* ARTH 205.

**ARTH 346. Italian Renaissance Art.** *3 credits.*

A survey of the development of Italian Renaissance art and architecture 1300-1550, including the revival of classical art, the development of Humanism, the invention of perspective and the formation of the High Renaissance style. *Prerequisite:* ARTH 206.

**ARTH 360. Nineteenth Century Art.** *3 credits.*

A study of European art (1750-1890) concentrating on Neoclassicism, Romanticism, Realism, Impressionism and Post-Impressionism in France. *Prerequisite:* ARTH 206.

**ARTH 370. History of Interior Architecture.** *3 credits.*

Survey of the evolution of design in interiors from ancient to modern times with emphasis on period and furniture styles and architectural backgrounds.

**ARTH 372. Modern Art from 1900-1945.** *3 credits.*

A survey of European and American painting and sculpture from 1890 to the present day. Cubism and its off-shoots. Surrealism, American Abstract Expressionism, Pop art, Contemporary Conceptual art and Realism are among the movements studied. *Prerequisite:* ARTH 206.

**ARTH 376. Modern Architecture.** *3 credits.*

Survey of architecture from 1851 to the present day. Thematic investigations will include regional, philosophical and technical developments in architectural space. Architects may include Labrouste, Berlage, Wagner and Richardson, through Wright, Mies, Le Corbusier, to the avant-garde Murrutt, Siza, Nouvel and Mockbee. *Prerequisite:* ARTH 206.

**ARTH 380. American Art to 1870.** *3 credits.*

American painting, sculpture, architecture and decorative arts from the Colonial period through 1870. Topics will include Colonial portraiture, African-American aesthetics, the definition of folk art, nationalism and landscape painting, and the question of American exceptionalism. The course will also introduce students to problems of interpretation in current scholarship. *Prerequisite:* ARTH 206.

**ARTH 382. American Art from 1870.** *3 credits.*

American painting, sculpture, architecture and decorative arts from 1870 to 1945. This course will address topics such as the American Renaissance, the Harlem Renaissance, Chicago School architecture, masculinity in Western American art, notions of decay in turn-of-the-century art and American modernism. It will also introduce methodological debates in current scholarship. *Prerequisite:* ARTH 206.

**ARTH 389. Topics in Art History.** *3 credits.*

Study of selected topics in art, art education, art history, graphic design, interior design or industrial design at the intermediate level. May be repeated when course content changes. See MyMadison for current topics.

**ARTH 390. Independent Studies in Art History.** *1-3 credits.*

Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with the consent of the instructor.

**ARTH/HIST 394. Introduction to Museum Work.** *3 credits.*

A study of the philosophy and practice of museum work including the areas of exhibit design, conservation registration, education and administration. Subject is taught from the perspective of the museum profession and is applicable to diverse discipline and types of collections.

**ARTH/HIST 396. Introduction to Public History.** *3 credits.*

An introduction to the varied and interdisciplinary "field" of public history, such as community/local history, historic preservation, archives, historical archaeology, museum studies, business and policy history, documentary editing and publishing, and documentary films, through readings, class discussions, occasional guest speakers, and occasional field trips.

**ARTH 403. Topics in Italian Art.** *3 credits. (Semester in Florence only).*

Topics in Italian art may include studies of major artists or themes of Italian art, design and architecture from ancient times to the present. Topics may include the history of conservation and restoration, food culture and its representations or Italian cinema. May be repeated when course content changes.

**ARTH/HIST 406. Monticello.** *3 credits.*

A seminar on the architecture and material culture of Thomas Jefferson's Monticello. The course will examine the house's design, artwork, decorative arts, mechanical devices, landscape/garden design and Mulberry Row. Topics will include African-American artisans at the Monticello joinery, Jefferson's Indian Hall and European and African-American domestic life in the Federal Period. Required field trips.

**ARTH/HIST 408. The Museum: Histories and Controversies.** *3 credits.*

This seminar centers on art museums in the United States. Topics include the historical development of museums, related cultures of display, recent debates on institutional mission and responsibility, and contemporary artists who employ the museum as medium, subject matter or site. Required field trips. *Prerequisite:* ARTH 206.

**ARTH 410. African Art: The Sahara & Northern Sahel.** *3 credits.*

An introduction to the arts and cultures of northern and northwestern Africa. The diverse, rich heritage of Africa's arts will be explored through the major style areas of Saharan and northern sub-Saharan Africa including prehistoric rock arts, Egypt, northern Africa, Christian northeastern Africa and Islamic North Africa. *Prerequisite:* ARTH 205 or ARTH 206, or permission of the instructor.

**ARTH 418. Modern and Contemporary African Art.** *3 credits.*

This course examines the rise of Modern and Contemporary art movements throughout Africa, from 1959 to the present. As colonial influence diminished, important artists, art schools and exhibition tactics have emerged. Developments in painting, sculpture, photography, video and film illustrate the tensions and triumphs of contemporary African nations. Course work centers on a substantial research paper based on primary source material. Additional assignments required for graduate level course.

**ARTH 419. Topics in African Art.** *3 credits. Offering varies.*

Topics in African art will deal with the current thematic or methodological issues such as contemporary African arts and artists, arts of the African Diaspora, a particular media (such as architecture or the textile arts), portraiture and identity, the royal arts of Africa, African film and performance, or gender in the arts of Africa. See MyMadison for current topics. *Prerequisite:* ARTH 205, ARTH 206 or ARTH 210.

**ARTH 424. Arts of Ancient Egypt.** *3 credits.*

A study of the arts and culture of Ancient Egypt (c. 3000 B.C. to c. 300 B.C.). This course will focus on the art and architecture of the Old and New Kingdoms and also examine the enduring fascination with this unique artistic heritage from the excavations of Napoleon to the present. *Prerequisite:* ARTH 205 or ARTH 206.

**ARTH 430. Far Eastern Art.** *3 credits.*

A survey of East Asian art from prehistoric times to 19th century colonialism. Emphasis is on the areas of major production: India, China and Japan, with less attention to such centers as Cambodia, Siam and Korea. *Prerequisite:* ARTH 205 or ARTH 206.

**ARTH 439. Topics in Medieval Art.** *3 credits. Offering varies.*

Topics in Medieval Art may include the study of major buildings and artistic monuments in the medieval Mediterranean and in Western Europe, art in service of empire building, medieval audiences and modes of reception, and the afterlives of monuments into the contemporary period. *Prerequisite:* ARTH 205.

**ARTH 442. Art of Later Middle Ages.** *3 credits.*

A study of Western European arts and architecture in the later Middle Ages with concentration on Romanesque and Gothic styles (1000-1400). Examines church construction and allied arts around the millennium and the development

of Gothic architecture, sculpture and painting in France, Italy and England. *Prerequisite: ARTH 205.*

**ARTH 444. Gothic and Gothic Revival Architecture.** 3 credits.

Survey of Gothic architecture in France, England and Italy 1150-1500 and its influence in England and America 1750-1910. Examines the design of major cathedrals and regional European Gothic styles. Explores their influence upon Walpole, Pugin, Ruskin and other champions of Gothic Revival. *Prerequisite: ARTH 205 or ARTH 206.*

**ARTH 446. Renaissance Art and the East.** 3 credits.

This seminar explores artistic exchange between the Christian west and competing cultures in the east from c. 1250-1600, focusing on the powers of Italy and their interaction with the Islamic dynasties, the Mamluks of Egypt and the Ottomans in Turkey, as well as the Christian state of Byzantium. Special topics of interest may include palace architecture and imperial ceremony; urban planning; portraiture and caricature; the exchange of luxury goods; and the use of art as a diplomatic tool. *Prerequisite: ARTH 206 or a course in medieval and renaissance studies.*

**ARTH 448. Studies in Leonardo and Michelangelo.** 3 credits.

Seminar that examines the artworks of Leonardo da Vinci and Michelangelo Buonarroti. Discusses issues such as the artist's creative process, the development of the artist's style, the patron's role in artwork and inter-relationships between the artist's visual and literary works. *Prerequisite: ARTH 206.*

**ARTH 449. Topics in Renaissance Art.** 3 credits. *Offering varies.*

Topics in Renaissance art may include studies of major Italian or Northern Renaissance artists, the development of linear perspective, the Renaissance tomb chapel, or art and politics of the Protestant Reformation. *Prerequisite: ARTH 206.*

**ARTH 450. Baroque Art.** 3 credits.

A survey of European art and architecture of the 17th century. This course will focus on Baroque art and its cultural context in Italy, France, Britain and Holland. *Prerequisite: ARTH 206.*

**ARTH 452. Eighteenth Century Art.** 3 credits.

Survey of the major European artistic movements of the 18th century. This course will focus on the development of the Rococo and Neo-classical styles in architecture, sculpture and painting. *Prerequisite: ARTH 206.*

**ARTH 459. Topics in Seventeenth and Eighteenth Century Art.** 3 credits. *Offering varies.*

Topics in this course may include studies of particular artists such as Rembrandt, Caravaggio or Watteau, studies of particular styles such as the Rococo or thematic studies such as the history of garden design or the development of art theory. See MyMadison for current topics. *Prerequisite: ARTH 205, ARTH 206 or a course in medieval and renaissance studies.*

**ARTH 460. Nineteenth Century Art.** 3 credits.

A study of European art (1750-1890) concentrating on Neoclassicism, Romanticism, Realism, Impressionism and Post-Impressionism in France.

**ARTH 464. Romanticism and Enlightenment.** 3 credits.

This seminar examines European art of the Romantic period, c. 1770-1830. Course themes include the representation of nature, art and the emergence of the nation-state, sensibility and the rise of historicism. In addition to visual culture, attention will be devoted to significant philosophical and literary texts from the period. *Prerequisite: ARTH 205 or ARTH 206.*

**ARTH 466. Art and Nationalism.** 3 credits.

Advanced seminar examining the intersection between art and nationalism from the late-eighteenth century to the present. Topics may include propaganda, monuments and the construction of national memory. Particular attention will be devoted to the shifting nature of commemorative practice throughout the modern period. *Prerequisite: ARTH 205 or ARTH 206.*

**ARTH 469. Topics in Nineteenth Century Art.** 3 credits. *Offering varies.*

Topics in nineteenth century art may include studies of major artists, such as Caspar David Friedrich or Edouard Manet, specific artists groups like the pre-Raphaelite brotherhood, or thematic issues such as the relationship between art and nationalism. See MyMadison for current topics. *Prerequisite: ARTH 206.*

**ARTH 471. Commemoration and Controversy: Public Art in America.** 3 credits.

This course examines the socio-historical, political, cultural and philosophical dimensions of public art in American society, from the Early Republic to the present day. Topics may include: the nature of public art, its uses and functions, as well as civic and official attitudes towards art in the public sphere. Issues of censorship, propaganda, and the "culture wars" of the 1980s and 90s will be highlighted. *Prerequisite: ARTH 206.*

**ARTH 472. Modern Art Since 1945.** 3 credits.

A study of the many developments and trends in American and European art since 1945. This course will focus on such movements as abstract expressionism, pop, conceptual art, installation art, video, film and computer art with an understanding of the theoretical basis of those movements and the development of the art market during this period. *Prerequisite: ARTH 206.*

**ARTH 474. The New Media and Contemporary Art.** 3 credits.

Advanced seminar that addresses the impact of cultural politics and technology on how we make, evaluate and "speak" about art. Focus on a variety of media including video, multi-media installations, conceptual art, computer generated imagery, virtual "reality," contemporary film and digital photography. *Prerequisite: ARTH 372 or ARTH 472.*

**ARTH 479. Topics in Twentieth Century Art.** 3 credits. *Offering varies.*

Topics in twentieth century art may include studies of contemporary painters (i.e., Gerhard Richter), sculptors (i.e., Kiki Smith or Mona Hatoum), performance and video artists (i.e., Bill Viola) or thematic issues such as the relationships between art, technology and gender/racial politics. See MyMadison for current topics. *Prerequisite: ARTH 372 or ARTH 472.*

**ARTH 484. Art of the Americas.** 3 credits.

Art of indigenous peoples in the Americas (Meso, Central, South and /or North) before European contact. The course will examine domestic and state architecture, painting, textiles, ceramics, metalwork, and earthworks within the context of geographic, state, religious and social issues. Other topics include museum display, repatriation and western taxonomies.

**ARTH/AFST 488. African-American Art.** 3 credits.

This course examines visual arts produced by people of African descent in the United States from the colonial period until the present. Course themes include debates about the relationship between racial identity and artistic production; the complex interchange between African-American art and the cultural traditions of Africa and Europe; black artists' engagement with popular representations of African-Americans; and the intersection of race with class, gender and sexuality. *Prerequisite: ARTH 206 or AFST 200.*

**ARTH 489. Topics in Art History.** 3 credits. *Offering varies.*

Study of selected topics in art history at the advanced level. May be repeated when course content changes. See MyMadison for current topics.

**ARTH 490. Independent Studies in Art History.** 1-3 credits, *repeatable.* *Offering varies.*

Independent activity, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with consent of the instructor.

**ARTH 491. Exhibition Seminar.** 3 credits.

Advanced seminar explores museum theory and practice through the collaborative design of an exhibition for an on-campus gallery space. The course focuses on developing and researching the exhibition topic, investigating the specific art objects and preparing critical educational materials or catalogue. The class project also includes mounting the exhibit in a real or virtual installation space. *Prerequisite: ARTH 205 or ARTH 206.*

**ARTH/ANTH/HIST 492. Material Culture.** 3 credits.

A broad introduction to the multidisciplinary "field" of material culture studies through readings, written assignments, in-class exercises and field trips. The course introduces ways of looking at and learning from objects and examines how scholars from several disciplines have used material culture in their work. *Prerequisite: HIST 395. Instructor's permission required to waive HIST 395 prerequisite for non-history majors.*

**ARTH/HIST 493. Historic Preservation.** 3 credits.

An introduction to the philosophy and techniques of historic preservation, guidelines for restoration, state and national register forms and procedures, historic architecture, structural analysis, restoration techniques, as well as the business aspects of historic preservation projects. Field trips are a major component of the course. *Prerequisite: HIST 395. Instructor's permission required to waive HIST 395 prerequisite for non-history majors.*

**ARTH 495. Internship in Art History.** 1-3 credits.

An off-campus program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. *Prerequisites: Permission of the instructor and ARTH 394 if in museums and galleries.*

**ARTH 499. Honors.** 6 credits total for three semesters (1,3,2).

## Astronomy

### ASTR 120. The Solar System. 3 credits.

An introductory course in astronomy, which includes the following topics: motions of celestial objects, eclipses, historical development, the nature of light, telescopes, properties and evolution of the solar system. May be used for general education credit.

### ASTR 121. Stars, Galaxies and Cosmology. 3 credits.

An introductory course in astronomy which includes the following topics: the Sun, stellar properties, stellar evolution, black holes, the Milky Way, galactic evolution, quasars, cosmology. May be used for general education credit.

### ASTR 220. General Astronomy I: The Night Sky, the Solar System and Stars. 3 credits.

ASTR 220 is the first in a two-course sequence in general astronomy intended for students with a background in physics. Topics covered include: appearance and movements of the night sky; astronomical coordinate systems and timekeeping; seasons, eclipses and planetary configurations; planetary motions and gravitation; fundamental forces; electromagnetic radiation and its detection; content, structure, formation and evolution of solar system; observations and models of the Sun, stellar interior models; stellar magnitudes and spectra, classifications; Hertzsprung-Russell diagram. *Prerequisite: PHYS 140 or PHYS 240.*

### ASTR 221. General Astronomy II: Star Systems, the Interstellar Medium and Cosmology. 4 credits.

ASTR 221 is the second in a two-course sequence in general astronomy intended for students interested in science. Topics covered include: stellar evolution; variability and high-energy phenomena in stars and multiple-star systems; content, structure, and dynamics of the Milky Way; external galaxies, quasars and AGN; large-scale structure and the distance scale of the universe; the Big Bang model and alternative cosmologies, possible geometries and eventual fates of the universe. An observational astronomy laboratory component is part of this course. The lab component will cover basics of telescope set up and operation as well as astronomical coordinate systems. *Prerequisite: ASTR 220.*

### ASTR 297. Topics in Astronomy. 1-4 credits.

Topics in astronomy at the second year level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite: Permission of the instructor.*

### ASTR 301. Searching for Life in the Universe. 3 credits.

A study of the search for life in the universe, with emphasis on teacher preparation. Topics include how life on earth can guide the search, conditions for life within our solar system, extrasolar planets that may be conducive to life, possible radio communications with other civilizations and technologies necessary for search. Significant time is spent developing student lesson plans. *Prerequisites: ISCI 171 and ISCI 172.*

### ASTR 320. Astronomical Techniques. 3 credits.

An overview of modern astronomical techniques with an emphasis on quantitative data collection and analysis. The design and use of various astronomical devices will be covered. Topics will include visible light telescopes and radio telescopes as well as CCD data collection in addition to other current astronomical techniques. Data reduction software will also be addressed. *Prerequisites: ASTR 220 and ASTR 221.*

### ASTR/PHYS 330. Relativity. 4 credits.

This course is a continuation of topics from mechanics, thermodynamics and statistical mechanics, electricity and magnetism, and quantum mechanics. The course may include topics from mechanics (Lagrangian dynamics, rigid body motion), electricity and magnetism (solution of Maxwell's equations in the presence of matter), thermodynamics and statistical mechanics (dynamical statistical mechanics) and quantum mechanics (beyond the hydrogen atom). *Prerequisites: PHYS 260 and MATH 237, or permission of instructor.*

### ASTR 397. Topics in Astronomy. 1-4 credits.

Topics in astronomy at the intermediate level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite: Permission of the instructor.*

### ASTR/PHYS 398. Independent Study in Physics or Astronomy. 1-3 credits, repeatable to 4 credits.

An individual project related to some aspect of physics or astronomy. Must be under the guidance of a faculty adviser. A student may not earn more than a total of four credits for ASTR/PHYS 398.

### ASTR 480. Astrophysics. 3 credits.

An introduction to the problems of modern astronomy and the quantitative application of physical principles to these problems. Topics of study include stellar structure and evolution, the interstellar medium and star formation, cosmic rays, pulsars, galactic structure, extragalactic astronomy and cosmology. *Prerequisites: PHYS 340 and PHYS 380.*

### ASTR 497. Topics in Astronomy. 1-4 credits.

Topics in astronomy at the advanced level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite: Permission of the instructor.*

### ASTR/PHYS 498R. Undergraduate Research in Physics or Astronomy. 1-4 credits, repeatable to 6 credits.

Research in a selected area of physics or astronomy as arranged with a faculty research adviser. A student may not earn more than a total of six credits for ASTR/PHYS 498R. *Prerequisite: Proposal for study must be approved prior to registration.*

## Athletic Training Program

### ATEP 205. Introduction to Athletic Training (2, 2). 3 credits. Offered fall, spring and summer.

This course provides a broad introduction to the profession of athletic training. Lectures will focus on the domains of athletic training. Emphasis will be placed on basic emergency management as well as injury prevention including environmental issues, strength and conditioning, and selection of equipment. Laboratory will mirror lecture. *Prerequisite: ATEP or HS major, coaching minor, or permission of the instructor.*

### ATEP 206. Recognition and Management of Athletic Injuries. 3 credits. Offered spring and summer.

Building on the concepts learned in ATEP 205, the course will emphasize the recognition of common athletic injuries. Pathology, mechanisms of injury, signs and symptoms, evaluation findings, and basic management of injuries will be explored. Athletic injuries of special populations will also be addressed. *Prerequisites: BIO 290 and ATEP 205 with a grade of "C" or better.*

### ATEP 291. Pre-Professional Practicum in Athletic Training. 2 credits. Offered spring.

This course is designed to help students better understand the duties and responsibilities of the athletic trainer. By focusing on psychomotor skills and the application of didactic knowledge, students build a foundation which prepares them for future clinical rotations. *Prerequisite: Permission of the instructor.*

### ATEP 304A. Lower Quarter Evaluation (2, 2). 3 credits. Offered fall.

This course systematically focuses on orthopedic and neurological evaluation including functional testing of athletic injuries. The lower quarter consists of the lower extremity, pelvis and lumbar spine. Other topics include management of internal injuries and sudden death related to athletic participation. *Prerequisites: ATEP 206 and admission to the clinical component of the athletic training curriculum.*

### ATEP 304B. Upper Quarter Evaluation (2, 2). 3 credits. Offered spring.

This course systematically focuses on orthopedic and neurological evaluation including functional testing of athletic injuries. The upper quarter consists of the upper extremity, head, neck and thorax. Other topics include management of crisis situations and facial injuries related to athletic participation. *Prerequisite: ATEP 304A.*

### ATEP 305. Rehabilitation in Athletic Training: Lower Extremity (2, 2). 3 credits. Offered spring.

This course explains the rehabilitation process of lower extremity muscular and joint injuries related to athletic activities. Additional topics include rehabilitation facility design, budget preparation and pre-season assessment. *Prerequisite: BIO 290 and admission to the clinical component of the athletic training curriculum.*

### ATEP 306. Therapeutic Modalities (3, 2). 4 credits. Offered fall.

This course provides a thorough overview of tissue injury, inflammatory response, healing process and neurophysiology applied to musculoskeletal injuries. Theory, application and clinical decision-making processes using therapeutic modalities during rehabilitation will be emphasized. Documentation, purchasing and maintenance are also addressed. *Prerequisites: ATEP 206 and admission to the clinical component of the athletic training curriculum.*

### ATEP 307. Acute Care of Injuries and Illnesses. 3 credits. Offered fall.

This course is designed for student athletic trainers to meet the educational competencies for national accreditation in the following areas: development

of risk management/emergency action plans, primary assessment of athletic injuries, emergency care of athletic injuries, immediate care of spine injuries, prevention of injuries associated with the physically active, utilization of diagnostic tools and an overall understanding of protective equipment. *Prerequisite: Admission to clinical component of athletic training curriculum.*

**ATEP 350. Measurements and Testing in Athletic Training.** 2 credits. Offered fall.

The purpose of this course is to introduce and develop proficiency with measurement techniques frequently used in athletic training. Students will learn clinical evaluation techniques such as manual muscle testing, goniometry, volumetric measurements and girth measurements. How these measures are used in research will also be presented. *Prerequisite: Admission to clinical component of athletic training curriculum.*

**ATEP 355. Infectious Disease Control.** 1 credit. Offered spring.

Discussion includes theories of origins, statistics and characteristics of the causative pathogen, incubation, illness patterns, transmission, prevention and treatment of infectious and noninfectious disease. Emphasis is placed on STDs, HIV, Hepatitis and OSHA regulations. *Prerequisite: Admission to clinical component of athletic training curriculum.*

**ATEP 376. Pharmacology for Athletic Trainers.** 2 credits. Offered fall.

This course is designed for students to understand knowledge, skills and values that an entry-level certified athletic trainer must possess in pharmacological applications, including awareness of the indications, contraindications, precautions and interactions of medications, and the governing regulations relevant to physically active individuals. *Prerequisite: Admission to clinical component of athletic training curriculum.*

**ATEP 377. General Medicine in Athletic Training.** 2 credits. Offered spring.

This course is designed for students to understand knowledge, skills and values that an entry-level certified athletic trainer must possess in order to recognize, treat and refer when dealing with general medical conditions and disabilities related to athletes or others involved in physical activity. *Prerequisite: Admission to clinical component of athletic training curriculum.*

**ATEP 378. Assessment Skills in Athletic Training.** 1 credit. Offered spring.

The purpose of this course is to develop knowledge and assessment skills related to general medical conditions. In addition, this course will cover body composition, bone density and quality of life outcome measurement tools. *Prerequisite: admission to clinical portion of athletic training education program. Corequisite: ATEP 377.*

**ATEP 392. Level II Practicum in Athletic Training.** 3 credits. Offered fall.

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies and professional journals are included in course content. Sport specific activities and clinical applications involving palpation and wound care are key components of this course. August preseason orientation and clinical participation required. *Prerequisite: Admission to clinical component of athletic training curriculum.*

**ATEP 393. Level III Practicum in Athletic Training.** 2 credits. Offered spring.

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies and professional journal are included in course content. Sport specific activities and clinical applications involving manual muscle testing and equipment fitting are key components of this course. *Prerequisite: ATEP 392.*

**ATEP 405. Rehabilitation in Athletic Training: Upper Extremity.** 3 credits. Offered fall.

This course explains the rehabilitation process of upper-extremity muscular and joint injuries related to athletic activities. Additional topics include prevention of athletic injuries and aquatic rehabilitation. *Prerequisite: ATEP 305.*

**ATEP 406. Organization and Administration in Athletic Training.** 3 credits. Offered spring.

This course is an overview of managerial issues including legal concerns, OSHA guidelines, budgeting/purchasing and staffing. In addition, this course provides a variety of experiences culminating in the knowledge and skills needed to meet entry-level competencies set by the National Athletic Trainers' Association. *Prerequisite: Permission of the instructor.*

**ATEP 494. Level IV Practicum in Athletic Training.** 2-3 credits. Offered fall.

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies, and professional journal are included in course content. Sport specific activities and

clinical applications involving orthopedic testing and emergency internal abdominal/chest evaluation are key components. *Prerequisite: ATEP 393.*

**ATEP 495. Level V Practicum in Athletic Training.** 2 credits. Offered spring.

This course focuses on clinical performance and application of didactic knowledge. Clinical rotations, clinical competencies, inservices, case studies and professional journal are included in course content. Sport specific activities and clinical applications involving cranial nerve assessment and neurological evaluation are key components of this course. *Prerequisite: ATEP 494.*

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## Biology

**BIO 103. Contemporary Biology (3, 0).** 3 credits.

An in-depth exploration of selected biological concepts connected to current, relevant topics and emphasizing an understanding of science as a way of obtaining knowledge. Not available for major or minor credit in biology or biotechnology. Students may not receive credit for both ISCI 103 and BIO 103. May be used for general education credit. May not be used for major credit.

**BIO 110. Freshman Symposium in Biology.** 1 credit.

Orientation to the program for freshman or transfer biology and biotechnology majors. Course includes introduction to the biology/biotechnology curriculum, how to access library resources, how to read and write scientifically, time management and study skills, how to access campus student resources, how to become involved in undergraduate research and discussion of biology career options. Available for university elective credit, but not biology or biotechnology major credit. Offered as a credit/no-credit only.

**BIO 114. Organisms (3, 3).** 4 credits.

An exploration of how diverse life forms carry out fundamental processes that sustain life, including acquiring and using essential molecules, growing and reproducing, responding to environmental stimuli and maintaining a stable internal environment. Labs will introduce students to the scientific method in a series of investigative lab and field experiences. Biology and biotechnology majors receive registration priority in the fall. May be used for general education credit.

**BIO 124. Ecology and Evolution (3, 3).** 4 credits.

In this course students will learn about variation within populations, the mechanisms of evolution, phylogeny and classification, population and community ecology, animal behavior and ecosystems dynamics. Labs will include investigations in laboratory and field settings. *Prerequisite: Grades of "C-" or better in BIO 114, GEOL 110, GEOG 210 or ISAT 112.*

**BIO 140. Foundations of Biology I (3,3).** 4 credits.

The foundations of the cellular molecules, structures and processes that sustain life in the contexts of evolution will be explored. Topics will include structure and function; information flow, storage and exchange; pathways and transformations of energy and matter; and systems biology. The lab experience will allow students to participate in science as it is practiced and will prepare students to be scientifically and quantitatively literate.

**BIO 150. Foundations of Biology II (3,3).** 4 credits.

Foundations II focuses on the diversity of life, anatomy and physiology of organisms, and ecological organization in an evolutionary context. This class will explore structure and function; how information is transmitted; transformations of energy and matter; and how biological units act as integrated systems. The process of science, interdisciplinary approaches and the relevance of biology to society will be addressed. The research-based lab experience will emphasize core competencies of science. *Prerequisite: Grade of "C-" or better in BIO 140.*

**BIO 201. Trelawny Learning Community Seminar.** 1 credit.

Introduction to the biology major and biological research for first-year students in the Trelawny Learning Community. In addition to lab/field work with faculty or graduate students for 2-3 hours per week, students attend a weekly seminar. Seminar includes research skill and team-building exercises, guest speakers and case studies geared toward a career in science. Faculty and students interact with community members to provide perspectives on the major and research in a scientific network. *Prerequisite: Membership in the Trelawny Learning Community. Corequisite: BIO 114 or BIO 140.*

**BIO 202. Trelawny Learning Community Seminar II.** 2 credits.

The second part of the research skills seminar for first-year students in the Trelawny Learning Community. Students will have already begun research projects during fall semester, and will continue their projects into spring semester while continuing to build research skills. Students will take part in community,

campus, and social events and gain experience helping to run a research-based event. *Prerequisite: BIO 201. Corequisite: BIO 124.*

**BIO 203. Viral Discovery (0, 4).** 2 credits.

An exploratory laboratory experience, designed for incoming freshmen. Students will learn about the life cycle and ecology of viruses infecting bacteria. Soil samples will be collected, and techniques for isolation and purification of the viruses will be performed by the students. Isolated viruses will be visualized using electron microscopy. The genomic material will be isolated and prepared for nucleic acid sequencing.

**BIO 204. Viral Genome and Bioinformatics (0, 4).** 2 credits.

A computer-based laboratory experience, designed for students completing the Viral Discovery course. Students will learn to identify genes in a viral genome, compare the predicted proteins with known proteins in databases, describe the contents of the genome and notate all the relevant information for publication. Students will also research the role of bacteriophages in ecology and evolution. *Prerequisite: BIO 203 or ISAT 203.*

**BIO 214. Cell and Molecular Biology (3, 3).** 4 credits.

Students will explore the physiology, metabolism and reproductive biology of prokaryotic and eukaryotic cells. Topics will include the structure and function of macromolecules, theoretical and mechanistic aspects of metabolism, bioenergetics and signal transduction. Labs will include investigations that introduce students to various biochemical techniques. *Prerequisites: Grades of "C-" or better in BIO 114 and CHEM 131. Students not meeting these prerequisites prior to the start of classes will be administratively dropped.*

**BIO 222. Interdisciplinary Biology for Engineering and Physical Sciences (3, 0).** 3 credits.

Case studies and an issues-based approach will provide a framework to understand the science of biology, to stimulate critical thinking, and to appreciate the interdisciplinary nature of biological investigations. This interdisciplinary biology course is intended for students who have at least sophomore status and who are physical science, engineering or mathematics majors. This course is not available for credit toward the major or minor in biology or biotechnology. May be used for general education credit. *Prerequisite: MATH 231 or MATH 235.*

**BIO 224. Genetics and Development (3, 3).** 4 credits.

The final course in the introductory series will explore how genetic information is utilized throughout the lifetime of the organism. Labs will make use of common model organisms highlighting the growing base of knowledge on the genetics and molecular biology of developmental processes. *Prerequisite: Grade of "C-" or better in BIO 140 or BIO 214.*

**BIO 226. Introductory Topics in Biology (Variable).** 1-4 credits.

Introductory studies in specific areas of biology. May be repeated for credit when course content changes.

**BIO 240. Genetics (3,3).** 4 credits.

Students will explore how genetic information is utilized throughout the lifetime of the organism. Labs will make use of common model organisms highlighting the growing base of knowledge on the genetics and molecular biology of developmental processes. *Prerequisite: Grade of "C-" or better in BIO 140.*

**BIO 245. General Microbiology (2, 4).** 4 credits.

A study of the structure and function of microorganisms and their relationship to humans and to the environment. Credit may not be earned in both BIO 280 and BIO 380. *Prerequisite: BIO 140. Corequisite: CHEM 131.*

**BIO 246. Microbiology Seminar.** 1 credit.

Seminars, readings and discussions of the primary scientific literature with a focus on the current research in the field of microbiology. *Prerequisite: BIO 140 and declared microbiology concentration.*

**BIO 250. Ecology and Evolution (3,3).** 4 credits.

Students will learn about variation within populations, the mechanisms of evolution, phylogeny and classification, population and community ecology, animal behavior and ecosystems dynamics. Labs will include investigations in laboratory and field settings. *Prerequisite: Grade of "C-" or better in BIO 150, GEOL 110, GEOG 210 or ISAT 112.*

**BIO 270. Human Physiology (3, 2).** 4 credits.

An introduction to basic physiological principles using humans as the primary organism. Physiological adaptations will be examined at the molecular through organismal levels. Intended for students in health-related fields and Cluster 3 of the General Education program. Not available for biology or biotechnology major credit. *Prerequisites or corequisites: CHEM 120 or CHEM 131 or equivalent, and MATH 220 or COB 191 or equivalent. Credit for bio 270 and 290 may be transferred together to jmu only when transferrable credits for two semesters of*

*anatomy & physiology (i & ii) are completed at the same institution. A single semester transfer, or courses from different institutions, transfer as bio 000.*

**BIO 280. Allied Health Microbiology (2, 4).** 4 credits.

An introduction to the biology and significance of microorganisms. Emphasis will be placed on human- and health-related aspects of microbiology. Credit may not be earned in both BIO 280 and BIO 380. Not available for biology or biotechnology major credit. *Prerequisite or corequisite: CHEM 120, ISCI 101, BIO 103 or equivalent.*

**BIO 290. Human Anatomy (3, 3).** 4 credits.

A study of the basic body plan is reinforced by studies of dissected human cadavers and computer simulations. Emphasis is on the major body structures and systems. Credit for BIO 270 and BIO 290 may be transferred together to JMU only when transferrable credits for two semesters of Anatomy & Physiology (I & II) are completed at the same institution. A single semester, or courses from different institutions, transfer as BIO 000.

**BIO 301. Introductory Neuroscience.** 3 credits.

This course will examine molecular control of neuronal function. Topics include the structure and function of neuronal excitability, chemical and contact-mediated neuronal communication, developing and regenerating nervous systems, sensation and perception, learning and memory formation, repair from neuronal damage, and the neuronal pathways of sensation and motor control. In the context of these subjects, we will review the neuronal alterations that cause some common brain diseases. *Prerequisites: BIO 140 or BIO 214, and CHEM 132, or by permission of instructor for PSYC majors.*

**BIO 305. Ornithology (1, 4).** 3 credits.

Introduction to avian biology with exercises in field identification. *Prerequisite: BIO 124 or BIO 250.*

**BIO 309. Marine and Freshwater Invertebrates (3, 0).** 3 credits.

This is a course on animal diversity, the goal of which is to provide an understanding and appreciation of diverse ways animals function, reproduce and interact with their environment. Invertebrate groups will be surveyed. How evolution has resulted in the great richness and diversity of life on earth today will be explored using the principles of adaptation and phylogenetic analysis. *Prerequisite: BIO 124 or BIO 150.*

**BIO 310. Marine Biology (2, 4).** 3 credits.

An exploration of the functional biology, ecology, and biodiversity of marine organisms. Students will be provided with a general understanding of how the ocean works and how marine organisms operate within their environment. The diversity of marine organisms in the open sea and benthos will be surveyed and a discussion of the numerous threats impacting various marine ecosystems will also be included. *Prerequisite: BIO 124 or BIO 250.*

**BIO 312. Animal Welfare (3, 0).** 3 credits.

An examination of the biological basis of animal welfare. Topics include the evolution of domestic animals, physiological and behavioral measurements of stress, welfare assessment and pain perception. Case studies examine the use of animals for companionship, food, medical research and entertainment. *Prerequisite: BIO 124 or BIO 250.*

**BIO 316. Animal Development (3, 0).** 3 credits.

This course integrates cell and molecular biology and genetics to understand the processes and mechanisms underlying body plan formation and organ formation in vertebrate animals and insects. The course additionally covers the development of muscle, skeleton and nervous tissues, the postembryonic phenomena of growth, metamorphosis and regeneration, and the developmental basis of evolutionary changes in animal anatomy. *Prerequisite: BIO 224 or BIO 240.*

**BIO 316L. Animal Development Lab (0, 3).** 1 credit.

This course complements BIO 316 with hands-on laboratory experience. Emphasis will be on microscope study of chick and frog embryos to better understand embryonic processes and anatomy, learning the tools and techniques for manipulating live embryos, and designing and carrying out independent research projects using developmental biology techniques and reagents. *Corequisite or prerequisite: BIO 316.*

**BIO 320. Comparative Anatomy of Vertebrates (2, 4).** 4 credits.

A study of the evolution of vertebrate organ systems that integrates structure, function and development. *Prerequisite: BIO 114, BIO 150 or BIO 290.*

**BIO 324. Human Genetics (3, 0).** 3 credits.

An intermediate genetics course with an emphasis on human biology. Topics include cytogenetics, pedigree analysis, quantitative traits, mutation, epigenetics, genomics and ethical issues raised by developing technologies. *Prerequisite: BIO 224 or BIO 240.*

**BIO 340. Morphology and Anatomy of Vascular Plants (2, 4). 4 credits.**

A detailed study of the comparative morphology and anatomy of tracheophytes. *Prerequisite: BIO 124 or BIO 150.*

**BIO/MATH 342. Mathematical Models in Biology. 3 credits.**

Introduction to dynamical models (discrete and continuous time) applied to biology. Tools of mathematical analysis from linear and nonlinear dynamics will be taught, including stability analysis of equilibria, as well as appropriate use of software packages. Emphasis will be on model development and interpretation in the context of applications, including effective written and oral presentation. *Prerequisite: MATH 232 or MATH 235 or equivalent.*

**BIO 343. Immunology (3, 0). 3 credits.**

A study of the molecular and cellular basis of the immune system. Topics include the properties of antigens and immunoglobulins, the development and regulation of humoral and cell-mediated immunity, resistance and immunization to infectious diseases, allergies and autoimmune and immunodeficiency disorders. *Prerequisite: BIO 214, BIO 240 or permission of the instructor.*

**BIO 343L. Immunology Laboratory (0, 4). 1 credit.**

This course will introduce students to the theory and application of many of the methods currently used in clinical and research immunology. Laboratory exercises will focus on methods for identifying, quantifying and assessing functional activities of immune cells and molecules. Students will gain experience using experimental animals and in animal cell culture techniques. *Corequisite: BIO 343.*

**BIO 345. Animal Field Biology. 3 credits.**

The course is designed to use the nutritional and energetic relationships between plants and animals to lead into the evolutionary relationship of members of the different animal phyla. Field study and lab specimens will be used to develop understanding of the ecological relationships of humans and local animals, insects and plants. *Prerequisite: BIO 114 or BIO 150.*

**BIO 346. Bacterial Discovery. 1 credit.**

Students will learn techniques used in the microbiology laboratory and employ these techniques in the identification and characterization of bacterial isolated from the environment. *Prerequisite: "C" or better in BIO 245.*

**BIO 348. Medical Microbiology. 3 credits. Offered fall.**

Students will learn about microorganisms of medical importance, mainly bacteria and viruses. Key topics for each organism include general cell structure, unique structures/functions, epidemiology of the disease that the organism causes, mechanisms of pathogenesis, isolation and identification of the organism, and treatment options. *Prerequisite: "C" or better in BIO 245.*

**BIO 348L. Medical Microbiology Laboratory. 1 credit.**

Laboratory consisting of a series of case studies that require the students to identify the likely causative agent of the symptoms described in the case study. *Prerequisite or corequisite: BIO 348. Prerequisite: BIO 346.*

**BIO/GEOL 350. Invertebrate Paleontology (3, 2). 4 credits.**

The evolution and ecological structure of the biosphere from the origin of life to the present, emphasizing the evolution and paleobiology of animal life as shown by the fossil record. Lectures discuss methods used to interpret the fossil record and cover topics such as phylogeny and systematics, functional morphology, biostratigraphy, paleoecology, evolution and extinction. Laboratories focus on the major groups of invertebrates that are common in the geologic record. *Prerequisite: GEOL 230, BIO 114, BIO 150 or permission of the instructor.*

**BIO 353. Basic Ecology (3, 3). 4 credits.**

Ecological principles are presented in a context which will aid pre-college teachers to understand the background science of the subject and apply it to instruction. *Prerequisites: Course is open only to IDLS majors and biology or biotechnology majors enrolled in the secondary education licensure pre-professional program. ISCI 173 or equivalent.*

**BIO 354. Global Climate Change and Life: Ecological and Biological Impacts of Climate Variability (2, 3). 3 credits.**

Global climate change is important to the distribution, diversity, health and survival of organisms. The biota have changed through evolution in part as a response to selection pressures from these variations. Living things can also adjust to change through phenotypic flexibility. This course examines, in a seminar/discussion format, the potential ecological impacts of past and current patterns of climate alteration on organisms. *Prerequisite: Grade of "C-" or greater in one of the following: BIO 114, BIO 150, BIO 250 or GEOL 110, GEOL 115 or ISAT 112, or GEOG 210 OR CHEM 353 or by permission.*

**BIO 360. Plant Biology (3, 0). 3 credits.**

An introduction to the biology of plants including evolution, diversity, form and function, ecology and biotechnology. *Prerequisites: BIO 150, or BIO 124 and BIO 214.*

**BIO/CHEM 361. Biochemistry I (3, 0). 3 credits.**

An introduction to the molecules and chemical reactions of living systems. Structure and function of important classes of biomolecules are explored and the relationship of structure to function is stressed. Basic metabolic sequences are discussed. *Prerequisites: CHEM 241 and permission of the instructor.*

**BIO 364. Human Uses of Plants (3, 0). 3 credits.**

A survey of past, present and future uses of plants with emphasis on economically important plant families. Issues of cultivated plant origins, biodiversity and germplasm preservation are considered. *Prerequisite: BIO 124 or BIO 150.*

**BIO 364L. Laboratory in Human Uses of Plants (0, 3). 1 credit.**

An investigative examination of plants and their constituents with an emphasis on their physiological ecology, adaptations and economic utilization by humans. *Prerequisite or corequisite: BIO 364.*

**BIO 366. Environmental Ecology and Evolution (3, 3). 4 credits.**

An exploration of contemporary environmental issues as they relate to ecological principles. Ecological changes and organismal adaptations will be viewed from an evolutionary context. Past and present resource management by humans will be examined along with implications for the future. *Prerequisites: Course is open to IDLS majors that have taken ISCI 166 or ISCI 173 and biology or biotechnology majors enrolled in the secondary education licensure pre-professional program that have taken BIO 124 or BIO 150.*

**BIO 367. Journey Through the Cell (4, 2). 4 credits.**

Study of biological molecules, how these molecules interact to carry out life-sustaining processes, where these processes take place in the cell and how these foundations can be applied to solve biological problems. Students will develop the knowledge and skills necessary to deeply understand and effectively teach these concepts, as well as an understanding of the mental models that K-8 students have surrounding these concepts as a basis for developing meaningful pedagogies. *Prerequisites: Course is open only to IDLS majors and not available for biology or biotechnology major or minor credit.*

**BIO 370. Animal Physiology (3, 3). 4 credits.**

Design and function of cellular and organ physiology will be explored in both non-human and human animals. Class activities will emphasize problem-solving and collaborative and independent learning. The laboratories will utilize computer simulations and animal/human experiments to examine principles of both physiology and scientific investigation. *Prerequisites: BIO 214 or BIO 240, and CHEM 132 or permission of the instructor. One semester each of calculus and statistics is recommended.*

**BIO/PSYC 375. Sensation and Perception. 3 credits.**

Explores the nature and development of human sensory capabilities and processing, and how these affect perception of the environment. A potential list of the variety of systems reviewed includes hearing, vision, smell, taste, and touch/pain, as well as phenomena such as the perception of balance. *Prerequisite: Psychology majors: PSYC 211 or PSYC 213. Biology majors: Declared biology neuroscience concentration, PSYC 101 or PSYC 160, and MATH 220, MATH 285 or MATH 318.*

**BIO 380. General Microbiology (2, 4). 4 credits.**

A study of the structure and function of microorganisms and their relationship to humans and to the environment. Credit may not be earned in both BIO 280 and BIO 380. *Prerequisite: BIO 214 or BIO 140.*

**BIO/PSYC 385. Biopsychology. 3 credits.**

A survey of the neurological and chemical mechanisms which control behavior. This course examines the brain and how it processes sensation, perception, cognition, movement, motivation, learning, memory and other behavioral processes of interest to psychologists. *Prerequisite: Psychology majors: PSYC 211 or PSYC 213. Biology majors: Declared biology neuroscience concentration, PSYC 101 or PSYC 160, and MATH 220, MATH 285 or MATH 318.*

**BIO 386. Field Botany (3, 3). 4 credits.**

An in-depth survey of vascular plants in the field with emphasis on identification, diversity of form and function, and ecology. Laboratory topics will include techniques for sampling plant communities, identifying local flora and preserving botanical materials. *Prerequisite: BIO 124 or BIO 150.*

**BIO 387. Environmental Microbiology. 3 credits.**

An examination of microbial diversity in the environment and the functional role of microbes in ecosystems around the world. *Prerequisite: Grade of "C" or better in BIO 245.*

**BIO 387L. Environmental Microbiology Laboratory. 1 credit.**

A field-based investigative lab experience exploring the structure and function of microbial communities and applications of microbiology. *Prerequisite or corequisite:* BIO 387.

**BIO/PSYC 395. Comparative Animal Behavior (3, 0). 3 credits.**

This course covers aspects of the development, function and evolution of the behavior of nonhuman animals. Topics include intraspecies communication, feeding, aggression, territoriality, reproductive behavior and social behavior. *Prerequisites:* Psychology majors: PSYC 211 or PSYC 213; biology or biotechnology majors: BIO 114 and BIO 124, or BIO 250, and one of the following ("C-" or better): MATH 205, 220, 231, 235, 285, 318.

**BIO/GEOL 400. Geology and Ecology of the Bahamas. 3 credits.**

This course explores the geology and ecology of the shallow-water marine environment by examining the preeminent modern example, the Bahamas platform. The Bahamas provide an excellent model for understanding modern and ancient carbonate and reef deposits and a variety of terrestrial/aquatic habitats. Biological processes are responsible for many of the geological features of the Bahamas, so the course considers the biology/ecology of marine organisms in addition to geological topics. *Prerequisites:* GEOL 110, GEOL 211 or a 200-level GEOL or BIO course; at least four hours of additional lab science, at least sophomore status, and permission of the instructor.

**BIO/GEOG 402. Forest Ecology. 4 credits.**

A study of the function, structure and composition of forested ecosystems. The effect of physical geography on the distribution of forest communities will be explored. Issues of forest management and restoration will also be considered. Field laboratory topics will include dendrology and sampling techniques within different forest successional stages. *Prerequisite:* BIO 124 or BIO 250.

**BIO 403. Animal Communication. 3 credits.**

In this integrated lecture and lab course, students will develop an understanding of how and why animals communicate. This course will explore animal communication from diverse perspectives, including the physical nature, design features and evolution of signals, and will do so through in-depth examination of examples of communication systems. *Prerequisites:* BIO 124 or BIO 250, and MATH 220, MATH 285, MATH 318 or permission of the instructor.

**BIO 404. Evolutionary Analysis (3, 0). 3 credits.**

An examination of the place of theoretical thought in biology. The concepts of phylogenetic relationships and the mechanisms of organic change as expressed through the principles of organic evolution will be stressed. *Prerequisite:* BIO 224, BIO 240 or permission of the instructor.

**BIO/GEOL 405. Vertebrate Paleontology (3, 1). 3 credits.**

A study of the origin and evolution of the vertebrates. Emphasis will be on understanding how the processes of Earth evolution and biological evolution have interacted through time to produce a coherent picture of vertebrate history. *Prerequisite:* GEOL 230 or BIO 124 or BIO 150 or permission of the instructor.

**BIO 410. Advanced Human Anatomy (1, 6). 3 credits.**

An advanced study of topics in human anatomy using dissection techniques. *Prerequisites:* BIO 290 and/or BIO 320 and permission of the instructor.

**BIO 412. Mammalogy. 4 credits.**

An introduction to the study of mammals, incorporating evolutionary history, general physiology, reproductive biology, systematics, ecology, wildlife management and behavior, followed by review of mammalian taxonomic orders. Lecture is reinforced with laboratory and field experience. Completion of BIO 320 recommended. *Prerequisite:* BIO 124 or BIO 150.

**BIO 414. Clinical Anatomy for Occupational Therapists. 4 credits.**

This course offers an in-depth study of the structure of the musculoskeletal and peripheral nervous systems of the human body. Specific structural and neural pathologies will be examined in regards to impact on occupational performance. Laboratory experiences involving cadaver dissection, skeletal material, models and audiovisual technology will be utilized. *Prerequisite:* Admission to the Occupational Therapy program.

**BIO/CSD 415. Neuroanatomy and Neurogenic Communication Disorders. 3 credits.**

Introduces neurogenic communication disorders from a neuroanatomical approach.

**BIO 416. Human Embryology (3, 3). 4 credits.**

An introduction to human development. Topics include the molecular and cellular process of gametogenesis, fertilization, gastrulation and organogenesis, as well as the macroscopic changes that occur from conception

to birth. This course will provide a basis for understanding congenital malformations, cloning and stem cell research. *Prerequisite:* BIO 224, BIO 240 or BIO 290.

**BIO 420. Medical Parasitology (3, 0). 3 credits.**

The study and medical implications of parasites that infect humans. Class activities will emphasize parasite morphology, modes of transmission, mechanisms of host entry and infection, niche selection, life cycles, pathogenesis, diagnosis, and treatment and control. *Prerequisite:* BIO 214, BIO 240 or permission of the instructor.

**BIO 420L. Medical Parasitology Lab (0, 3). 1 credit.**

This course will introduce students to the techniques and procedures currently used in clinical and research parasitology. Laboratory exercises will focus on diagnostic methods and the use of animal models that illustrate parasitic life cycles, including their infectious stages and modes of transmission. *Corequisite or prerequisite:* BIO 420.

**BIO 426. Topics in Biology. 1-4 credits.**

Specified areas of biology. May be repeated for credit when course content changes. *Prerequisite:* See MyMadison for prerequisites for specific topics.

**BIO 427. Topics in Biology with Laboratory. 1-4 credits.**

Laboratory studies in special areas of biology to accompany BIO 426 or stand alone. May be repeated for credit when course content changes. *Prerequisite:* See MyMadison for prerequisites for specific topics.

**BIO 432. Light Microscopy (2, 4). 4 credits.**

This course covers the principles behind light microscopy, from the properties of light to the latest technologies in microscopy. Students will get hands-on experience with the different kinds of microscopes, including the confocal microscope. The course also covers fluorescent probes, advanced fluorescence techniques, digital imaging, methods of quantification and figure preparation for publication, with an emphasis on biological applications. *Prerequisite:* BIO 222, BIO 224 or BIO 240.

**BIO 440. Functional Neuroscience for Occupational Therapists. 3 credits.**

This course will examine functional performance of all aspects of the human nervous system. Specific nervous system conditions will be introduced and their impact on occupational performance, performance components and environmental contexts discussed. *Prerequisite:* Admission to the Occupational Therapy program.

**BIO 444. Virology (3, 0). 3 credits.**

A study of the fundamental aspects of both basic and medical virology. Credit may not be earned in both BIO 444 and BIO 544. *Prerequisites:* A grade of "C" or better in each of the following: CHEM 241, BIO 214, and BIO 224 or BIO 240.

**BIO 445. Neurobiology (3, 3). 4 credits.**

Molecular, cellular and network mechanisms underlying behavior will be studied using problem-solving, discussion, lecture and critical reading of the primary literature. Similarities and differences between nervous systems and computers will be explored. Laboratories will utilize contemporary electrophysiology and computer simulation to examine the neurobiology of simple animal model systems. *Prerequisite:* BIO 140 or BIO 214.

**BIO 446. Experimental Neurobiology. 4 credits.**

The experimental basis of neurobiology will be explored in invertebrates and humans using modern neurobiological techniques, such as extracellular, intracellular, electromyogram and voltage clamp recording. The course will revolve primarily around the laboratory activities, with the single lecture section designed to support the laboratory. Students will be expected to complete a project that involves developing a new experimental approach or model system. *Prerequisite:* BIO 140 or BIO 214.

**BIO 447. Evolution and Ecology of Infectious Disease (3, 0). 3 credits.**

An introduction to the evolution and ecology of pathogenic microorganisms, with an emphasis on the bacteria. Emphasis will be placed on the study, discussion, and critique of scientific literature, as well as formal presentation of scientific information and data. *Prerequisite:* BIO 124 or BIO 250, and BIO 280, BIO 245 or BIO 380.

**BIO 449. Insect Ecology (2, 4). 4 credits. Offered fall.**

An overview of insect ecology from an evolutionary perspective, focusing on the processes that affect the diversity, distribution, and abundance of insects in natural and managed ecosystems. The role of insects as model systems in understanding ecological and evolutionary principles is included, and current literature in the field is highlighted. Field surveys and experiments are emphasized, including general insect collection and identification. *Prerequisite:* BIO 124 or BIO 250.

**BIO 450. Evolutionary and Societal Impacts of Developmental Biology.** *3 credits.* Discussion-based course on topical issues in developmental biology and how they impact animal evolution, bioethics, human identity and environmental science. *Prerequisite: BIO 224 or BIO 240.*

**BIO 451. Current Topics in Human Development and Evolution (3, 0).** *3 credits.*

Discussion-based course on the developmental changes involved in our evolution from ape-like ancestors; using the science of cloning and embryonic stem cells to prolong human life; the evolutionary theory of aging; the genetic conflict theory of human pregnancy; the developmental basis of variation in human sexuality; and the direct effects of environment on modern human development and evolution. *Prerequisite: BIO 224 or equivalent.*

**BIO 452. Population Ecology (2, 4).** *4 credits.*

Theoretical and applied aspects of distribution and abundance, population regulation, interactions between populations and conservation will be studied in selected organisms, including humans. Credit may not be earned in both BIO 452 and BIO 552. *Prerequisite: BIO 124 or BIO 250.*

**BIO 453. Microbial Ecology and Evolution (2, 4).** *3 credits.*

The ecology of microorganisms will be covered, including those important in human health and in natural environments. Emphasis will be placed on the study and critique of scientific literature. Credit may not be earned in both BIO 453 and 553. *Prerequisites: BIO 124 or BIO 250, and BIO 280, BIO 245 or BIO 380.*

**BIO 454/MATH 354. Introduction to Biometrics (3, 1).** *4 credits.*

This course discusses the role of statistics in biological research and interpretation of biological phenomena. The course will cover topics of sampling, correlation, regression analysis, tests of hypotheses, commonly observed distributions in natural populations, nonparametric tests, goodness-of-fit tests and ANOVA. In order to fully comprehend the statistical analysis of those publications, students will review approximately half a dozen publications from different fields of biology. *Prerequisite: MATH 220 or equivalent.*

**BIO 455. Plant Physiology (3, 3).** *4 credits.*

An in-depth study of plant function including metabolism, water relations, transport phenomena, growth and development, physiological ecology, and responses to pathogens and abiotic stress. Credit may not be earned in both BIO 455 and BIO 555. *Prerequisite: BIO 214 or BIO 240, and CHEM 132.*

**BIO 456. Landscape Ecology (3, 3).** *4 credits.*

The functional and descriptive study of the interaction of the mosaic of ecosystems that comprise the landscape prevalent in a region. *Prerequisite or corequisite: BIO 124 or BIO 250; Prerequisite: GEOG 210.*

**BIO 457. Biological Applications of Geographic Information Systems (2, 4).** *4 credits.*

This course will explore the various ways that geographic information systems (GIS) can be used to answer biological questions. Students will use GIS software to study applications in ecology, conservation biology and environmental biology. No prior GIS experience is required. *Prerequisites: BIO 124 or BIO 150.*

**BIO 459. Freshwater Ecology (3, 3).** *4 credits.*

Functional relationships and productivity of freshwater communities are examined as they are affected by their physical, chemical and biotic environment. Organisms inhabiting lakes, ponds, rivers, streams and estuaries are studied at the population, community and ecosystem levels. Credit may not be earned in both BIO 459 and BIO 559. *Prerequisites: BIO 124 or BIO 250, and CHEM 132.*

**BIO 460. Plant Cell and Tissue Culture (2, 4).** *4 credits.*

Theory and practice of growing isolated plant cells, tissues and organs. Credit may not be earned in both BIO 460 and BIO 560. *Prerequisites: BIO 114 or BIO 150, and CHEM 132.*

**BIO 465. Environmental Toxicology (2, 4).** *4 credits.*

The study of types, sources and biological effects of environmental pollutants. Class activities will include discussions of foundational material covering the biological effects of a broad range of pollutants. Labs will focus on the use of simulation models, geographic information systems and other software currently used in environmental toxicology for the analysis of environmental data. Credit may not be earned in both BIO 465 and BIO 565. *Prerequisite: BIO 224 or BIO 240.*

**BIO 466. Toxicology Seminar (3, 0).** *3 credits.*

Readings and discussions of the primary scientific literature with a focus on the biological effects of toxins at the genetic, cellular, physiological and ecological level. *Prerequisite: BIO 224 or BIO 240.*

**BIO 470. Morphology of Nonvascular Plants (2, 4).** *4 credits.*

Comparative morphology, ecology and taxonomy of representative algae, fungi and bryophytes. Credit may not be earned in both BIO 470 and BIO 570. *Prerequisite: BIO 124 or BIO 150.*

**BIO 472. Human Metabolism (3, 0).** *3 credits.*

This course will focus on the cellular physiological mechanisms responsible for regulation of normal human metabolism and place them in the context of the development of chronic disease processes. *Prerequisites: CHEM 241, and BIO 214, BIO 240 or permission of the instructor.*

**BIO 475. Advanced Cell Biology (3, 0).** *3 credits.*

This seminar-style course covers topics in advanced cell and molecular biology. Class format will be discussions from assigned review articles, followed by student-led presentations of assigned primary literature. Students write a research grant proposal and give an oral presentation of their proposal in class. *Prerequisite: A grade of "C" or better in each of the following: CHEM 241, BIO 214, and BIO 224 or BIO 240.*

**BIO 477. The Genetics of Cancer (3, 0).** *3 credits.*

Exploration of the genetic and epigenetic factors that drive the evolution of cancer cells, taking into account both inherited and environmental contributions to this process. The cellular mechanisms debilitated and envieronmental contributions to this process. The cellular mechanisms debilitated and envieronmental contributions to this process. The cellular mechanisms debilitated and envieronmental contributions to this process. The cellular mechanisms debilitated and envieronmental contributions to this process. *Prerequisite: BIO 224 or BIO 240.*

**BIO 480. Advanced Molecular Biology (2, 5).** *4 credits.*

Cellular constituents and genetics are emphasized at the molecular level. Credit may not be earned in both BIO 480 and BIO 580. *Prerequisites: BIO 224 or BIO 240, and CHEM 241 or CHEM 342.*

**BIO 481. Genomics (3, 3).** *4 credits.*

An advanced biology course designed for students to learn about the structure and function of genomes, to develop facility in web-based tools and resources, and to appreciate the power and limitations of current resources and knowledge. Focus is on the biological questions that genomics can help to answer. Laboratory exercises will be sequencing and analyzing genomic DNA. *Prerequisite: BIO 224 or BIO 240.*

**BIO 482. Human Histology (3, 3).** *4 credits.*

Microscopic structure of cells, tissues and major organ systems of the body. Basic anatomical and physiological function is presented to emphasize the histological significance of the examined organ systems. *Prerequisite: BIO 270, BIO 290 or equivalent.*

**BIO 483. Bioinformatics (3, 3).** *4 credits.*

Focuses on building databases and computer programs to manage and analyze biological sequence data, and secondarily on theoretical aspects. The overall objective is to learn current information about the intersection of information science and biology, to develop facility in the many web-based tools and resources for further studies and research in genomics/bioinformatics, and to appreciate the power and limitations of current resources and knowledge. *Prerequisite: BIO 224 or BIO 240.*

**BIO 486. Systematics of Vascular Plants (2, 4).** *4 credits.*

Study of systematic theory and an overview of the classification and evolution of higher plants with particular attention to flowering plant families. Techniques for plant identification and collection and for construction of phylogenies will be taught in lab. *Prerequisite: BIO 124 or BIO 150.*

**BIO 490. Mechanics of Animal Movement (3, 3).** *4 credits.*

The interactions of organisms with their physical environment. Concepts from fluid and solid mechanics are applied to biological form and function. *Prerequisite: BIO 114, BIO 150 or permission of the instructor.*

**BIO 491. Scientific Writing, Presentation and Critical Thinking.** *2 credits.*

A discussion-based course for the development of the fundamental thinking, writing and presentation skills necessary to be a successful researcher. This course is required (as BIO 491H) for all Biology Track I and II Honors students in their sophomore year, and is strongly recommended for all Biology majors who are intending to do research. Offered as credit/no credit only. *Prerequisites: BIO 140 and enrollment in the Honors program, or by permission.*

**BIO 492. Mentored Biology Course Assistant (0, 4).** *1 credit.*

Students are trained in the support and function of undergraduate biology courses. Students must contact and make arrangements with the supervising instructor in the term prior to registration. May be repeated for a maximum of two credits when course content changes. Offered as credit/no credit only. *Prerequisites: GPA of 2.5 or higher and permission of the instructor.*

**BIO 493. Pre-Veterinary Student Internship (0, 7).** *2 credits.*

Students are supervised by veterinarians and lab technicians in diagnostic lab activities at a regional animal health laboratory. A proposal and final presentation are required. Enrollment is limited to 1-2 individuals per term and

students are advised to contact the Pre-Veterinary coordinator to be waitlisted. Offered as credit/no credit only. *Prerequisites:* Completion of BIO 224, GPA of 2.5 or higher and permission of the instructor.

**BIO 494. Internship in Biology (0, 4-8).** 1-2 credits.

Students participate in research or applied biology outside of this university. Students must contact and obtain approval of a supervising instructor at the off campus location and with the department internship coordinator in the term prior to registration. A proposal must be approved prior to registration and a final paper or presentation will be completed. Offered as credit/no credit only. *Prerequisites:* Biology or biotechnology major with a minimum of eight biology credit hours and a GPA of 2.5 or greater.

**BIO 495. Biotechniques (0, 4).** 1 credit.

Students are trained in research theory and techniques. Students must contact and make arrangements with a supervising instructor in the term prior to registration. May be repeated for a maximum of two credits when course content changes. Offered as credit/no credit only. *Prerequisite:* GPA of 2.5 or greater.

**BIO 496. Research Literature (0, 4).** 1 credit.

Students pursue literature research in a selected area of biology. Students must contact and make arrangements with a supervising instructor in the term prior to registration. May be repeated for a maximum of two credits when course content changes. Offered as credit/no credit only. *Prerequisite:* GPA of 2.5 or greater.

**BIO 497. Biological Research (0, 4-8).** 1 credit, repeatable.

Students pursue a lab or field research project in a selected area of biology. For new projects (497A), students must contact and make arrangements with a supervising instructor in the term prior to registration and complete a 2-3 page proposal no later than five weeks after the start of the course. Course may be repeated as BIO 497B with the same instructor, or as BIO 497A with a different instructor. Offered as credit/no credit only. *Prerequisite:* GPA of 2.5 or greater.

**BIO 499. Senior Project (0, 8).** 2 credits.

Three semester courses taken as Parts A, B and C; 2 credits each. Expectations, requirements and prerequisites are defined in the department senior project policy. Students must contact and make arrangements with a supervising instructor in the term prior to registration.

## Biotechnology

**BIOT 260. Biotechnology Seminar.** 1 credit.

An introduction to biotechnology. Topics will include research opportunities, careers and current topics in biotechnology. Not available for biology major or minor credit.

## Business

**COB 191. Business Analytics I.** 3 credits.

The application of data analysis and statistical methods in business. Introduces data visualization, descriptive statistics, probability, sampling, estimation and hypothesis testing. Emphasis is on using spreadsheet tools and functions for statistical analysis to support analytical decisionmaking in a business environment. *Prerequisite:* One of the following: MATH 155, MATH 156, MATH 205, MATH 231, MATH 235, ISAT 151, or sufficient score on the mathematics placement exam.

**COB 202. Interpersonal Skills.** 3 credits.

An applied course consisting of experiential exercises followed by class discussion. Cases are used as learning activities where the instructor acts as a facilitator to learning. Essential theory emanates from class discussions with a student-based rather than instructor-based format. Theory and application are intertwined by means of student self-assessment exercises and group discussion. *Prerequisite:* Open only to sophomore business majors.

**COB 204. Computer Information Systems.** 3 credits.

An introduction to computer-based information systems for students with a major in the COB or a CIS minor. Emphasis is placed on the role of computers in business and society, computer hardware and software, analysis, design and implementation of information systems, computer ethics, and collaboration using computers. Students will create databases and collaborate using computer-based tools.

**COB 241. Financial Accounting.** 3 credits.

The role of financial data in contemporary society; the problems of measuring and reporting income, assets, liabilities and equities; interpretation of financial statements. *Prerequisites:* Sophomore standing and declared business major.

**COB 242. Managerial Accounting.** 3 credits.

The attention-directing and problem-solving functions of accounting in relation to current planning and control, evaluation of performance, special decisions and long-range planning. *Prerequisite:* COB 241.

**COB 291. Business Analytics II.** 3 credits.

The application of quantitative modeling and analysis to managerial decisionmaking. Introduces techniques from predictive and prescriptive analytics including linear optimization, decision analysis, queuing, regression, timeseries forecasting, and simulation. Emphasis is on implementing, solving, and interpreting results from spreadsheet models for business applications. *Prerequisites:* COB 191 and MATH 205 or equivalent.

**COB 300A. Integrative Business: Management.** 3 credits.

COB 300A is the management component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites:* Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.

**COB 300B. Integrative Business: Finance.** 3 credits.

COB 300B is the finance component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites:* Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.

**COB 300C. Integrative Business: Operations.** 3 credits.

COB 300C is the operations component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites:* Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.

**COB 300D. Integrative Business: Marketing.** 3 credits.

COB 300D is the marketing component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites:* Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.

**COB 301. European Integration, Culture and History.** 3 credits.

This course is designed to complement the COB 300 A-D or European marketing minor when taught as part of the semester in Antwerp, Belgium program. COB 301 will only be offered as part of the semester in Antwerp program. Students will study European integration in the classroom and visit governmental institutions, historical places and cultural events associated with course content. *Prerequisites:* Requires acceptance to the semester in Antwerp program. Must be taken as a corequisite with COB 300 or courses for the European marketing minor. Cannot be used as an elective to fulfill any COB major or any other minor.

**COB 318. Legal Environment of Business.** 3 credits

A study of the law as a means of social, political and economic change. The American legal system from the standpoint of its sources and philosophy with special emphasis on business relations and the role of government in affecting them. *Prerequisites:* Junior standing.

**COB 487. Strategic Management.** 3 credits.

Strategic management is designed to be the capstone course for seniors completing their undergraduate studies in the various functional areas of business administration. The course is comprehensive and structured to build on the foundational knowledge students have gained through completing the interdisciplinary COB 300, Integrated Functional Systems, learning experience and from their respective concentrations. *Prerequisites:* COB 300 and completion of one full academic semester after completing COB 300.

**COB 490. Special Studies in Business Administration. 1-3 credits.**

Designed to give capable students an opportunity to complete a faculty supervised independent study apart from a specific major. *Prerequisite:* *Permission from the Associate Dean for Academic Affairs.*

**COB 491. Peer Adviser Training. 0 credits.**

This block course will provide peer adviser trainees with the information necessary to give guidance to their peers in understanding various university and college academic policies and procedures and the university resources available to address academic questions and issues. Cannot be applied to any College of Business major or minor. *Prerequisites:* *Junior standing (78 credit hours) and approval of the Associate Dean for Academic Affairs one month prior to registration.*

**COB 492. Peer Advising. 2 credit hours per semester, limit of 4 credit hours total.**

Practicum in advising focuses on College of Business students providing guidance to their peers in understanding various university and college academic procedures and policies, as well as offering knowledgeable referrals to appropriate university resources. May be taken twice for up to four credit hours. Cannot be applied to any COB major or minor. *Prerequisites:* *Senior standing and successful completion of COB 491.*

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## Business Analytics

**BSAN 391. Quantitative Business Modeling. 3 credits.**

This course addresses a wide range of complex business problems through quantitative modeling and appropriate computer applications, especially spreadsheets. Approaches include optimization and sensitivity analysis, multi-objective decision making and risk analysis. *Prerequisites:* *Declared BSAN minor, COB 291 or equivalent with a grade of "B-" or higher, and junior or senior standing.*

**BSAN 392. Descriptive and Predictive Analytic Methods. 3 credits.**

This course integrates advanced analytical methods from statistics and management science for enhanced understanding of business performance and improved predictive capabilities. The emphasis is on applying computer applications for statistical modeling and analysis of data from a variety of business processes to support managerial decision-making. *Prerequisites:* *Declared BSAN minor and BSAN 391.*

**BSAN/CIS 393. Predictive Analytics and Data Mining. 3 credits.**

This course focuses on quantitative techniques and computer applications that allow the extraction of useful, previously unrecognized information from large data sets for predictive purposes. By effectively sifting through databases such as those generated by many businesses, data mining allows the analyst to recognize potentially important patterns and to target business opportunities. *Prerequisites:* *Declared BSAN minor, BSAN 391 and BSAN 392.*

**BSAN/CIS 490. Special Studies in Computer Information Systems or Business Analytics. 1-3 credits.**

An advanced course in information and/or business analytics designed to give qualified students an opportunity to complete independent study under faculty supervision. *Prerequisites:* *Senior standing, recommendation of the instructor and written approval of the department head prior to registration.*

**BSAN 498. Special Topics in Business Analytics. 3 credits.**

An advanced course designed to allow exploration of current topics in business analytics. Course content will vary. See adviser for current content. *Prerequisite:* *Permission of the instructor.*

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## Business and Marketing Education

**BMED 200. Introduction to Business and Marketing Education. 3 credits.**

A general survey of business and marketing principles as they relate to preparation for teaching with emphasis on the history of business and marketing in America, the basic forms of business organizations, ownership, finance, management, taxes and wages, and labor relations.

**BMED 230. Document Design and Production. 3 credits.**

Experience in planning, designing and producing documents for the business office with focus on transferability of productivity among the genre of word processing software. *Prerequisite:* *Keyboard in excess of 40 words per minute with at least 95 percent word accuracy without visual reference to the keyboard.*

**BMED 300. Data and Records Management. 3 credits.**

Develops skills in managing the information of business by organizing data through the creation and use of computer spreadsheets and databases. Includes the management and organization of hard records.

**BMED 376. Occupational Experience in Business. 3 credits.**

Supervised internship providing business office experience for students seeking licensure as business education teachers in middle and secondary

schools. A credit/no credit grade will be assigned. *Prerequisite:* *Permission of the instructor.*

**BMED 377. Occupational Experience in Marketing. 3 credits.**

Supervised internship providing marketing (retail, promotion, entertainment, merchandising, etc.) experience for students seeking licensure as marketing education teachers in middle and secondary schools. A credit/no credit grade will be assigned. *Prerequisite:* *Permission of the instructor.*

**BMED 380. Demonstration Methods for Business and Marketing. 3 credits.**

Development of an instructional model incorporating demonstrations and supervised walk-throughs in planning and directing the learning of computer-related and other complex business and marketing procedures and processes.

**BMED 400. Business and Marketing Communications. 3 credits.**

Develops skills in communicating effectively through formal and informal business reports, letters and memorandums. Emphasis on realistic problem solving involving collecting, organizing, analyzing, interpreting and presenting data. *Prerequisites:* *WRTC 103 and BMED 230 or equivalent.*

**BMED 430. Desktop Publishing Design and Production. 3 credits.**

Experience in planning, designing and producing the publications of business and education with focus on transferability of functions among the genre of desktop publishing software.

**BMED 490. Independent Study in Business and Marketing Education. 1-3 credits.**

Provides opportunity to complete independent study or research on problems in business and marketing education. *Prerequisite:* *Permission of the program coordinator.*

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## Business Law

**BLAW 314. Real Estate Law. 3 credits.**

A study of the principles of law-governing interests in real estate including acquisition, encumbrance, transfer, rights and obligations of parties, and state and federal regulations thereof. *Prerequisites:* *COB 218 and junior standing.*

**BLAW 470. Financial Products: Regulation and Protection. 3 credits.**

An inquiry into the legal environment of the financial marketplace. Topics explored include the role of regulatory agencies, the design of contracts which minimize credit risk and maximize marketability, and methods of protecting the proprietary component of innovative financial products. *Prerequisites:* *COB 218 and junior standing.*

**BLAW 494. White Collar Crime. 3 credits.**

A study of white collar crime in America, a unique type of criminal activity that primarily affects businesses. The course explores the substance of white collar crime and focuses on the unique elements of various crimes through the study of actual cases. The course also examines how white collar crimes are prosecuted and defended in state and federal courts. Students are introduced to federal and state criminal procedure, substantive defenses, and the use of sentencing guidelines. *Prerequisite:* *COB 300.*

**BLAW 495. Contract Law, Sales and Secured Transactions. 3 credits.**

A study of the law of contracts, Article Two of the Uniform Commercial Code, product liability, legal liability of accountants, secured transactions and bankruptcy with emphasis on the role these play in professional and personal decision making. The courts, the legislature and the interaction of these two branches of government in responding to a changing society are studied throughout. *Prerequisites:* *COB 218 and COB 300.*

**BLAW 496. The Law of Business Organizations, Negotiable Property Instruments and Property. 3 credits.**

A study of Article Three of the Uniform Commercial Code, agency, partnerships, corporations, securities regulations, real property, trusts and decedents estates with emphasis on the role these play in professional and personal decision making. *Prerequisites:* *COB 218 and COB 300 or permission of the instructor.*

**BLAW 497. Legal Aspects of International Business. 3 credits.**

Survey of legal implications of international business dealings including foreign direct sales, distributorship arrangements, licensing of technology and legal aspects of the multi-national corporation. The foreign legal environment, relevant conventions and trade regulations, and the transnational reach of regulatory law will be considered. *Prerequisites:* *COB 218 and senior standing.*

**BLAW 498. Special Topics in Business Law. 3 credits.**

This course is designed to allow explorations of areas of current topics in business law. Course content will vary by semester and instructor. For current content, consult the adviser. *Prerequisites:* *COB 300 and permission of the instructor.*

## Chemistry

### CHEM 100. Chemistry Today. 3 credits.

Provides the background necessary to understand how chemistry affects our daily lives. An enriched overview of the fundamental principles of chemistry is followed by applications to topics of current interest. A high school science background is assumed. Not available for major or minor credit in chemistry.

### CHEM 120. Concepts of Chemistry. 3 credits.

A one-semester introduction to the fundamental principles, laws and applications of chemistry. Examples relating to the health sciences are emphasized. Not available for major or minor credit in chemistry. May be used for general education credit.

### CHEM 120L. Concepts of Chemistry Laboratory. 1 credit.

A one-semester introduction to laboratory work which illustrates the fundamental principles, laws and applications of chemistry discussed in CHEM 120. Experiments relating to the health sciences are emphasized. *Prerequisite or corequisite:* CHEM 120.

### CHEM 131. General Chemistry I. 3 credits.

The first of a two-course general chemistry sequence for science majors. It is designed to introduce students to basic chemical concepts including atomic structure, periodic properties of the elements, nomenclature, basic stoichiometry, theories related to reactivity and bonding and the behavior of materials. May be used for general education credit. *Corequisite:* CHEM 131L or CHEM 135L.

### CHEM 132. General Chemistry II. 3 credits.

A course designed to examine the mechanisms by which chemists obtain information about reacting systems. Major concepts covered include: chemical reactivity, chemical equilibrium, electrochemistry, thermodynamics and kinetics. *Prerequisites:* Grades of "C-" or higher in CHEM 131 and either CHEM 131L or CHEM 135L. *Corequisite:* CHEM 132L or 136L.

### CHEM 131L-132L. General Chemistry Laboratories. 1 credit each semester.

These laboratory courses are designed to complement and supplement the CHEM 131-132 lecture courses. Chemistry majors take CHEM 135L and 136L. CHEM 131L may be used for general education credit. *Prerequisites for CHEM 132L:* Grades of "C-" or higher in CHEM 131 and either CHEM 131L or CHEM 135L.

### CHEM 135L. Special General Chemistry Laboratory. 1 credit.

An enriched laboratory course designed primarily for chemistry majors. May be used for general education credit. *Corequisite:* CHEM 131.

### CHEM 136L. Special General Chemistry Laboratory. 2 credits.

An enriched laboratory course that includes special topics and experiments not presented in the regular CHEM 132 laboratory. *Prerequisites:* Grades of "C-" or higher in CHEM 131 and either CHEM 131L or 135L. *Corequisite or prerequisite:* CHEM 132.

### CHEM 241. Organic Chemistry I. 3 credits.

The major objective for this course is to teach the modern method of scientific problem solving using organic compounds as models. Emphasis will be on the chemical language (nomenclature and terminology), molecular electronic concepts, theories of organic reactions, stereochemistry and structure elucidation of organic compounds. Credit cannot be earned in both CHEM 241L and 242L. *Prerequisite:* Grade of "C-" or higher in CHEM 132.

### CHEM 241L. Concepts of Organic Chemistry Laboratory. 1 credit.

Laboratory work will include training in the techniques of organic chemistry, preparation of compounds and some organic qualitative analysis. Credit cannot be earned in both CHEM 241L and 242L. *Prerequisite or corequisite:* CHEM 241.

### CHEM 242. Organic Chemistry II. 3 credits.

The major objective for this course is to teach the modern method of scientific problem solving using organic compounds as models. Emphasis will be on the chemical language (nomenclature and terminology), molecular electronic concepts, theories of organic reactions, stereochemistry and structure elucidation of organic compounds. *Prerequisite:* Grade of "C-" or higher in CHEM 241. *It is strongly recommended that students take 242L with 242 lecture.*

### CHEM 242L. Organic Chemistry Laboratory. 2 credits.

This course will present laboratory techniques and experiments associated with organic chemistry, including an introduction to synthesis, spectroscopic methods, chromatographic techniques and some qualitative organic analysis. Credit cannot be earned in both CHEM 241L and 242L. *Prerequisites:* Grade of "C-" or higher in CHEM 241. *Corequisite:* CHEM 242.

### CHEM 260. Concepts of Biochemistry. 3 credits.

A brief survey of the principal constituents of living cells, proteins, carbohydrates, lipids and nucleic acids, with emphasis on their synthesis and

transformations in vivo. Intermediary metabolism and protein replication will be stressed. Not available for major or minor credit. *Prerequisites:* CHEM 241 and either CHEM 241L or CHEM 242L.

### CHEM 260L. Concepts of Biochemistry Laboratory. 1 credit.

The laboratory work will comprise experiments demonstrating some of the pertinent reactions including those of analytical value. *Prerequisite or corequisite:* CHEM 260.

### CHEM 270. Inorganic Chemistry I. 3 credits.

A survey of the chemistry of the elements and modern theories of bonding. *Prerequisite:* Grade of "C-" or higher in CHEM 132.

### CHEM 280. An Alternative Lower-Division Chemistry Experience. 1-4 credits.

This course will provide a mechanism for offering a nontraditional, lower-division, lecture and/or laboratory course. It will be offered only with the approval of the full-time teaching faculty. No course will be offered more than three times under the 280 designation. Students may repeat CHEM 280 for credit when course content changes.

### CHEM 287L. Integrated Inorganic/Organic Laboratory. 2 credits.

An enriched, integrated introduction to the laboratory procedures associated with inorganic and organic chemistry. Topics include apparatus design and construction, synthesis, separation methods, spectroscopic analysis and application of computers in the laboratory. *Prerequisite or corequisite:* CHEM 241.

### CHEM 288L. Integrated Inorganic/Organic Laboratory. 2 credits.

An enriched, integrated introduction to the laboratory procedures associated with inorganic and organic chemistry. Topics include apparatus design and construction, synthesis, separation methods, spectroscopic analysis and application of computers in the laboratory. *Prerequisite:* Grade of "C-" or better in CHEM 241. *Prerequisite or corequisite:* CHEM 270.

### CHEM 325. Chemical Hazards and Laboratory Safety. 1 credit.

A brief introduction to physical and chemical hazards which may be encountered in a laboratory setting. Methods of personal protection will be emphasized.

### CHEM 331. Physical Chemistry I. 3 credits.

A study of thermodynamics, solutions, kinetics and macromolecules with applications of chemical and biological problems. *Prerequisites:* CHEM 132, MATH 236 and PHYS 240.

### CHEM 336L. Applied Physical Chemistry Laboratory. 2 credits.

A laboratory course which emphasizes the applied experimental aspects of physical chemistry. *Prerequisite or corequisite:* CHEM 331.

### CHEM 351. Analytical Chemistry. 4 credits.

The total analysis concept is introduced and developed. This framework encompasses the areas of experiment design, sample collection and treatment, and statistical evaluation of results, as well as standard analysis techniques. *Prerequisite:* CHEM 132.

### CHEM 352. Instrumental Analysis. 3 credits.

This course emphasizes the application of instrumental techniques to the quantitative determination of chemical composition. Both instrument theory and practical applications are presented. *Prerequisites:* CHEM 351 and MATH 235.

### CHEM 352L. Instrumental Analysis Laboratory. 2 credits.

This course will introduce students to the methodology and technology associated with the design and use of chemical instrumentation. Students perform experiments that illustrate the theoretical principles associated with instrument designs and the application of instruments to the solution of qualitative and quantitative analysis problems. *Corequisite:* CHEM 352.

### CHEM 353. Environmental Chemistry. 3 credits.

An introduction to chemical pollution of water in the air, soil, groundwater, streams and drinking water from a chemist's perspective. Topics include sources and methods of assessment, fates and reactions, and transport of chemicals in the environment. This course does not include laboratory activities. *Prerequisite:* A grade of "C" or better in CHEM 241 or permission of the instructor.

### CHEM 354. Environmental Chemistry Field Camp. 3 credits.

Fundamentals of environmental chemistry with laboratory and field trip components. The basic chemical principles of environmental problems are studied. Field trips and laboratory work on real samples are integrated with lecture material. *Prerequisite:* CHEM 241 or permission of the instructor.

### CHEM/GEOL 355. Geochemistry of Natural Waters. 3 credits.

Study of chemical theory and reactions important in natural water systems. The role of atmospheric, geologic and biological inputs in determining the geochemistry of streams, rivers and oceans. *Prerequisites:* CHEM 131 and CHEM 132 or equivalent.

**CHEM/BIO 361. Biochemistry I. 3 credits.**

An introduction to the molecules and chemical reactions of living systems. Structure and function of important classes of biomolecules are explored and the relationship of structure to function is stressed. Basic metabolic sequences are discussed. *Prerequisites:* Grade of "C-" or higher in CHEM 241 and permission of the instructor. *Completion of CHEM 242 is strongly recommended.*

**CHEM 362. Biochemistry II. 3 credits.**

A continuation of CHEM 361 including metabolic regulation, protein biosynthesis, analytical methods and isolation of biomolecules. *Prerequisite:* CHEM 361 or permission of the instructor.

**CHEM 363. Biophysical Chemistry. 3 credits.**

The study of structure-function relationships in biological molecules as well as the theory and applications of biophysical methods used for the analysis of proteins and nucleic acids. Topics may include analytical ultracentrifugation, light scattering, fluorescence, calorimetry, surface plasmon resonance, single molecule approaches, X-ray diffraction, NMR, TEM, AFM, structure prediction and computational simulations. *Prerequisite:* Grade of "C" or higher in CHEM 361.

**CHEM 366L. Biochemistry Laboratory. 2 credits.**

An introduction to laboratory techniques and experimental approaches associated with modern biochemistry. Isolation and characterization of enzymes and other biomolecules are emphasized. *Prerequisites:* CHEM 361 and either CHEM 241L or CHEM 242L or CHEM 287L.

**CHEM 367L. Biochemistry Laboratory. 2 credits.**

An introduction to laboratory techniques and experimental approaches associated with modern biochemistry. Isolation and characterization of proteins is emphasized. *Prerequisite:* Restricted to majors in Chemistry or Biophysical Chemistry, or by permission of the instructor.

**CHEM 368L. Biophysical Chemistry Laboratory. 2 credits.**

An introduction to experimental approaches used to characterize proteins. Techniques may include NMR, UV-Vis, AFM, circular dichroism and infrared spectroscopy. *Prerequisite:* Restricted to majors in Chemistry or Biophysical Chemistry, or by permission of the instructor.

**CHEM/PHYS/MATS 375. An Introduction to Materials Science. 3 credits.**

An introduction to materials science with emphasis on general properties of materials. Topics will include crystal structure, extended and point defects, and mechanical, electrical, thermal and magnetic properties of metals, ceramics, electronic materials, composites and organic materials. *Prerequisites:* CHEM 131 and PHYS 150 or PHYS 250 or ISAT 212 or permission of the instructor.

**CHEM 390A, B. Problems in Chemistry. 1-3 credits, repeatable for a total of 4 credits.**

A project is undertaken dealing with some aspect of chemistry under the guidance of a faculty adviser.

**CHEM 395. Perspectives in Chemistry. 1 credit.**

A description of the technical and nontechnical capabilities expected of a university graduate who enters industry, government or academia is presented. The student is introduced to the various laws governing the chemical industry as well as to the fields of toxicology and environmental health. Experts in various disciplines discuss current topics of concern to the chemistry and biology student.

**CHEM 432. Physical Chemistry II. 3 credits.**

A study of atomic and molecular energy levels and structure as interpreted by quantum theory. *Prerequisites:* CHEM 132 and MATH 236 and PHYS 250.

**CHEM 438L. Physical Chemistry Laboratory. 2 credits.**

A laboratory course which emphasizes the application of various physical measurement techniques as a means of obtaining data to test fundamental chemical theory. *Corequisite:* CHEM 432.

**CHEM 440. Intermediate Organic Chemistry. 3 credits.**

An advanced study of the theory of organic chemistry as applied to chemical reactions and synthetic methods. Such topics as reaction mechanisms, spectroscopy and stereochemistry will be included. *Prerequisite:* CHEM 242.

**CHEM 445. Polymer Chemistry. 4 credits.**

A study of the synthesis and characterization of macromolecules. Polymer chemistry is discussed in a manner that focuses most attention on the properties of macromolecules that can be understood at the molecular level. *Prerequisite:* CHEM 242.

**CHEM 450. Nuclear and Radiation Chemistry. 3 credits.**

A study of the fundamentals of radioactivity in chemistry. Topics include the effects of radiation on matter, measurement of radiation, activation analysis, tracer studies and the nuclear fuel cycle. Applications of radioactive materials

and radiation in industry and medicine will be described. *Prerequisites:* CHEM 132 and PHYS 250 or permission of the instructor.

**CHEM 450L. Laboratory for Nuclear and Radiation Chemistry. 1 credit.**

A laboratory course designed to demonstrate the topics covered in CHEM 450. *Prerequisites:* CHEM 132 and PHYS 250 or permission of the instructor. *Corequisite:* CHEM 450.

**CHEM/PHYS 455. Lasers and Their Applications to Physical Sciences. 3 credits.**

An introduction to both the theoretical and practical aspects of lasers and their applications in the physical sciences. *Prerequisite:* PHYS 270, CHEM 331 or permission of the instructor.

**CHEM 470. Inorganic Chemistry II. 3 credits.**

A study of selected topics in the field of advanced inorganic chemistry. *Prerequisite:* A grade of "C-" or higher in CHEM 270. *Prerequisite or corequisite:* CHEM 331.

**CHEM 480. Selected Topics in Chemistry. 1-4 credits each semester.**

This course is designed to allow an in-depth study of specific topics in chemistry selected according to student and faculty interests.

**CHEM 481. Literature and Seminar I. 1 credit.**

Provides instruction in methods of abstracting specific information from the body of chemical literature. Attendance at regularly scheduled department seminars is required. *Prerequisites:* CHEM 242 or CHEM 288L

**CHEM 482. Literature and Seminar II. 1 credit.**

Provides practice in preparing and presenting a literature-based seminar and paper on a chemical topic. Attendance at regularly scheduled department seminars is required. *Prerequisite:* CHEM 481 or permission of the instructor.

**CHEM 485. Science of the Small. 4 credits.**

The chemistry and physics of materials of the nanometer scale will be explored. Lectures and laboratories will cover contemporary issues in surfaces, self-assembly and low dimensional materials. The intersection of biology, chemistry, engineering and physics will be explored through nanoscience. *Prerequisites:* CHEM 132 and MATH 236. *Prerequisite or corequisite:* PHYS 150 or PHYS 250.

**CHEM 494. Internship in Chemistry. 1-2 credits, May be repeated for a maximum of 6 credits.**

Students participate in research or applied chemistry outside of the university. A proposal must be approved prior to registration, and a final paper will be completed.

**CHEM 497A, B, C. Undergraduate Chemical Research. 2-4 credits, repeatable for a total of 6 credits.**

Research in a selected area of chemistry, as arranged with and approved by a faculty research adviser the semester prior to registration.

**CHEM 499. Honors. 6 credits.**

## Chinese

**CHIN 101. Elementary Chinese I. 3-4 credits.**

The fundamentals of Mandarin Chinese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory.

**CHIN 102. Elementary Chinese II. 4 credits.**

The fundamentals of Mandarin Chinese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite:* CHIN 101.

**CHIN 111. Intensive Chinese I. 6 credits.**

The fundamentals of Chinese through intensive listening, speaking, reading and writing. This four-week course is the equivalent of CHIN 101-102.

**CHIN 212. Intensive Chinese II. 6 credits.**

The fundamentals of Chinese through intensive listening, speaking, reading and writing at the intermediate level. This four-week course is the equivalent of CHIN 231-232. *Prerequisite:* CHIN 102 or CHIN 111 or permission of the instructor.

**CHIN 231 Intermediate Chinese I. 3 credits.**

A more in-depth study of grammar, vocabulary building, conversation and reading. Includes an introduction to composition. *Prerequisite:* CHIN 102, CHIN 111, or permission of the instructor.

**CHIN 232. Intermediate Chinese II. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite:* CHIN 231 or permission of the instructor.

**CHIN 300. Chinese Grammar and Communication. 3 credits.**

Intensive training in grammatical structures and their applications to oral and written conversation. Instruction is in Chinese. *Prerequisite: CHIN 232 or CHIN212 or permission of the instructor.*

**CHIN 320. Chinese Oral and Written Communication. 3 credits.**

Intensive training in the use of modern, everyday Chinese with emphasis on conversation and composition. Readings in Chinese will provide a context for discussion and writing. *Prerequisite: CHIN 300.*

**CHIN 397. Intensive Reading and Writing in Chinese I. 3 credits.**

The major goal of this course is to help students intensively develop proficiency in reading and writing based on their competence in listening and speaking. Students are expected to appropriately express their ideas in writing on a wide range of topics and achieve reading competence in Mandarin Chinese. *Prerequisite: Permission of the instructor.*

**CHIN 398. Intensive Reading and Writing in Chinese II. 3 credits.**

Continuation of intensive training in the reading and writing of modern Mandarin Chinese. Instruction is in Chinese. *Prerequisite: CHIN 397 or permission of the instructor.*

**CHIN 435. Translation Strategies. 3 credits.**

This course discusses the different theoretical strategies of translation and applies them in extensive practical experiences using internet-based language resources in various topics of interest, thus to improve students' knowledge of Chinese language and translation competence. *Prerequisite: CHIN 300.*

**CHIN 446. Special Topics in Chinese Literature. 3 credits.**

Study of a particular topic in Chinese literature. It may cover all or a specific Chinese literature genre. Course may be repeated if content varies. *Prerequisite: CHIN 300.*

**CHIN 447. Special Topics in Chinese Civilization. 3 credits.**

Students will study a particular topic in the civilization and/or culture of Chinese-speaking countries. Course may be repeated if content varies. *Prerequisite: CHIN 300.*

**CHIN 448. Special Topics in Chinese Linguistics. 3 credits.**

Students will study a particular topic in Chinese linguistics. Topics could include an introduction to Chinese sociolinguistics or psycholinguistics. Course may be repeated if content varies. *Prerequisite: CHIN 300.*

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## Classics

**CLAS 100. Latin and Greek Roots of English Words. 3 credits.**

Intensive study of Latin and Greek word-roots, prefixes and suffixes in the forms they take in English words. An English vocabulary-development course for students with no knowledge of Latin or Greek. Does not count toward licensure in Latin.

**CLAS 265. The Individual and Society in Ancient Greece and Rome. 3 credits.**

Discussion of literary and historical sources that reflect the attitudes and values of individuals in various social classes. All readings are in English.

**CLAS 266. Greek and Roman Classics in Translation. 3 credits.**

Discussion of the writings that illustrate the cultural values and intellectual attitudes which constitute the most important legacy of Classical civilization. All readings are in English.

**CLAS 337. Human Values: The Classical Tradition. 3 credits.**

Discussion of human values and the human condition reflected in writings from the eighth century B.C. to the present day. Does not count toward licensure in Latin. All readings are in English.

**CLAS 360. Topics in Greek and Roman Culture. 3 credits.**

A study of selected topics in the culture of Ancient Greece and Rome. May be repeated for credit with change of topics.

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## Communication Sciences and Disorders

**CSD 200. Introduction to Communication Disorders. 3 credits.**

This course is an introduction to human communication, the most advanced of neurological functions which separates humans from all other species. It surveys both normal and communicatively disordered populations served by audiologists, speech-language pathologists, educators and neuropsychologists.

**CSD 207. Phonetics. 3 credits.**

Instruction in various transcription techniques for phonetic and phonemic analysis of speech production.

**CSD 208. Anatomy and Physiology of the Ear and Voice Mechanism. 3 credits.**

A detailed study of the anatomy and physiology of the speech mechanism.

**CSD 209. Acoustics of Hearing and Speech. 3 credits.**

Introduction to acoustics of speech and hearing. Introduction to physical acoustics, sound generation and transmission, resonance, speech acoustics and speech perception.

**CSD 300. Language Development. 3 credits.**

The study of language acquisition, development, structure and function in normal children. The development of language in all cultures and the universal nature of the developmental process is the foundation for continued study in speech-language hearing. *Prerequisites: A grade of "C" or better in CSD 207, CSD 208 and CSD 209; Open to CSD majors only.*

**CSD 301. Audiology. 3 credits.**

An introduction to the symptoms, causes and treatment of hearing disorders. Hearing test instrumentation and interpretation in clinical situations are emphasized. *Prerequisites: A grade of "C" or better in CSD 207, CSD 208 and CSD 209 or permission.*

**CSD 314. Phonological and Language Disorders. 3 credits.**

An introduction to phonological and language disorders in children and adults. Etiological and maintaining factors are discussed, and an overview of assessment and (re)habilitation procedures is presented. *Prerequisite: CSD 300 or permission.*

**CSD 318. Aural Rehabilitation. 3 credits.**

Concentrated attention is given to communication problems of the hearing handicapped. Aural rehabilitation is emphasized including lip reading and auditory training. *Prerequisite: CSD 301 or permission.*

**CSD 412. Professional Issues and Multicultural Considerations in Communication Disorders. 3 credits.**

This course will address professional issues including healthcare disparities, ethical service delivery, and considerations for effective service delivery to culturally and linguistically diverse populations. Linguistic and nonlinguistic features of different cultures and languages will be discussed. *Prerequisites: CSD 200, CSD 207, CSD 300, CSD 314.*

**CSD/BIO 415. Neuroanatomy and Neurogenic Communication Disorders. 3 credits.**

Introduces neurogenic communication disorders from a neuroanatomical approach. *Prerequisite: CSD 208 or permission.*

**CSD 416. Organic Speech Disorders. 3 credits.**

This course will discuss fundamental considerations for communication and swallowing disorders of organic etiology. Discussion of current evaluation methods and treatment strategies are explored. *Prerequisites: CSD 208 and CSD 415.*

**CSD 420. Introduction to Sign Language. 3 credits.**

Provides an introduction to American Sign Language, the deaf community and English-based signed systems.

**CSD 421. Sign Language II. 3 credits.**

Focuses on developing conversational skills of students whose core vocabulary and knowledge of the grammar and pragmatics of sign language are basic; distinguishes ASL from English sign systems. *Prerequisite: CSD 420 or permission.*

**CSD 444. Child Language Development and Disorders. 3 credits.**

The study of normal language development in children, including an overview of the linguistic bases of language. Topics include the examination of the various manifestations of language disorders in children and the different strategies for intervention. This course does not meet the degree requirements for CSD majors.

**CSD 470. Methods and Observation. 3 credits.**

Directed observation and participation in practical experiences. Introduction to the clinical process in speech-language pathology. Practical clinical methodology will be emphasized. *Prerequisite: Majors only; CSD 314 or permission.*

**CSD 471. Methods and Observation in Audiology. 3 credits.**

An introduction to the clinical process in audiology via directed observation and participation in laboratory and patient interactions. Practical clinical methodology is emphasized. Majors only with interest in graduate study in audiology. Repeatable for credit up to six credits. Must have senior status to enroll. *Prerequisite: CSD 301 or permission.*

**CSD 490. Special Studies in Communication Sciences and Disorders. 1-3 credits.**

Provides students opportunity for independent study and/or small class instruction in elective topics.

**CSD 499. Honors. 6 credits.**

See catalog section "Graduation with Honors."

## Communication Studies

### SCOM 121. Fundamental Human Communication: Presentations. 3 credits.

Study of human communication as a process. Overview of the principles and practices of interpersonal, small group and public communication. Emphasis on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process, using power and managing conflict, applying critical listening, practicing audience analysis within informative speech making. Public speaking required. May be used for general education credit. May not be used for major credit.

### SCOM 122. Fundamental Human Communication: Individual Presentations. 3 credits.

Study of human communication as a process. Overview of the principles and practices of communication in a public environment. Emphasis on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process, using power and managing conflict, applying critical listening, practicing audience analysis, and constructing informative and persuasive speeches. Public speaking required. May be used for general education credit. May not be used for major credit.

### SCOM 123. Fundamental Human Communication: Group Presentations. 3 credits.

Study of human communication as a process. Overview of the principles and practices of communication in small group and public communication contexts. Emphasis on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process, using power and managing conflict, applying critical listening, practicing audience analysis, and constructing informative and persuasive group presentations. Public speaking required. May be used for general education credit. May not be used for major credit.

### SCOM 231. Introduction to Alternative Dispute Resolution. 3 credits.

Study of conflict resolution processes including mediation, arbitration and negotiation. Consideration of litigation and hybrid dispute processes such as summary jury trial, rent-a-judge and panel evaluation.

### SCOM 240. Introduction to Communication Theory. 2 credits.

Study of theories and models that inform understanding of human communication processes. Emphasis on the processes of theory building, comparison of theories, and the implications and application of theory to particular contexts. Consideration of role of communication in all human endeavors. The SCOM 241 lab and SCOM 240 lecture portions must be taken concurrently. *Prerequisites: SCOM major declared or SCOM minor declared students only, and any SCOM course.*

### SCOM 241. Communication Theory Lab. 1 credit.

This lab is designed to complement and supplement the SCOM 240 lecture course. Students will discuss, write and/or give presentations related to content covered in SCOM 240. The SCOM 241 lab and SCOM 240 lecture portions must be taken concurrently. *Prerequisites: SCOM major declared or SCOM minor declared students only, and any SCOM course.*

### SCOM 242. Presentational Speaking. 3 credits.

Study of methods for preparing and presenting public speeches. Consideration of impromptu and extemporaneous speaking, sales speeches, business presentations and other special occasion speeches. Emphasis on performance and evaluation. *Prerequisite: Any SCOM course. SCOM/SMAD/KIN 243 Sport Communication Techniques: Broadcasting. SCOM/SMAD/KIN 244 Sport Communication Techniques: Writing and Reporting.*

### SCOM 245. Signs, Symbols and Social Interaction. 3 credits.

The study of verbal and nonverbal communication as used in human interaction. Consideration given to the function of symbolic systems in self-concept development, the structuring of reality and social discourse. Attention is directed toward the use of signs and symbols by different ethnic groups, genders, age groups and geographic groups. *Prerequisites: SCOM major Declared' or 'SCOM minor Declared' students only and any SCOM course.*

### SCOM 247. Small Group Communication. 3 credits.

Study of communication processes involved in solving problems when working with others in a small group context. Emphasis on concepts of roles, norms, leadership and decision making. Consideration of small group factors which influence problem-solving effectiveness. *Prerequisite: Any SCOM course.*

### SCOM 248. Intercultural Communication. 3 credits.

The study of human communication in a variety of cultural settings and contexts. Emphasis on developing understanding and analytical skills regarding communication between people from different racial, ethnic and cultural backgrounds in both domestic and international settings. Consideration of relevance and application to social, business and political environments.

### SCOM 260. Introduction to Public Relations. 3 credits.

Study of basic principles and practices of public relations. Consideration given to public relations problems and pragmatic solutions utilizing oral, written and electronic communication media and skills.

### SCOM 261. Public Relations Techniques I: Written. 3 credits.

Study of writing fundamentals for public relations. Emphasis on practice of effective writing for a variety of media (press releases, public service announcements, brochures, newsletters). Must be able to use word processing software. *Prerequisite: SCOM 260.*

### SCOM 280. Introduction to Communication Research. 3 credits.

An introduction to the principles, methods and analysis techniques used in the field of communication. Emphasis on a broad-based understanding of the breadth of research in the field. Includes both qualitative and quantitative research methods, methods of literature review and research article critiques. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: SCOM 240.*

### SCOM/WGS 302. Third Wave Ecofeminism. 3 credits.

This course explores the historically strong association between women and nature, in which the image of Mother Earth is central, and critiques the power-dominance assumption of our culture shown in the exploitation of women and of the earth itself. Religious, psychological, social, historical and scientific manifestations of this assumption will be examined, along with alternative models of power and responsibility. Students will explore the considerable research on ecofeminism.

### SCOM/ANTH 305. Language and Culture. 3 credits.

An introduction to linguistic anthropology. Explores the complex relationships between language and culture through topics such as language acquisition and socialization; language, thought, and worldview; language and identity; multilingualism; how and why languages change; literacy; and the politics of language use and language ideologies.

### SCOM 313. Topics in Communication Studies. 1-3 credits, repeatable to 6.

Study of current topics and issues in human communication. Emphasis on contemporary theories, research and principles. *Prerequisites: Nine hours of SCOM courses including SCOM 240 and one at 100 level.*

### SCOM 314. Communication in Romantic Relationships. 3 credits.

This class acquaints students with relevant theory and research associated with communication in various stages of romantic relationships including initiation, maintenance and dissolution. Emphasis is on honing one's ability to understand communication theory, research, and application while enhancing one's communication skills in romantic relationships. Additionally, students will improve their ability to communicate about relationship research through writing, presenting and discussing.

### SCOM 318. Practicum in Communication Studies. 1-6 credits.

Approved co-curricular activities and/or projects of a practical nature. No more than six hours of practicum credit can be applied to major. Proposals must be submitted to and approved by the course instructor for section and credit hour registration. To receive repeat credit, see school director. *Prerequisite: Permission of the school director.*

### SCOM 320. Introduction to Interpersonal Communication. 3 credits.

Introduction to the fundamental theoretical perspectives in interpersonal communication. Emphasis on the effects of verbal and nonverbal messages on continuity and change in personal relationships. Consideration of the influence of cultural and social contexts on messages in relationships. Development of communication competence in diverse interpersonal contexts.

### SCOM 330. Special Topics in Interpersonal Communication. 3 credits.

Study of current topics and issues in interpersonal communication. Topics and issues may include, but are not limited to aging and lifespan, communication education, computer mediated relations, deception and secrecy, friendship and rivalry, relationship rejuvenation and social support. May be repeated up to six credits.

### SCOM 331. Communication and Conflict. 3 credits.

Consideration of theories of conflict emerging from the communication discipline and application to different forms of conflict at all levels of human interaction. An examination of communication and varied responses to conflict in diverse situations. Emphasis on competencies required for successful management, intervention and transformation of conflict. *Prerequisite: SCOM 240 or SCOM 245 recommended.*

### SCOM 332. Mediation. 3 credits.

Study of analysis and resolution of human conflict. Emphasis on role of mediation in dispute resolution focusing on relationships, language, listening and problem-solving techniques. Consideration of the interpersonal and group

approaches to study of conflict management. *Prerequisite:* SCOM 240 or SCOM 245 recommended.

**SCOM/JUST 333. Negotiations.** 3 credits.

Provides an overview of negotiation as a strategy for dealing with conflict. *Prerequisites:* For Justice Studies majors, JUST 200 and one other 200-level JUST course. For SCOM fully-admitted majors/minors: No prerequisites.

**SCOM 334. Alternative Dispute Resolution.** 3 credits.

Study of conflict resolution processes including mediation, arbitration and negotiation. Consideration of litigation and hybrid dispute processes such as summary jury trial, rent-a-judge and panel evaluation.

**SCOM 335. Communication Consulting.** 3 credits.

Students learn and apply the best practices for communication consulting in a variety of contexts. Specific emphases may include consulting on public speaking, peer education, visual communication, marketing, group communication, data visualization, and data analysis. Based in contemporary human communication theory, Communication Consulting provides experiential learning opportunities through a practicum in team-based communication consulting. *Prerequisite:* SCOM 121, SCOM 122 or SCOM 123.

**SCOM 338. The Art of Public Debate.** 3 credits.

This course focuses on the practical application and critical examination of debate in the public sphere. The course provides students with experience in researching, constructing and presenting topics for public debate. Additionally, students will be asked to examine pieces of public debate in order to provide them with the tools to critically examine public discourse in a manner consistent with being a productive and active citizen. This course will culminate with a public debate tournament.

**SCOM 340. Principles and Processes of Interviewing.** 3 credits.

Study of communication principles and processes in interviewing. Emphasis on interpersonal processes involved in interview structures, goals and question types. Development of communication skills in information, persuasive, counseling, health care, employment and performance appraisal interviews.

**SCOM 341. Persuasion.** 3 credits.

The study of oral communication as a determinant of attitudinal and behavioral change. Emphasis on the various kinds of artistic and nonartistic proofs as they apply to human motivation. Consideration of the application of behavioral research findings to persuasion. *Prerequisite:* SCOM 240.

**SCOM 342. Argument and Advocacy.** 3 credits.

The study of the techniques and principles of argument and advocacy. Emphasis on developing, presenting and defending a position on controversial questions. Consideration given to contemporary theories of public argument.

**SCOM 343/WRTC 430. Contemporary Rhetorical Theory and Practice.** 3 credits.

A research-infused course that familiarizes students with the major theories, trends and figures in contemporary rhetoric. Students will study the foundational principles of contemporary rhetorical theory and their applications in academic, professional and civic contexts. *Prerequisites:* WRTC 103 or equivalent; For WRTC majors: WRTC 200, WRTC 210 or WRTC 211, and WRTC 220 and WRTC 240.

**SCOM 344. Oral Interpretation.** 3 credits.

Study and application of theories concerning the oral presentation of various forms of literature including prose, poetry, drama and nonfiction materials. Emphasis on performance. *Prerequisite:* Any 100-level SCOM course.

**SCOM 345. Nonverbal Communication.** 3 credits.

Study of nonverbal means through which people relate to one another. Consideration of the communicative effects of environment, facial expression, voice, posture, gestures, touch, distance and physical appearance. *Prerequisite:* Any 200-level SCOM course.

**SCOM 346. Free Speech in America.** 3 credits.

The study of the evolution of freedom of speech in America from Colonial times to the present day. Emphasis on the major periods of development and on the role of courts in defining freedom of speech. Special consideration of contemporary freedom of speech controversies.

**SCOM 347. Communication, Diversity and Popular Culture.** 3 credits.

Study of the rhetorical dimension of communication practices and texts found in popular culture. Emphasis on issues of diversity as they are manifested in the communication practices found in popular culture. Emphasis on strategic communication choices in a diverse, multicultural world. Emphasis on critical thinking, self-reflexivity and communication analysis. *Prerequisite:* SCOM 121, SCOM 122 or SCOM 123.

**SCOM/WGS 348. Communication and Gender.** 3 credits.

Study of theories and research regarding the influence of gender in various human communication contexts, both public and private. Emphasis on the critical analysis of existing theory and empirical research and the potential competent uses of communication for social change. *Prerequisite:* Any 100-level SCOM course.

**SCOM 349. Ethnographic Approaches to Communication Studies.** 3 credits.

This course offers an examination of ethnographic approaches to interpersonal, organizational, health and public communication studies. Students will analyze the role of ethnographic methods and inductive research processes toward building theories of communication and assessing communication practices. *Prerequisite:* Any 100-level SCOM course or permission of the instructor.

**SCOM 350. Organizational Communication.** 3 credits.

Students gain a complex understanding of organizing practices by investigating the evolution of how historical events have influenced organizational communication and managerial practices at work. Drawing upon communication theory, students analyze various organizational communication practices such as the management of workers, development of organizational culture, and interaction with larger systems. Learning is complemented by an experiential learning project.

**SCOM/WRTC 351. Visual Rhetoric.** 3 credits.

A study of the rhetorical foundations of visual and verbal arguments in academic disciplines and popular culture. Students will analyze and produce visual and verbal arguments in a variety of rhetorical contexts. *Prerequisites:* WRTC 103 and any 100-level communication studies course or permission of the instructor.

**SCOM 352. Communication and Social Movements.** 3 credits.

A study of the use of communication in social movements. Emphasis on the types of communication used in social movements and on ways to produce and respond to such messages. This course examines a variety of different social movements within the political process including nonprofit organizations.

**SCOM 353. American Political Culture and Communication.** 3 credits.

Study of functions performed by communication in politics. Emphasis on a variety of communication forms and techniques used by advocates both in campaigning and governing. Consideration of contemporary campaigns and the role of communication in their successes and failures. *Prerequisites:* SCOM 240 and POSC 225 are recommended.

**SCOM 354/WRTC 326. Environmental Communication and Advocacy.** 3 credits.

An exploration of the multifaceted aspects of environmental controversies including the rhetoric, advocacy campaigns, and decision-making processes that produce and attempt to manage environmental conflict. Emphasis on persuasive efforts by interest groups, corporations, resource managers, government agencies, scientific experts, politicians and citizens to influence public understanding of environmental issues, adoption of sustainable behavior and lifestyles and public policy outcomes.

**SCOM 355. Food as Communication.** 3 credits.

This course examines food as symbolic in everyday life, with attention to negotiated understandings of identities, communities, cultures and environments. The course focuses on issues such as how we communicate identity through food consumed and not consumed; how food choices create, shape and reflect communities and cultures; how messages from mass media and government frame, influence and shape food practices; and how food practices intersect, communicate and impact surrounding environments. *Prerequisites:* SCOM 121, SCOM 122 or SCOM 123.

**SCOM 357. Youth, Communication and Culture.** 3 credits.

Grounded in the cultural communication perspective, the course examines the relationship between communication, youth and popular culture. Defining youth as children, tweens, teens and college-aged young people, this course focuses on communication issues such as how youth are represented in various forms of popular culture; how they are defined by corporate discourse; how young people make sense of popular culture artifacts; and how they become cultural communicators as well as consumers.

**SCOM 358. Business and Professional Communication Studies.** 3 credits.

Students investigate the nuance and complexity of communication in modern organizational life. A portion of the class is dedicated to the skills involved in a competitive, successful career search. In addition, students develop the skills

to become an ethical and effective organizational citizen. *Prerequisite: Junior or senior status.*

**SCOM 359. Digital Communications Consulting. 3 credits.**

This class will train students to become effective tutors of digital communication. The class will frame that expertise with the training of the best strategies for college tutors, via theory, research and practice. Tutors for the Learning Centers develop vital professional skills: pedagogical aptitude, professional interpersonal communication, and experience with cross disciplinary perspective on digital texts. This is also crosslisted with WRTC. *Prerequisites: Admission to SCOM, SMAD, or WRTC major.*

**SCOM 361. Public Relations Techniques II: Visual. 3 credits.**

Study of visual communication techniques for public relations. Survey of design principles and elements used for developing visually effective messages with an emphasis on publication design and production, photography, and computer-mediated presentations. Students should provide a camera and be familiar with desktop publishing and presentational software. *Prerequisite: SCOM 261; open to SCOM public relations concentration students only.*

**SCOM 362. Public Relations Theory and Concepts. 3 credits.**

The purpose of this course is to introduce students to the theoretical body of knowledge in public relations. In this course, students will learn core tenants of important theories and concepts and apply these to the ethical practice of public relations. The breadth of theories covered will be useful for any public relations specialization and builds an essential foundation to better understand the research-based character of the public relations process. *Prerequisite: SCOM 260.*

**SCOM 363. International Public Relations. 3 credits.**

Explores the special professional challenges and opportunities arising from the dynamic global public relations developments characterizing the beginning of this century, taking into account social, economic, political, legal, and cultural factors as well as new media developments. *Prerequisite: SCOM 260.*

**SCOM 365. Sports Public Relations. 3 credits.**

This class is designed to provide students with opportunities to explore the profession of sports public relations. In this class, students will discuss various sports communication issues including media relations, community relations, player relations, fan relations, crisis communication, sports social responsibility and more. *Prerequisite: SCOM 260.*

**SCOM 367. Advanced Public Relations Writing. 3 credits.**

Offers advanced public relations students experience in the wide range of writing style and applications that are essential to successfully begin their professional careers. The course focuses on understanding and mastering action-oriented communication methods and best professional practices. Provides both a conceptual framework and in-depth training in advance techniques. *Prerequisite: SCOM 261. Open to SCOM public relations concentration students only.*

**SCOM 369. Topics in Engaged Public Relations. 3 credits.**

Students will explore specific context of public relations and how public relations theories, processes, and skills can be used in the context. During the semester, students will discuss specific publics within the context and apply ethical communication strategies and tactics to engage with those publics. Courses provided could include crisis communication, corporate social responsibility, social media management, fashion public relations, etc. based on the expertise of the instructor. *Prerequisite: SCOM 260.*

**SCOM 370. Introduction to Health Communication. 3 credits.**

An introduction to the study of the theory and practice of communication in health- and medical-related fields. Emphasis on communication interaction between professional health providers and patients/clients. Consideration of strategies that promote effective communication between health/medical professionals and patients/clients. *Prerequisite: Any 100-level SCOM course.*

**SCOM 371. Talking Through Tough Cases: Ethical Principles and Practices in Communication Studies. 3 credits.**

Seminar study of current ethical dilemmas and various responses from a communication perspective. Explores theories, principles and practice of managing diverse positions and non-adversarial communication. *Prerequisite: Six hours of SCOM courses including SCOM 240.*

**SCOM 381. Rhetorical Research Methods. 3 credits.**

The study of rhetorical and critical research methods in various communication contexts. Emphasis is on developing and applying appropriate standards to consider communicative factors such as audience, tone, and rhetorical strategies. Consideration of criticism of public address, mass media, and other forms of persuasive communication. Students will be expected to conduct an original

research project and present findings in a paper and/or oral presentation. *Prerequisite: SCOM 280.*

**SCOM 383. Quantitative Experimental Research Methods. 3 credits.**

The study of quantitative research methods in various communication contexts. Emphasis is on ability to research literature, develop and evaluate experimental design, and apply and interpret statistical tests. Students will be expected to conduct an original research project and present findings in a paper and/or oral presentation. *Prerequisites: SCOM 280.*

**SCOM 385. Qualitative Research Methods. 3 credits.**

Study of interpretive approaches to communication research using a variety of qualitative research methods, including field observation, qualitative interviewing, focus groups, narrative analysis and discourse analysis. Students will plan and conduct an exploratory qualitative study, prepare a written research report including a literature review and make a research presentation. *Prerequisite: SCOM 280.*

**SCOM 386. Survey Research Methods. 3 credits.**

The study of survey research methods in various communication contexts. Emphasis on using survey research methodology in communication audits, public relations problems and public opinion polling and the ability to research literature, develop and evaluate survey questions, and apply and interpret statistical tests. Students will be expected to conduct an original research project and present findings in a paper and/or oral presentation. *Prerequisite: SCOM 280.*

**SCOM 388. Campaign Research Methods. 3 credits.**

The study of research methods in various communication contexts. Emphasis is on ability to use research methods at various stages of communication planning including background research, primary research, strategic planning, monitoring and evaluation. Students will be expected to conduct an original research project and present findings in a paper and/or oral presentation. *Prerequisite: SCOM 280.*

**SCOM 390. Directed Projects. 2-3 credits, repeatable to 6 credits.**

Supervised projects related to any aspect of human communication. Emphasis on original individual or group programs beyond the school's usual curricular or co-curricular offerings. Formal report(s) required for awarding of credit. *Prerequisite: Permission of the school director.*

**SCOM 391. Communication Career Strategies. 1 credit.**

The study of strategies for implementing a job/internship campaign. Emphasis on conducting a self-assessment, locating job and internship openings, writing resumes, cover letters and follow-up messages, conducting informational interviews, networking, interviewing techniques and marketing a communication studies degree. *Prerequisite: 12 credit hours in SCOM.*

**SCOM 395. Study Abroad Seminar. 3-6 credits.**

Intensive examination of specialized international communication topics arranged in cooperation with a faculty member. Prior arrangements must be made with the program director. *Prerequisites: Permission of the program director and school director required.*

**SCOM 413. Advanced Topics in Communication Studies. 1-6 credits repeatable to 6 credits.**

In-depth exploration and analysis of a communication-related theory, context, topic or problem, culminating in a research project documented in written, oral, visual and/or multimedia presentations. Course content varies based on faculty expertise. *Prerequisites: Senior standing and 15 hours of SCOM courses.*

**SCOM/WGS/WRTC 420. Feminist Rhetorics. 3 credits.**

Surveys key women figures in classical and contemporary rhetorical traditions and challenges the strategies used to historicize this tradition from feminist perspectives. Explores diverse feminist rhetorical discourses informed by race, sexual orientation, ethnicity and social class. *Prerequisites: WRTC 103 or equivalent and junior or senior standing, or permission of the instructor.*

**SCOM 425. Leadership Communication. 3 credits.**

This course promotes understanding and development of organizational leadership through investigation of theory and analysis. Students explore varied and sometimes contradictory models of leadership and learn how to articulate and express ideas that encourage others to advocate for and bring about positive change. *Prerequisite: Junior or senior standing.*

**SCOM 431. Legal Communication. 3 credits.**

Study of the role of communication in the legal process. Emphasis on communication questions/problems which litigants, lawyers, judges and jurors face. Consideration of legal argument, negotiation, trial advocacy, decision making and communication technologies.

**SCOM 432. Senior Seminar in Conflict Analysis and Intervention. 3 credits.**

An advanced seminar, capstone course open to all junior and senior SCOM students, and required for conflict majors and minors. Special topics are developed to include research in conflict analysis and intervention, current trends in dispute resolution, evolving practices in conflict transformation, peacemaking, and mediation, as well as other relevant and timely issues.

**SCOM 440. Family Communication. 3 credits.**

Study of the processes and functions of family communication, including managing dating, marital, parent-child and intergenerational relations. Theoretical and applied examination of communication and cultural processes that define and construct family structures, systems and boundaries. Course also examines histories of family communication as constructed in popular culture. *Prerequisite: SCOM 280.*

**SCOM/HIST 441. Oral History. 3 credits.**

This course will explore the theory and practice of oral history. Through a series of readings, students will consider the many promises and challenges of the discipline, including issues related to memory, objectivity, ethics, the law, and technology. Students will also engage in an experiential learning exercise in which they collaborate to produce an oral history project. *Prerequisite: HIST 395 or permission of the instructor.*

**SCOM 442. Advanced Topics in Advocacy Studies. 3 credits.**

Advanced topics in advocacy studies is the concentration's capstone. Through case studies, readings, discussions and experiential activities students investigate complex issues in the field of advocacy. Students apply theoretical knowledge and skills as they explore the interaction between advocacy and communication. *Prerequisite: Senior standing.*

**SCOM 447. Facilitating Public and Organizational Engagement Processes. 3 credits.**

Students will learn theories and tools that help organizations and communities think through difficult issues in ways that are productive. Dialogue, deliberation, strategic planning and collaboration are communicative tools that help people deal with complex issues by promoting understanding of multiple viewpoints of the issues, engaging in processes to facilitate choice-making and ways to act together to implement these decisions. Hands-on experiences will be utilized. *Corequisite: Communication majors or minors who have completed 12 credits in communication.*

**SCOM 448. Communication, Culture and Identity. 3 credits.**

This class examines theory and research of cultural communication, and reflexively considers how communication practices construct identities and arrange social relations within diverse contexts and applied settings. *Prerequisite: Any one of the following courses: SCOM 305, SCOM 347, SCOM 348, SCOM 349, SCOM 352, or SCOM 357.*

**SCOM 449. Communication Training. 3 credits.**

Students learn to analyze organizations to manage and solve communication problems and improve organizational life. Through experiential learning students will become familiar with strategies and activities designed to help others improve their communication skills. Students gain experience leading meetings, engaging an audience, collaborating, and facilitating difficult conversations. *Prerequisites: SCOM 242, junior standing and 12 hours in speech communication.*

**SCOM 450. Advanced Studies in Organizational Communication. 3 credits.**

Advanced studies in organizational communication is the concentration's capstone. Through case studies, readings, discussions, and experiential activities students investigate complex issues that emerge for organizations and their members. Students apply theoretical knowledge and skills as they develop organizational communication concepts to analyze a communication problem. Expertise is showcased through an applied field study in an active organization. *Prerequisites: SCOM 350 and senior standing.*

**SCOM 453. Political Campaign Communication. 3 credits.**

An advanced study of communication techniques, procedures and processes as they relate to political campaign communication. Emphasis upon the design, execution and production of various communication messages. Consideration of the impact and utilization of various technologies in political campaigns.

**SCOM 460. Public Relations Management. 3 credits.**

Intensive study and research of advanced communication management skills, theory and principles using case and field studies. Special attention to systematic and ethical management of communication and action affecting an organization's internal and external publics. *Prerequisite: SCOM 260.*

**SCOM 461. Public Relations Campaigns. 3 credits.**

The capstone course for the public relations program of study. Students further their theoretical understanding and practical skills in the processes of research, planning, communication/action, and evaluation by conducting campaigns for specific organizations. *Prerequisites: SCOM 362, one advanced public relations technique course (SCOM 361 or 367), one advanced research method course (SCOM 381, 383, 385, 386, or 388), and one public relations context course (SCOM 363, 365, 369, or 460).*

**SCOM 464. Communication, Culture and Sports. 3 credits.**

This course examines the interrelationship between communication, culture and sports in today's society and how that interrelationship reinforces social values and norms, and the impact of cultural identification of class, race, and gender in connecting sports values with cultural values. Drawing on theories of rhetoric and social criticism, students will study several critical approaches to sports and public discourse and will apply those approaches to sports coverage and organizations. *Prerequisite: Junior or senior standing.*

**SCOM/WRTC 465. Rhetoric of Environmental Science and Technology. 3 credits.**

This course offers an advanced study of the way the public receives, makes sense of, and influences scientific and technical information about environmental issues. Implications of these processes on environmental policy will be analyzed. Readings and assignments will concentrate on the interactions between technical and public spheres of communication, with an in-depth examination of the way the media facilitates the transfer of information between scientific communities and public audiences. *Prerequisites: WRTC 103 or equivalent and junior or senior standing, or permission of the instructor.*

**SCOM 467. Global Public Relations Seminar. 3 credits.**

Advanced experimental learning approach combined with relevant theory and research provides students with an opportunity to enhance critical global communication knowledge and skills urgently required to meet this century's cultural, social, political and economic challenges. Students team with peers at universities worldwide in developing comprehensive strategic management programs. *Prerequisite: Permission of the instructor.*

**SCOM 470. Health Communication Campaigns. 3 credits.**

The study of advanced theory and practice of communication in health related fields. Consideration of topics relating to communication issues which affect communication interaction between health professionals and client/patients. Emphasis on the use of communication in health communication campaigns.

**SCOM 471. Culture and Health Communication. 3 credits.**

This course explores how we define and study culture in health communication. Specifically this course compares the culture-centered approach to studying culture and health communication to the cultural sensitivity or culture as barrier model. In this course we apply various theoretical lenses to understand diverse health beliefs and engage in dialogue about our own health beliefs.

**SCOM/SMAD/POSC 472. Media and Politics. 3 credits.**

A study of the media's role in political campaigns, concentrating on past/present election, the media's role in covering political parties and coverage of the governing process. Discussion of electronic and print will occur. Topics to be examined include campaign videos, CSPAN, political ads, editorial cartoons, TV debates, convention coverage and radio talk show commentary.

**SCOM 490. Special Studies in Communication Studies. 1-3 credits.**

An independent study for students to pursue individual research under the guidance of faculty. Limited to senior communication studies majors in good standing with permission of school director.

**SCOM 495. Internship in Communication Studies. 3-6 credits, repeatable to 6 credits.**

Credit for the application of communication theory and skills in a directed, on-the-job learning experience. Open only to communication studies majors who meet specific criteria (see the school website). Up to six credits may be applied as electives in the communication studies' major. *Prerequisite: Permission of the school director.*

**SCOM 499. Honors in Communication Studies. 6 credits.**

Year course. *Prerequisite: Permission of the school director.*

## Computer Information Systems

### CIS 204. Computer Information Systems Fundamentals for Non-Business Majors. 3 credits.

An introduction to computer-based information systems. Emphasis is placed on the role of computers in organizations and society, computer hardware and software, uses of information systems, computer ethics, and collaboration using computers. Students will use typical business applications. This course is designed to fulfill requirements for the General Business minor. Not open to business majors. This course may NOT be substituted for COB 204 by business majors or CIS minors.

### CIS 221. Principles of Programming. 3 credits.

Students will be required to solve real-world business problems with computer programming using an Integrated Development Environment (IDE) and event driven logic. Projects will include the use of control structures (selection and iteration), subprocedures and functions as well as file and array processing logic. Not open to students who have taken CS 139 or CS 149 or ISAT 252 with a grade of "C" or better or are taking or have taken CS 159 or CS 239.

### CIS 301. Operating Systems and Server Administration. 1 credit.

This is a lab-based course that introduces the student to operating systems and server administration in a business environment. Students will learn the basic functions of an operating system through the hands-on use of Linux and Windows. Additionally, students will acquire hands-on server administration skills in order to better understand the operational and security demands of business applications. *Prerequisites for declared CIS minors: COB 204 and junior or senior standing. Prerequisite or corequisite for CIS majors: COB 300.*

### CIS 304. Enterprise Architecture. 3 credits.

This course explores the analysis, design, implementation, evaluation and management of enterprise IT solutions. Emphasis will be placed on planning and modeling the enterprise. Topics include functional modeling, physical architecture design, security planning and recovery issues, project management, emerging technologies, and ethical, financial and global considerations. *Prerequisite or corequisite for CIS majors: COB 300. Prerequisite for declared CIS minors: Junior or senior standing.*

### CIS 311. Analyzing Data in Organizations. 3 credits.

This course provides an overview of how to work with databases and other data sources in order to access relevant information in a timely and user-friendly manner. It includes discussions of a variety of data representation types, including relational databases, XML documents and cloud data. Students learn essential database concepts and gain practical experience in querying, reporting, and analyzing data. *Prerequisite: CIS 204 or equivalent knowledge (instructor permission is needed). Open only to Adult Degree Program students.*

### CIS 312. Systems Planning and Analysis. 3 credits.

Information systems couple both technical (hardware, software, database, telecom) and socio-organizational (business processes, ethics, knowledge, users, developers) subsystems to create rich and available information for the purpose of optimizing business decisions. This course covers the techniques and common tools employed for planning and analyzing these systems. Emphasis will be placed on the system development life cycle, planning and analysis tools, and professional business writing. *Prerequisite: CIS 204 or equivalent knowledge (instructor permission is needed). Open only to Adult Degree Program students.*

### CIS 313. Designing for the Web. 3 credits.

This course is an introduction to the design and development of web pages and websites. Major topics to be covered include: Hypertext Markup Language (HTML5), Cascading Style Sheets (CSS), the principles of design for user experience, responsive design and JavaScript. *Prerequisite: CIS 204 or equivalent knowledge (instructor permission as needed). Open only to Adult Degree Program students.*

### CIS 320. Computing and Telecommunications Networks. 3 credits.

This course focuses on the underlying principles of telecommunications and how these principles are deployed to provide efficient and secure networks for providing voice, data, and video services. Emphasis is placed on understanding basic routing, switching, and data aggregation techniques; information security strategies; and understanding how basic information systems applications utilize telecommunications services. *Prerequisite: Open to CIS majors and minors with prerequisite or corequisite of CIS 304. Open to ISAT majors with prerequisite of ISAT 252. Open to CS majors with prerequisite of CS 139 or CS 149.*

### CIS 330. Database Design and Application. 3 credits.

A study of the tools and techniques of database analysis and design including the implementation of the design using common database management

system models. Not open to students who have taken CS 474. *Prerequisite for CIS majors: A grade of "C" or better in one of the following: CS 139, CS 149, CIS 221 or ISAT 252. Prerequisite or corequisite: COB 300. Prerequisites for CIS minors: A grade of "C" or better in one of the following: CS 139, CS 149, CIS 221 or ISAT 252 and junior or senior standing.*

### CIS 331. Intermediate Computer Programming. 3 credits.

Study of concepts and techniques used in object-oriented programming for business applications including program specification, design, development, testing, implementation and documentation. Topics include: basic programming structures; method, array and memory analysis; object-oriented principles (encapsulation, inheritance, polymorphism); graphical user interface (GUI) design and database connectivity. *Prerequisite or corequisite for CIS majors and minors: CIS 330.*

### CIS 354. Advanced Visual Basic Programming. 3 credits.

Advanced course in Visual Basic programming. Emphasis will be placed on Object-Oriented programming, sequential and random data files and error trapping. Other topics covered will include data access objects, client server, printing in VB and Crystal Reports. *Prerequisite: A grade of "C" or better in one of the following: CIS 221, CS 139, CS 149, or ISAT 252. Prerequisite or corequisite: CIS 330.*

### OM 360. Operations Management. 3 credits.

An introduction to the operations function in business. Topics include facility design, job analysis and design, forecasting, production planning, quality management, inventory management, scheduling and project management. *Prerequisites: COB 291 and junior standing.*

### CIS 361. Computer Information Systems Internship. 0 credits.

To enable students to gain valuable work experience in a CIS-related field. Requires 300 hours of approved computer information systems work experience. All work sites must be pre-approved. *Prerequisites: CIS major and COB 300.*

### CIS 366. Web Design and Development. 3 credits.

This course is an introduction to the design and development of web pages and web sites. Major topics to be covered include: Hypertext Markup Language (HTML5), Cascading Style Sheets (CSS), the principles of design for user experience, responsive design, and a programming language for web development. *Prerequisites or corequisites for CIS majors: A grade of "C" or better in one of the following: CIS 221, CS 139, CS 149 or ISAT 252, and COB 300. Prerequisites for declared CIS minors: A grade of "C" or better in one of the following: CIS 221, CS 139, CS 149, or ISAT 252, and junior or senior standing.*

### CIS/BSAN 393. Predictive Analytics and Data Mining. 3 credits.

This course focuses on quantitative techniques and computer applications that allow the extraction of useful, previously unrecognized information from large data sets for predictive purposes. By effectively sifting through databases such as those generated by many businesses, data mining allows the analyst to recognize potentially important patterns and to target business opportunities. *Prerequisites: Declared BSAN minor, BSAN 391 and BSAN 392.*

### CIS 411. Computer Forensics for Business. 3 credits.

Study of the tools and techniques required to analyze the current and past contents of computer data storage devices. The course will cover the structure and formats of storage devices and the techniques used to manage storage devices and data. It will also include securing of the data and preparation for legal presentation of evidence. Analysis will include the audits of computer activity and audits of operating system logs. *Prerequisites or corequisites: CIS 301 and junior or senior standing.*

### CIS 420. Computer-Based Networking. 3 credits.

An introduction to computer-based networks that incorporates data, voice and video traffic between computer systems and users. Topics include the theory, design and operation of local area networks, wide area networks and private branch exchange systems. *Prerequisite: CIS 320.*

### CIS 424. Computer Security Management. 3 credits.

Instruction and discussion in the design, development and implementation of a computer security program including legal and ethical considerations. *Prerequisites: CIS 304 and a grade of "C" or better in one of the following: CIS 221, CS 139, CS 149 or ISAT 252.*

### CIS 425. Defensive Cybersecurity. 3 credits.

This course introduces the concepts of offensive web security through a series of hands-on labs that are built upon real world examples. Doing so allows students to understand the mechanisms of online attacks and learn how to respond to IT security breaches with counter measures. *Prerequisite or corequisite: CIS 320 or permission of the instructor.*

**CIS 428. Mobile Computing and Security.** 3 credits.

The development of mobile software applications using current environments and frameworks is the primary objective of the class. Several different development and programming environments and platforms will be included as will the actual deployment of the application to a wireless device. An important aspect of the class will be the security implications of deploying mobile devices. *Prerequisites:* A grade of "C" or better in one of the following: CIS 221, CS 139, CS 149, or ISAT 252. *Prerequisite or corequisite:* CIS 331.

**CIS 434. Information Technology Consulting.** 3 credits.

This course investigates the tools used by and skills necessary for information technology consultants. The class will use a team-oriented project approach. Teams will be assigned professional consulting firms as manager/mentors and will work with their manager/mentor firm to complete projects that cover each phase of the consulting life cycle. *Prerequisite:* Permission of the instructor.

**CIS 454. Systems Analysis and Design.** 3 credits.

An introduction to the techniques of systems analysis and design. Emphasizes concept of system life cycle and importance of users in system design. *Prerequisite:* Declared CIS major or minor. *Corequisite or prerequisite:* CIS 304 and CIS 330.

**CIS 463. Business Intelligence.** 3 credits.

This course provides a comprehensive discussion of advanced database techniques, data warehousing, online analytical processing (OLAP), data mining, data visualization, decision support systems (DSS), artificial intelligence (AI) methods and other business intelligence (BI) topics. Students gain practical experience using contemporary BI tools and technologies, and apply sound design principles for creating intelligent solutions to realistic business problems. *Prerequisite:* Grade of "C" or better in CIS 330.

**CIS 464. Information Systems Project Management.** 3 credits.

Students will develop knowledge and expertise applying techniques and tools used by systems analysts and project managers to plan and manage information systems implementations. *Prerequisites or corequisites for CIS majors:* COB 300, and a grade of "C" or better in one of the following: CIS 221, CS 139, CS 149, or ISAT 252. *Prerequisite for declared CIS minors:* A grade of "C" or better in one of the following: CIS 221, CS 139, CS 149 or ISAT 252, and junior standing.

**CIS 466. Advanced Web Development.** 3 credits.

This course provides students with understanding and practical experience in server-side programming issues for Web-enabled database and e-commerce application development. Principal topics include receiving and responding to requests from browsers, connecting to database servers via middleware software, and scripting business rules and application logic on a Web server. E-commerce business issues, security implementations and object-oriented design are also covered. *Prerequisites:* CIS 366 and CIS 330 or permission of the instructor.

**CIS 484. Information Systems Development and Implementation.** 3 credits.

Comprehensive development and implementation of enterprise-level systems using object-oriented methodologies, database driven architectures, systems analysis and design procedures, and project management skills. Topics covered will include advanced programming techniques, database processing, GUI design, object communication and a comprehensive group capstone project. *Prerequisites:* CIS 331 with a grade of "C" or better and CIS 330 with a grade of "C" or better. *Corequisite:* CIS 454.

**CIS/BSAN 490. Special Studies in Computer Information Systems or Business Analytics.** 1-3 credits.

An advanced course in information and/or business analytics designed to give qualified students an opportunity to complete independent study under faculty supervision. *Prerequisites:* Senior standing, recommendation of the instructor and written approval of the department head prior to registration.

**CIS 498. Special Topics in Computer Information Systems.** 3 credits.

An advanced course designed to allow exploration of current topics in computer information systems. Course content will vary. See adviser for current content. *Prerequisite:* Permission of the instructor.

**CIS 499. Honors.** 6 credits.

Year course. See catalog section "Graduation with Honors."

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## Computer Science

**CS 101. Introduction to Computer Science.** 3 credits.

How to think like a computer scientist. Topics include an overview of the context of computing, computational operations, computational devices, algorithms and data structures, the storage and transmission of data, the presentation of information, and the limits of computing. Students learn about the design and

implementation of computational systems, the value of abstraction, problem solving and the ways in which computation impacts society.

**CS 139. Programming Fundamentals (3, 2).** 4 credits.

Fundamental problem-solving techniques using a modern programming language. Topics include variables, input/output, decisions, loops, functions, arrays, and objects. Students learn about algorithm development, testing strategies, and software tools. This course covers the same material as CS 149, but with more class time. Students may not receive credit for both CS 139 and CS 149.

**CS 149. Introduction to Programming.** 3 credits.

Fundamental problem-solving techniques using a modern programming language. Topics include variables, input/output, decisions, loops, functions, arrays, and objects. Students learn about algorithm development, testing strategies, and software tools. Students may not receive credit for both CS 139 and CS 149.

**CS 159. Advanced Programming.** 3 credits.

Students use advanced problem-solving strategies to develop algorithms using classes and objects and techniques such as recursion, exceptions and file I/O. This course also focuses on designing small applications and effective testing strategies. Students may not receive credit for both CS 159 and CS 239. *Prerequisite:* A grade of "B-" or better in CS 139 or CS 149 or equivalent.

**CS/MATH 227. Discrete Structures I.** 3 credits.

An introduction to discrete mathematical structures including functions, relations, sets, logic, matrices, elementary number theory, proof techniques, basics of counting, graphic theory, discrete probability, digital logic, finite state machines, integer and floating point representations. *Prerequisites:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam.

**CS 240. Algorithms and Data Structures.** 3 credits.

Students learn to implement and analyze elementary data structures and the basic complexity classes of algorithms that use strategies such as greedy algorithms, divide-and-conquer algorithms and backtracking algorithms. This analysis is especially applied to problems in searching, sorting and parsing. *Prerequisites:* Grades of "C-" or better in CS/MATH 227 or MATH 245, MATH 231 or equivalent, and CS 159.

**CS 260. Technical Communication for Computer Science.** 3 credits.

An introduction to the process of planning, researching, producing, and revising technical documents attuned to specific audiences in the computing industry. Document forms studied include definitions, correspondence, descriptions, specifications, instructions, proposals, reports, resumes and plans. *Prerequisite:* Full admission to the CS major.

**CS 261. Computer Systems I.** 3 credits.

Introduction to the operation of modern interrupt-driven computer systems. Explores the representation of software and information in binary memory, the primary components of a CPU, multithreaded programming and basic interactions with an Operating System. *Prerequisite:* Grade of "C-" or better in CS 159.

**CS 280. Projects in Computer Science.** 1-3 credits.

Projects or topics in computer science which are of interest to the lower division student. May be repeated for credit when course content changes. Topics may vary. *Prerequisite:* Students should consult the instructor prior to enrolling for the course.

**CS 327. Discrete Structures II.** 3 credits each semester.

This course builds on the theoretical foundation developed in Discrete Structures I. Students study a range of topics from discrete mathematics and theoretical computer science including elementary number theory, matrices, graph theory, automata, computability and complexity theory. *Prerequisites:* Grade of "C-" or better in CS/MATH 227 or MATH 245, and CS 240.

**CS 330. Societal and Ethical Issues in Computing.** 3 credits.

Overview of philosophical and professional ethics, and a survey of societal and ethical issues in computing such as privacy, intellectual property, computer security, computer crime, product liability, and the societal, environmental, and economic impact of computers. Students develop skills in assuming and defending positions on societal and ethical issues through oral presentations and written reports.

**CS/ISAT 344. Intelligent Systems.** 3 credits.

In-depth introduction to current and future intelligent systems, including expert systems, neural networks, hybrid intelligent systems, and other intelligent system technologies and their development, uses and limitations. *Prerequisite:* CS 159 or ISAT 340.

**CS 345. Software Engineering.** 3 credits.

Study of modern methods and tools for the development of software products. Topics include software development process models, software development tools, design and construction principles and practice, software quality

assurance and program management. *Prerequisites: A grade of "C-" or better in CS 159.*

**CS 347. Web-Based Information Systems.** 3 credits.

This course covers the design and development of applications intended for deployment over the World Wide Web. Students will examine Web protocols, the architecture of Web-based applications, the languages and facilities with which they are developed, and related issues such as security and reliability. Students will also work in teams using a representative suite of development tools and languages to design and construct a simple client/server application that includes a GUI and a database interface. *Prerequisites: Grades of "C-" or better in CS 345 and CS 159.*

**CS 349. Developing Interactive Multimedia.** 3 credits.

Students learn the concepts of multimedia, the issues in designing multimedia to interact effectively with users, the performance and speed issues in designing multimedia and how to implement interactive multimedia applications. *Prerequisite: A grade of "C-" or better in CS 240.*

**CS 354. Introduction to Autonomous Robotics.** 3 credits.

A hands-on introduction to programming autonomous mobile robots. The focus of this course is on designing robotic systems that navigate independently in complex environments. Specific topics include localization, mapping, kinematics, path planning and computer vision. *Prerequisite: A grade of "C-" or better in CS 240.*

**CS 361. Computer Systems II.** 3 credits.

Intermediate exploration of modern interrupt-driven computer systems. Explores models of computation and complex systems, techniques for communication and synchronization of parallel and concurrent software, and the protocols that make up the Internet. *Prerequisites: Grades of "C-" or better in CS 240 and CS 261.*

**CS 430. Programming Languages.** 3 credits.

Several actual programming languages are studied in terms of the fundamental principles of computer programming language design, including object-oriented programming, functional programming, concurrent programming and logic programming. *Prerequisites: Grades of "C-" or better in CS 240 and CS 261.*

**CS 432. Compilers.** 3 credits.

Introduction to the theory and implementation of compilers. Explores the lexical, syntactic, and semantic analysis of high-level language code as well as code generation, optimization techniques, and architectural or operating system considerations. Course work includes a significant programming component. *Prerequisites: Grades of "C-" or better in CS 327 and CS 361.*

**CS 442. Logic in Computer Science.** 3 credits.

An exploration of some of the many connections between logic and computing, such as the application of classical and temporal logic in program verification, logic and logic programming, decidability, computability, automatic theorem proving, the computational complexity of logic algorithms, and applications of logic in artificial intelligence. A course in discrete mathematics or logic is recommended as preparation for this course. *Prerequisite: Junior or senior standing.*

**CS 444. Artificial Intelligence.** 3 credits.

Students will study the history, premises, goals, social impact and philosophical implications of artificial intelligence. Students will study heuristic algorithms for large state spaces and learn to develop recursive and non-deterministic algorithms. *Prerequisite: A grade of "C-" or better in CS 240.*

**CS 446. Software Analysis and Design.** 3 credits.

Contemporary software analysis and design methods, tools, notations, techniques, processes, principles and practices. Students solve analysis and design problems alone or in teams and present their work to their peers and the instructor. *Prerequisites: Grades of "C-" or better in CS 240 and CS 345.*

**CS/ISAT 447. Interaction Design.** 3 credits.

Study of and practice with processes, principles, tools, models and techniques for designing interactions between humans and digital products and systems. Topics include physiological and psychological factors affecting interaction design, interaction design processes, interaction models, styles and paradigms, design notations and representations, prototyping, and interaction design evaluation. *Prerequisite: Junior standing.*

**CS/MATH 448. Numerical Analysis.** 3 credits. Offered every third semester as of fall 2014.

Study and analysis of algorithms used to solve nonlinear equations and systems of linear and nonlinear equations. Iterative methods for matrices and Newton-type methods. Numerical differential and integral calculus.

Programming using a high-level language and/or software packages. *Prerequisites: MATH 237, MATH 238 or MATH 300; and MATH 248.*

**CS/MATH 449. Numerical Analysis for Differential Equations.**

3 credits. Offered every third semester as of spring 2015.

Study and analysis of numerical techniques to solve ordinary and partial differential equations, including Euler, Runge-Kutta, Picard, finite-difference and finite-element methods. Programming using a high-level language and/or software packages. *Prerequisites: MATH 237, MATH 238 or MATH 336, and MATH 248.*

**CS 450. Operating Systems.** 3 credits.

Introduction to the design and implementation of modern operating systems. Explores fundamental concepts of operating systems, memory management, virtualization, resource allocation, file systems and system protection mechanisms. Course work includes a significant programming component. *Prerequisite: Grade of "C-" or better in CS 361.*

**CS/MATH 452. Design and Analysis of Algorithms.** 3 credits.

An introduction to the analysis, design and theory of algorithms. Algorithms studied will be selected from searching, sorting and graph theory. Included are elements of counting, recurrence relations, direct and indirect proofs, recursion, complexity classes, language theory, decidability and undecidability. *Prerequisites: CS 327 and CS 240.*

**CS 456. Computer Architecture.** 3 credits.

Introduction to the design and implementation of modern CPU architectures. Explores hardware-based parallel execution, quantitative performance evaluation, I/O interfacing techniques and hardware descriptor languages. Course work includes a significant programming component. *Prerequisite: Grade of "C-" or better in CS 261.*

**CS 457. Information Security.** 3 credits.

This course covers the basic issues of information system security. The roles of planning, management, policies, procedures and personnel in protecting the confidentiality, integrity and availability of information are described. Specific threats (malicious code, network attacks and hostile content) and widely used countermeasures (access control, mechanisms, firewalls and intrusion detection systems) are also discussed. *Corequisite: CS 361.*

**CS 458. Cyber Defense.** 3 credits.

A hands-on, lab-based learning experience in which the students engage in a series of mini projects to perform security assessment, penetration testing and hardening of networked systems. Students also participate in a cyber defense exercise. *Prerequisites: Grades of "C-" or better in CS 457 and CS 361.*

**CS/ISAT 461. Internetworking.** 3 credits.

Wide Area Network (WAN) and Metropolitan Area Network (MAN) design. Audio, voice, data and TV transmission over ATM/B-ISDN networks. The SONEt signal hierarchy and Q3 standard interface model. Network security. Performance analysis of a given network. *Prerequisite: CS 361 or ISAT 460.*

**CS/ISAT 462. Network Applications Development.** 3 credits.

Design and implementation of network-based applications using languages and architectures such as sockets, JAVA, TL1 and CORBA. Concepts in distributed processing, including synchronization of interprocess communication and management of replicated data. Analysis of performance issues related to distributed applications. *Prerequisites: CS 361 or ISAT 460 and either CS 159 or CIS 344.*

**CS/ISAT 463. Network Analysis and Design.** 3 credits.

In-depth introduction to the techniques and tools used to design and analyze computer and telecommunications networks. Overview of issues related to network performance, including the impact on cost, reliability and security. *Prerequisites: CS 361 or ISAT 460 and either CS 159 or ISAT 340.*

**CS/ISAT 464. Issues in the Telecommunications Business.** 3 credits.

Addresses complex business concepts and issues in the telecommunications industry. Explores the interrelation of the economics of the telecommunications industry with ensuing social, ethical and security issues. Discusses topics in product and service creation, marketing, customer service and billing and electronic commerce. *Prerequisites: CIS 320, SMAD 356, and ISAT 340 or equivalent.*

**CS 470. Parallel and Distributed Systems.** 3 credits.

Introduction to parallel and distributed systems. Explores shared memory, cluster, grid, peer-to-peer, and cloud computing models along with parallel software patterns, distributed file systems and performance considerations. Course work includes a significant programming component. *Prerequisite: Grade of "C-" or better in CS 361.*

**CS 474. Database Design and Application.** 3 credits.

Students study database design and management with emphasis placed on data definition languages, data manipulation languages, query languages and management of the database environment. *Prerequisites:* Grades of "C-" or better in CS 345 and either CS 159 or equivalent.

**CS 475. Distributed Database Management.** 3 credits.

Students learn the concepts of client-server architectures and other aspects that arise in the design of distributed database systems. *Prerequisite:* A grade of "C-" or better in CS 474.

**CS 476. Database Administration.** 3 credits.

Students learn to administer a database by manipulating physical and logical components of a database management system. Topics include creation of an instance, managing of tables, indexes, privileges, profiles and roles. *Prerequisite:* A grade of "C-" or better in CS 474.

**CS 480. Selected Topics in Computer Science.** 1-3 credits.

Topics in computer science which are of interest but not otherwise covered in the regular computer science offerings of the department. Offered only with the approval of the department head; may be repeated for credit when course content changes. *Prerequisite:* A grade of "C-" or better in CS 159. *Topics selected may dictate further prerequisites; students should consult the instructor prior to enrolling for the course.*

**CS 482. Selected Topics in Information Security.** 1-3 credits.

Topics in information security. Offered only with the approval of the department head; may be repeated for credit when course content changes. *Prerequisites:* Grades of "C-" or better in CS 240 and CS 261. *Topics selected may dictate further prerequisites; students should consult the instructor prior to enrolling for the course.*

**CS 488. Computer Graphics Applications.** 3 credits.

This course develops a computer graphics application package based on standard graphics functions as well as attributes of a graphical user interface. It includes experience in applying interactive computer graphics techniques to industrial problems. *Prerequisites:* Grades of "C-" or better in CS 240 and CS 261.

**CS 497. Independent Study.** 1-3 credits.

An advanced course to give independent study experience under faculty supervision. May be taken multiple times for credit, but no more than three credits may be used in the computer science program graduation requirements. *Prerequisites:* Junior standing, major in computer science and permission of the program coordinator.

**CS 499. Honors.** 6 credits.

Year course. See catalog section "Graduation with Honors."

## Continuing Education

**CE 490. Special Studies in Continuing Education.** 1-3 credits.

This course is designed to allow exploration of current topics of interest including various trends and issues in a given field of study.

## Criminal Justice

**CRJU 215. Introduction to Criminal Justice.** 3 credits.

An introduction to the development of the American criminal justice system from early English beginnings to the present in its three dimensions: police, courts and corrections.

**CRJU 225. Ethics in Criminal Justice.** 3 credits.

This class offers an overview of ethical issues in the various branches of the criminal justice system, and reviews approaches to establishing and using ethical practices. *Prerequisite:* CRJU 215.

**CRJU 301. Special Topics in Criminal Justice.** 3 credits.

This course provides an examination of topics that are of current interest in the field of criminal justice. The class may be repeated for credit when course content changes. *Prerequisite:* CRJU 215.

**CRJU 321. Criminalistics.** 3 credits.

This course introduces student to crime scene investigation and the major disciplines of modern forensic science. Topics include an examination of the historical background of forensic science in the criminal justice system, an assessment of general principles of the current practice of forensic science, examination of the role of expert testimony and likely interaction(s) of the forensic scientist with other individuals and components of the criminal justice system. *Prerequisite:* CRJU 215.

**CRJU/SOCI 325. Criminology.** 3 credits.

Study of the extent, causes and possible deterrents to crime including murder, assault, white-collar offenses and organized crime with attention to the role of the victim and policy implications. *Prerequisites:* CRJU 215 and CRJU 225.

**CRJU 328. Criminal Procedure.** 3 credits.

Study of the criminal justice process from arrest through appeal with emphasis upon the rights of the accused including due process, the right to counsel, search and seizure, and the privilege against self-incrimination. *Prerequisite:* CRJU 215.

**CRJU 329. Criminal Investigation and Evidence.** 3 credits.

Characteristics, legal aspects, organizational objectives, theories and systematic procedure of criminal investigation. Includes a survey of the investigative function, interviewing witnesses, interrogation, physical evidence, the investigation of common serious offenses and the principles of evidence, including the legal rules controlling the presentation of evidence in court.

**CRJU 335. Law Enforcement.** 3 credits.

This course provides students with an overview of the practice of law enforcement, the legal and social issues associated with this work in the United States. *Prerequisite:* CRJU 215.

**CRJU 337. Courts and the Judiciary.** 3 credits.

This class offers students an in depth introduction to the workings of the Court system in the United States. *Prerequisite:* CRJU 215.

**CRJU 340. Administration of Justice.** 3 credits.

This course is designed to identify unique challenges to administrators of criminal justice organizations. The structures, functions, and processes in the administration of criminal justice organizations is examined. Topics of interest include a variety of public management theories, the role of leadership, and communication as it relates to criminal justice organization. *Prerequisite:* CRJU 215.

**CRJU 401. Internship in Criminal Justice.** 3 credits.

This course allows students to receive academic credit for work experienced in an agency or organization related to the criminal justice minor. Students should consult the director of the criminal justice minor for assistance in arranging approved internships. *Prerequisites:* CRJU 215 and permission of the instructor.

## Cross Disciplinary Studies

**CDS 301. Special Topics.** 1-3 credits.

This course allows instructors working through recognized university centers or institutes to offer an examination of current topics that are cross disciplinary in nature and not covered elsewhere in the curriculum. The course may be repeated for credit when course content changes.

**CDS 401. Internship.** 1-3 credits.

This course allows students to receive academic credit for work experienced in a recognized JMU center or institute. Internships must be approved in advance by the center director and follow the guidelines established by the participating center or institute. Internship is granted at the discretion of the center director. *Prerequisite:* Junior or senior standing and permission of the director.

## Dance

**DANC/THEA 100. Theatre and Dance Colloquium.** 0 credits.

Weekly department colloquium; work in progress presented, viewed and discussed by student body, faculty and guests. Professionals in the field frequently hold master classes. All majors in the School of Theatre and Dance are required to enroll in and pass two semesters in the freshman/first transfer year and two additional semesters during the student's progression in their major. *Prerequisite:* Admission to the School of Theatre and Dance.

**DANC 110. Associate Group Dance Repertory I (0, 4).** 1 credit.

Introduction to group dance experiences through rehearsal, performance, dance technique training and technical theatre practice. *Prerequisites:* Permission of the instructor and concurrent enrollment in a dance technique course.

**DANC 140. Elementary Modern Dance (0, 4).** 2 credits.

Emphasis on modern dance technique and fundamentals of improvisation and choreography. May be repeated for credit.

**DANC 142. Elementary Ballet (0, 4).** 2 credits.

Fundamentals of ballet technique, basic vocabulary and combinations. May be repeated for credit.

**DANC 143. International Folk Dance (0, 4).** 2 credits.

Traditional folk dance steps and international folk dances. Emphasis on dances from eastern and western Europe, Mexico and Israel. May be repeated for credit.

**DANC 144. Ballroom Dance (0, 4). 2 credits.**

Ballroom dance skills including steps, styling and leading, and following for American and Latin ballroom dance forms. May be repeated for credit.

**DANC 146. Jazz Dance (0, 4). 2 credits.**

Fundamentals of jazz technique, basic vocabulary and combinations. May be repeated for credit.

**DANC 147. Tap Dance (0, 4). 2 credits.**

Fundamentals of tap dance, basic vocabulary and combinations. May be repeated for credit.

**DANC/THEA 171. Performance Production. 3 credits.**

An introduction to the methods of the production of scenery, properties, costumes, lighting, sound and performance management for theatre and dance performance. Instruction in the skills required for the operation of associated tools and equipment and instruction in the skills required for the operation of lighting and sound equipment will be taught. Students are required to complete a main stage running crew assignment as a component of this course.

**DANC 210. Associate Group Dance Repertory II (0, 4). 1 credit.**

Practice in group dance experiences through rehearsal, performance, dance technique training and technical theatre practice. *Prerequisites: DANC 110 or the equivalent and concurrent enrollment in a dance technique course.*

**DANC 211. Contemporary Dance Ensemble Repertory I (0, 4). 2 credits.**

Introduction to a modern dance ensemble with performance, choreographic and technical theatre experiences. May be repeated for credit. *Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.*

**DANC 212. Virginia Repertory Dance Company I (0, 4). 2 credits.**

Rehearsal, performance and technical theatre experiences in a modern dance company. May be repeated for credit. *Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.*

**DANC 240. Intermediate Modern Dance I (0, 4). 2 credits.**

Intermediate skills in modern dance technique. May be repeated for credit. *Prerequisite: DANC 140 or permission of the instructor.*

**DANC 242. Intermediate Ballet I (0, 4). 2 credits.**

Intermediate skills in ballet technique. May be repeated for credit. *Prerequisite: DANC 142 or permission of the instructor.*

**DANC 245. Dance Improvisation (0, 4). 2 credits.**

Development of individual, group and environmental awareness; extension of individual movement vocabulary; and theory and exploration of the inter-relationships of the visual and theatre arts through structured improvisation.

**DANC 246. Intermediate Jazz. 2 credits.**

Intermediate skills in jazz dance technique, vocabulary and movement combinations. May be repeated for credit. *Prerequisite: DANC 146 or permission of the instructor.*

**DANC 247. Intermediate Tap. 2 credits.**

Intermediate skills in tap dance technique, vocabulary and models of sequencing. May be repeated for credit. *Prerequisite: DANC 147 or permission of the instructor.*

**DANC 248. History of Dance: Renaissance Through the 20th Century. 3 credits.**

A survey of dance history in Western civilization from the Renaissance to the present. Emphasis is on the dance idioms of ballet and modern.

**DANC/THEA 250. The Collaborative Artist: Sophomore Studio. 3 credits.**

The course explores the creative and collaborative processes within the development of performance events. Emphasis is placed upon the role of the artist as a social and artistic force in society. Studio-based creative explorations along with the viewing and discussion of live and recorded performances are integral to the course in order for students to investigate, experience, and devise collaboratively within the context of various performance forms across multiple disciplines and cultures. *Prerequisite: Sophomore standing.*

**DANC 311. Contemporary Dance Ensemble Repertory II (0, 4). 2 credits.**

Intermediate-level experiences in performance, choreography and technical theatre with a modern dance ensemble. May be repeated for credit. *Prerequisites: DANC 211 or the equivalent and concurrent enrollment in a dance technique course.*

**DANC 312. Virginia Repertory Dance Company II (0, 4). 2 credits.**

Advanced rehearsal, performance and technical theatre experience in a modern dance company. May be repeated for credit. *Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.*

**DANC 320. Anatomy and Somatic Studies for the Dancer. 3 credits.**

An introduction to the structure and function of the human body, along with an overview of contemporary bodywork theories and techniques essential to the education of dancers. Emphasis will be on the application of knowledge within the context of dance technique.

**DANC 325. Dance in Community. 3 credits.**

This course introduces students to the use of creative movement and dance in community settings. Emphasis is on concepts and skills utilized in designing and implementing movement experiences for diverse populations.

**DANC 340. Intermediate Modern Dance II (0, 4). 2 credits.**

Modern dance technique on an accelerated intermediate level. May be repeated for credit. *Prerequisite: DANC 240 or permission of the instructor.*

**DANC 342. Intermediate Ballet II (0, 4). 2 credits.**

Ballet technique on an accelerated intermediate level. May be repeated for credit. *Prerequisite: DANC 242 or permission of the instructor.*

**DANC 345. Dance Composition I (2, 2). 3 credits.**

Introductory studies of dance composition with focus on the learning and development of choreographic techniques and styles. Compositional movement studies and solo/duet dances will be utilized for exploring and developing the student's individual creativity. *Prerequisite: DANC 245 or permission of the instructor.*

**DANC 346. Intermediate Jazz II/Musical Theater Styles. 2 credits.**

A continuation of the jazz dance techniques in the dance program at the upper-intermediate level. Primary focus of this class will be on the study and training of historic and contemporary musical theatre jazz movement. May be repeated for credit. *Prerequisite: DANC 246 or permission of the instructor.*

**DANC 390. New Directions in Dance. 1 - 3 credits.**

Study of selected timely topics in dance. May be repeated when course content changes. See MyMadison for current topic.

**DANC 411. Contemporary Dance Ensemble Repertory III (0, 4). 2 credits.**

Advanced-level experiences in performance, choreography and technical theatre with a modern dance ensemble. May be repeated for credit. *Prerequisites: DANC 311 or the equivalent and concurrent enrollment in a dance technique course.*

**DANC 412. Virginia Repertory Dance Company III (0, 4). 2 credits.**

Advanced rehearsal, performance and technical theatre experience in a modern dance company for the professional level dancer. May be repeated for credit. *Prerequisites: Permission of the instructor and concurrent enrollment in a dance technique course.*

**DANC 440. Advanced Modern Dance (0, 4). 2 credits.**

Modern dance technique on an advanced level. May be repeated for credit. *Prerequisite: DANC 340 or the equivalent.*

**DANC 442. Advanced Ballet (0, 4). 2 credits.**

Ballet technique on an advanced level. May be repeated for credit. *Prerequisite: DANC 342 or the equivalent.*

**DANC 445. Dance Composition II (2, 2). 3 credits.**

Dance composition study involving the development and use of complex choreographic structures with emphasis on creating small and large group dance compositions, as well as the exploration of contemporary choreographic styles and techniques. *Prerequisite: DANC 345 or permission of the instructor.*

**DANC 446. Advanced Jazz. 2 credits.**

A continuation of the dance technique in the dance program. Advanced skills in jazz technique with special emphasis on the development of performance skills. May be repeated for credit.

**DANC 449. The Dance Professional. 3 credits.**

Introduction to the professional dance world through lectures, discussions and research. Emphasis will be placed on the preparation of skills and materials necessary to pursue dance as a career. Contemporary dance trends and issues will also be explored. *Prerequisite: Permission of the instructor.*

**DANC 450. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits.**

Introduction to the interdisciplinary studio through discussion of the history of interdisciplinary art and exposure to contemporary examples from dance, theatre, music, creative writing, visual art, film and video. Emphasis on production of original work that evidences the use of another media or collaborative work by artists from different disciplines. *Prerequisites: Permission of the instructor(s) and advanced skill level in one or more of the creative arts.*

**DANC/THEA 471. Stage Management.** *3 credits.*

Study and analysis of stage management. Consideration given to the methods and strategies for successful stage management for theatre, dance and other performances. Emphasis on developing management and organizational skills. *Prerequisite:* DANC 171.

**DANC 479. Methods of Teaching Dance.** *3 credits.*

An introduction to the theory and practice of teaching dance. Course will provide introductory level teaching experiences and will encourage the development of the student's personal educational philosophy. *Prerequisite:* *Permission of the instructor.*

**DANC 480. Student Teaching.** *3-12 credits.*

Enables students to apply, in the public school classrooms and the comprehensive child development programs, those skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors, students are provided activities designed to familiarize them with the classroom teacher's role. *Prerequisites:* PSYC 160, EDUC 300 or EDUC 360, appropriate methods courses, and permission of the coordinator of field experiences.

**DANC 490. Special Studies in Dance.** *1-3 credits each semester.*

Designed to give superior students in dance an opportunity to complete independent study and/or research under faculty supervision. May be repeated for credit. *Prerequisite:* *Permission of the dance program coordinator.*

**DANC 495. Internship in Dance.** *1-3 credits.*

A faculty arranged, prepared and monitored internship program designed to provide practical experiences in dance. *Prerequisite:* *Permission of dance area coordinator.*

**DANC 499. Honors.** *1-3 credits each semester.*

Repeatable for a maximum of 6 credits.

## Disability Studies

**DST 100. Introduction to Disability Studies.** *1 credit.*

This course is required for the disability studies minor. It provides students with an overview of the ways disability is positioned within a number of intellectual frameworks, including the political, rhetorical, social, educational, historical and legal. *Prerequisite:* *Declaration of the disability studies minor.*

## Early Childhood Education

**ECED 371. Practicum in Early Childhood Education.** *2 credits.*

Preschool and kindergarten placements will provide for extensive observation and experience with young children and the opportunity to assist teachers as they facilitate children's growth and learning in contexts that are culturally varied. *Prerequisite:* Admission to teacher education. *Corequisites:* READ 366 and ECED 372.

**ECED 372. Introduction to Early Childhood Education.** *3 credits.*

Introductory study of the role of the teacher, the role of the learner and the developing child as the basis for designing programs and developing curriculum for children 0-8 with different abilities and from various cultures. *Prerequisite:* Admission to teacher education. *Corequisites:* READ 366 and ECED 371.

**ECED 401. Problems in Early Childhood Education.** *1-3 credits.*

Considers current problems and issues in early childhood education. *Prerequisite:* *Permission of the program coordinator.*

**ECED 412. Natural and Social Sciences for Young Children.** *3 credits.*

Study of content, processes, teaching methods and materials for teaching science and social studies in the early childhood classroom. Knowledge of cognitive development as applied to the selection of content in method will be examined. *Prerequisites:* Grades of "C" or better in ECED 371, ECED 372 and READ 366; ECED 441, ECED 443, ELED 444 and READ 436. *Corequisite:* ECED 461.

**ECED 441. Practicum in Child Development.** *1 credit.*

This course is a supervised field experience working in an early childhood laboratory classroom with pre-kindergarten age children. It emphasizes applications of age-appropriate guidance strategies for facilitating children's total development, including children with diverse needs. Observational strategies for assessing growth and progress are developed. *Prerequisites:* Grades of "C" or better in ECED 371, ECED 372 and READ 366; a current TB test. *Corequisites:* ECED 442, ECED 443 and READ 436.

**ECED 442. The Young Child.** *3 credits.*

This course integrates child development knowledge and theories, academic content knowledge, and age/stage appropriate guidance strategies for teaching children pre-kindergarten through grade three. Emphasis on observational/assessment strategies and inquiry processes related to young children's growth and development as a basis for teaching decisions. *Prerequisites:* Grades of "C" or better in ECED 371, ECED 372 and READ 366; a current TB test. *Corequisites:* ECED 441, ECED 443, ELED 444 and READ 436.

**ECED 443. Practicum in Primary Grades.** *1 credit.*

This two-hour, weekly practicum in first or second grade will provide students with experience in planning and implementing math and literacy experiences for young children. *Prerequisites:* Grades of "C" or better in ECED 371, ECED 372 and READ 366. *Corequisites:* ECED 441, ECED 442; ELED 444 and READ 436.

**ECED 461. Integrated Day Practicum.** *3 credits.*

This all-day, primary-grade practicum allows students to demonstrate their educational decision-making skills through planning, implementing and evaluating appropriate activities for children of diverse interests, needs and abilities. Strategies to assess learning, guide behavior, work with professionals and family involvement are applied in this practicum and accompanying seminar. *Prerequisites:* Grades of "C" or better in ECED 361, ECED 372, ECED 441, ECED 442, ECED 443, READ 366, READ 436 and ELED 444, and current TB test. *Corequisites:* ECED 464, ELED 462.

**ECED 481. Fieldwork in Family and Community.** *2 credits.*

This fieldwork is designed to provide support for students and reinforces skills and concepts learned during the education program which are being applied during student teaching. Particular attention is given to school and family/community unity. *Prerequisites:* Grades of "C" or better in ECED 361, ECED 372, ECED 441, ECED 442, ECED 443, ECED 454, ECED 461, READ 366, READ 436, ELED 444 and ELED 462. *Corequisite:* ECED 480.

**ECED 490. Special Studies in Early Childhood Education.** *1-3 credits.*

Designed to give capable students opportunities to complete independent research on educational problems under faculty guidance. The plan for the study must be presented to the department head in prescribed form for approval prior to registration.

**ECED 499. Honors in Early Childhood Education.** *3 credits.*

## Economics

**ECON 200. Introduction to Macroeconomics.** *3 credits.*

Behavior of systems at the national and international levels. Topics include the methodology of economics as a social science, supply and demand, definition and measurement of important macroeconomic variables, and theoretical models of growth, inflation, interest rates, unemployment, business cycles, stabilization policy, exchange rates and the balance of payments. Not open to students who are enrolled in or who have received credit for ECON 332. May be used for general education credit.

**ECON 201. Introduction to Microeconomics.** *3 credits.*

Topics covered include supply and demand, consumer choice, economics of the firm and industry, production costs, distribution theory, international trade, comparative economic systems and the philosophy of economics. Not open to students who are enrolled in or who have received credit for ECON 331.

**ECON 222. Contemporary Economic Issues and Policy Alternatives.** *3 credits.*

Application of elementary economic theory to current economic issues. Special emphasis is placed on public policy alternatives. *Prerequisites:* ECON 201 and ECON 200.

**ECON 270. International Economics.** *3 credits.*

A survey of the relationships among national economies, including trade theory, trade policy, international monetary relations and the balance of payments. Not open to students who are enrolled in or have already received credit in ECON 370 or ECON 372. *Prerequisites:* ECON 201 and ECON 200.

**ECON 300. Special Topics in Economics.** *3 credits.*

Examination of special topics in theoretical or applied economics not covered in the current economics curriculum. Specific topics to be determined by the instructor. *Prerequisites:* ECON 200 and ECON 201 or equivalent.

**ECON 301. Economies in Transition.** *3 credits.*

A study of the evolution and operation of the post-Soviet Union economy. Special emphasis is given to the new independent states and their market reforms and foreign economic policies. *Prerequisites:* ECON 201 and ECON 200.

**ECON 302. History of Economic Thought.** 3 credits.

Major contributions within the history of economic thought are studied in relation to both the historical circumstances within which they arose and the role each played in shaping contemporary, competing economic doctrines. *Prerequisites: ECON 201 and ECON 200.*

**ECON 305. Environmental Economics.** 3 credits.

An analysis of the problems of the environment, their causes and alternative proposed methods of solution. Air and water pollution will be stressed as case studies of environmental problems. *Prerequisite: ECON 201.*

**ECON 306. The Economics of Women and the Family.** 3 credits.

Examines facts and theories pertaining to the various economic roles of women in America. The economics of marriage, divorce and childbearing are examined as are empirical and theoretical explanations of occupational and wage differentials between the sexes. *Prerequisite: ECON 201.*

**ECON 307. Economics of Aging.** 3 credits.

Application of the theoretical and empirical tools of modern micro- and macro-economics analyses to the circumstances of older people in American society. Among the topics studied are retirement from paid employment, sources and distribution of income among the elderly and spending patterns of the elderly. The role of public policies like Social Security is an important thread throughout the course. *Prerequisite: Six credits in economics.*

**ECON 310. Economic History of the United States.** 3 credits.

A survey of the economic growth and development of the United States from Colonial times to the present. *Prerequisites: ECON 201 and ECON 200.*

**ECON 312. Comparative Economic Systems.** 3 credits.

An examination of the distinguishing characteristics, institutions and performances of the various types of major economic systems in the world today. *Prerequisites: ECON 201 and ECON 200.*

**ECON/FIN 325. Money and Banking.** 3 credits.

Examines the economic role of money, banking and monetary policy within current institutional settings and under alternative theories explaining the interrelationships between money, the financial system and economic activity. *Prerequisites: ECON 201 and ECON 200.*

**ECON 326. Public Finance.** 3 credits.

Introduction to the field of public finance including theories and principles of taxation, government expenditure, public debt and fiscal administration. Studies interrelationships between federal, state and local finance, shifting and incidence of tax, and the burden of public debt. *Prerequisites: ECON 201 and ECON 200.*

**ECON 327. Game Theory.** 3 credits.

Examines interdependent decision making in economics and other social sciences and covers both non-cooperative and cooperative games. Topics may include applications of game theory to industrial organization, law and economics, public choice, political economy, evolutionary biology, international affairs and theories of justice. *Prerequisites: ECON 200 and ECON 201 or permission of the instructor.*

**ECON 329. Health Economics.** 3 credits.

This course explores the structure, conduct, and performance of hospitals, physician practices, pharmaceutical and medical device manufacturers, and long-term care facilities. The demand for healthcare and insurance is presented using economic theories of risk and uncertainty. Economic evaluation of healthcare treatments and contemporary policies are examined. *Prerequisites: ECON 200 and ECON 201.*

**ECON 331. Intermediate Microeconomic Theory.** 3 credits.

Intermediate analysis of the determination of price, resource allocation and product distribution in a free enterprise economy. *Prerequisites: "C" or better in ECON 200, ECON 201 and MATH 205, MATH 231, MATH 235 or ISAT 151.*

**ECON 332. Intermediate Macroeconomic Theory.** 3 credits.

Intermediate-level analysis of the major approaches to the determination of economic aggregates, with emphasis given to structuring a common analytic framework. *Prerequisites: "C" or better in ECON 200, ECON 201 and ISAT 151, MATH 205, MATH 231 or MATH 235.*

**ECON 340. Economics of Natural Resources.** 3 credits.

Emphasizes availability of exhaustible resources and optimum utilization rates. Examines questions of intertemporal allocation and costs of growth. *Prerequisites: ECON 201 and ECON 200.*

**ECON 345. Industrial Organization.** 3 credits.

An examination of contemporary U.S. industrial concentration both in the aggregate and within particular industries with emphasis on public policy

implications. Alternative theories of the firm are considered in relation to different market structures. *Prerequisites: ECON 201 and ECON 200.*

**ECON 360. Labor Economics.** 3 credits.

Study of the economics of labor markets. Attention is given to the structure and operation of labor markets, wage determination, employment, unions, and contemporary labor problems and policies. *Prerequisites: ECON 201 and ECON 200.*

**ECON 365. Economic Development.** 3 credits.

A study of the characteristics of under-development, theories of economic development and the underlying causes for varying standards of living among the world's people. Considerable time will be spent on studying social and cultural factors that influence economic growth and their potential effect on the economic progress of the less-developed countries. *Prerequisites: ECON 201 and ECON 200.*

**ECON 370. International Trade and Trade Policies.** 3 credits.

An examination of the classical and modern theories of international trade, the effects of such trade on the domestic economy, the effects of barriers to free trade and an appraisal of U.S. commercial policy since 1948. *Prerequisites: ECON 201 and ECON 200.*

**ECON/FIN 372. International Finance and Payments.** 3 credits.

Examines international financial markets, instruments and institutions; determination of spot and forward exchange rates, interest arbitrage, hedging and speculation; and alternative policies for achieving equilibrium in international payments. *Prerequisites: ECON 201 and ECON 200.*

**ECON 382. Urban Economics.** 3 credits.

A detailed examination of the economic aspects of urbanization with emphasis on metropolitan land use and location theory. Urban problems considered include housing, poverty, labor markets and municipal finances. *Prerequisites: ECON 201 and ECON 200.*

**ECON 385. Econometrics.** 3 credits.

Course discusses construction of models based on economic theory including identification of variables, development and testing of hypotheses for single- and multi-equation systems. *Prerequisites: "C" or better in ECON 200, ECON 201 and COB 191, MATH 220 or MATH 318 and MATH 205, MATH 231, MATH 235 or ISAT 151.*

**ECON 394. Economics Internship.** 3 credits.

Academic credit for an approved internship experience. Registration for the course must be concurrent with the internship. An application showing how all requirements for the internship will be met must be approved prior to registration. May be taken on a credit/no credit basis only. *Prerequisites: ECON 201 and ECON 200.*

**ECON 400. Advanced Topics in Economics.** 3 credits.

Examination of special topics in theoretical or applied economics not covered in the current economics curriculum. Specific topics to be determined by the instructor. *Prerequisites: ECON 331 and ECON 332 or permission of the instructor.*

**ECON 401. Senior Assessment in Economics.** 0 credits.

Students participate in testing, interviews and other assessment activities as approved by the economics program. Grades will be assigned on a credit/no-credit basis. *Prerequisites: ECON 331, ECON 332, ECON 385 and senior standing.*

**ECON 405. Political Economy.** 3 credits.

Evaluation and critique of mainstream and nontraditional economic paradigms. The interaction of economics and politics in the United States as it affects the distribution of wealth and domestic and international economic policies. *Prerequisites: ECON 201, ECON 200, and junior or senior standing.*

**ECON 426. Theory of Public Choice.** 3 credits.

Examines the justification for and nature of public sector activity in a market-based mixed economy. Emphasis is placed on theories of market failure, voting models, conditions of production and provision in the public sector, and models of bureaucratic behavior. *Prerequisite: ECON 326 or ECON 331.*

**ECON 430. Monetary Theory.** 3 credits.

Examines alternative theories of the relationships between money, interest rates, price levels, employment and output in order to assess the effectiveness of monetary policy for economic stabilization. *Prerequisites: ECON 332 and either MATH 205 or MATH 235.*

**ECON 431. Advanced Microeconomic Theory.** 3 credits.

Examines theories of general equilibrium and the distribution of income, welfare economics, capital theory and information theory. *Prerequisites: ECON 331, ECON 332 and either MATH 205 or MATH 235.*

**ECON 432. Advanced Macroeconomics.** 3 credits.

Study of macroeconomics at an advanced level. Particular attention will be given to the theory and models of economic growth as well as the potential for policies to improve growth. Topics may also include the theory of economic fluctuations within the growth paradigm and comparative analysis of the U.S. and other economies with respect to growth. *Prerequisites:* ECON 332 and MATH 205 or MATH 235.

**ECON 455. Economics of Regulated Industries.** 3 credits.

A study of the rationale, methods and impact on industry behavior of government regulations including public utility regulation and antitrust policies relating to monopoly and competition in the United States. *Prerequisite:* ECON 331 or ECON 345. *Prerequisite or corequisite:* ECON 385.

**ECON 460. Human Resources.** 3 credits.

Examines the role of education and training in enhancing productive skills, employment opportunities and income. Also focuses on American employment and health and welfare policies that relate to the labor market, giving attention to empirical studies. *Prerequisite:* ECON 306, ECON 331, ECON 332 or ECON 360.

**ECON 475. Regional Economics.** 3 credits.

A study of local and subnational economics viewed as integral parts of a unified system. Emphasis will be given to the basic economic forces associated with regional growth and decline and related public policy considerations. *Prerequisites:* ECON 200 and ECON 201.

**ECON 483. Applied Time Series Analysis.** 3 credits.

This is an advanced level class in Econometrics with an emphasis on Time Series techniques. This course covers a broad range of time series methods commonly used in research and industry for generating short term forecasts for important economics and financial variables. Some of the topics covered are time series decomposition methods, smoothing methods, ARIMA, ARCH/GARCH, and VAR. *Prerequisite:* Minimum grade of "B-" in ECON 385.

**ECON 484. Mathematical Economics.** 3 credits.

Course employs techniques of differentiation and integration for microeconomic and macroeconomic analysis at the intermediate level. *Prerequisites:* ECON 331, ECON 332, and MATH 205 or MATH 235.

**ECON 485. Advanced Econometrics.** 3 credits.

Theory and application of statistical techniques to study empirical relationships among economic variables. This course will cover a range of econometric techniques to estimate economic models including panel data, limited dependent variable, and simultaneous equation models. In addition, the course will cover the assembly and analysis of requisite data sets, and the preparation and presentation of empirical results. *Prerequisite:* Minimum grade of "B-" in ECON 385.

**ECON 487. Economic Consulting.** 3 credits.

A research-oriented, senior-level course that provides students an opportunity to integrate theoretical knowledge, quantitative techniques and writing skills through research on a set of simulated consulting projects. *Prerequisites:* ECON 331, ECON 332, ECON 385 and senior standing.

**ECON 488. Senior Capstone Seminar in Economics.** 3 credits.

This course is a writing-intensive seminar offering a student the opportunity to integrate many of his/her undergraduate studies in economics. Its substantive content will emphasize applying the methods of theoretical and empirical analyses employed by all economists. The seminar will be structured so as to contain embedded assessment measures of the learning objectives specified by the department of economics, including those related to command of basic economic theory and of quantitative methods used in quantifying empirical relationships and testing hypothesis. *Prerequisites:* Senior standing and completion of each of the following courses with a grade of at least "C": ECON 331, ECON 332 and ECON 385.

**ECON 490. Special Studies in Economics.** 1-3 credits each semester.

Designed to give capable students in economics an opportunity to complete independent study under faculty supervision. Admission by recommendation of the instructor and written permission of the director of economics prior to registration. May not be used toward fulfillment of the 400-level requirement for a major in economics.

**ECON 499. Honors.** 6 credits.

Year course. See catalog section "Graduation with Honors."

science/technology, lifestyle, economics, international relations, energy and religion will be explored in terms of future trends and how education responds to these trends and their impacts.

**EDUC 300. Foundations of American Education.** 3 credits.

A study of the practices and issues that affect American education. Consideration is given to such topics as philosophical approaches to education, history of American education, and the organizational and cultural aspects of schools which influence educational practices.

**EDUC 310. Teaching in a Diverse Society.** 3 credits.

This course will examine how personal and professional values, attitudes, beliefs and behaviors affect teaching and learning. The pre-service teachers will develop an understanding of similar unique characteristics of Pre-K to 12 grade students and their families, including culture, race, ethnicity, heritage language and learning abilities, gender socialization and sexual orientation. *Corequisites:* MIED 311 and READ 312 for middle students.

**EDUC/EXED 312. Field Experience in Special Education and Diversity.** 1 credit.

Students devote 30 clock hours to activities in school and nonschool settings that emphasize diversity of individuals and families. *Corequisite:* EDUC 310.

**EDUC 370. Instructional Technology.** 3 credits.

This course introduces educators to the concept of content knowledge, pedagogical knowledge and technological knowledge acting together as one unit to provide successful learning opportunities with educational technology. Learners will develop competencies that will enable them to appropriately select and integrate technology into the teaching and learning process.

**EDUC 401. Problems in Education.** 1-3 credits.

Workshop experiences for the development and training of teachers. *Prerequisites:* EDUC 360 and permission of the program coordinator.

**EDUC 416. School Discipline and Classroom Management.** 1 credit.

Theory and practices in classroom management and discipline, including specific models and the various legal aspects will be examined.

**EDUC 430. General Education Curriculum K-12 Overview.** 1 credit.

This course will provide an overview of curriculum in grades K-12. An understanding of objectives, content, materials and trends associated with curriculum will be addressed. *Corequisites:* READ 430, MIED 530 and EXED 410.

**EDUC 455. Perspectives in Environmental Education.** 3 credits

This course illuminates the role of educators in presenting environmental topics in learning communities. Activities will include principles for formal classrooms and other educational settings, such as museums, parks and zoos. In a local classroom /learning environment, participants will collaborate with practicing educators to teach learners about local environmental topics.

**EDUC 480. Student Teaching.** 3-12 credits.

Enables students to apply, in the public school classrooms and the comprehensive child development programs, those skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors, students are provided activities designed to familiarize them with the classroom teacher's role. *Prerequisites:* PSYC 160, EDUC 300 or EDUC 360, appropriate methods courses, and permission of the coordinator of field experiences.

**EDUC 482. Professional Development, Partnership and Advocacy.** 3 credits.

Students examine opportunities for professional development from professional associations, universities and other organizations across Pk-16. Strategies to build partnerships with colleagues, families and communities are presented. Important social and political issues affecting education of majority and minority students and models of advocacy for students and their families are presented.

**EDUC 490. Special Topics in Education.** 1-4 credits.

In-depth examination of selected topics which are of current importance in the field of education. Offered only with approval of School of Education director. May be repeated for credit when course content changes. *Prerequisites:* At least junior standing and consent of the instructor.

**EDUC 499 A, B, C. Honors.** 1-6 credits.

Independent research topic initiated and completed by qualified upper-division students. See catalog descriptions entitled "Graduation with Distinction" and "Graduation with Honors."

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## Education

**EDUC 100. The Study of the Future: An Interdisciplinary Approach.** 3 credits.

Introduces the students to an interdisciplinary study of the future within the context of education. Various topic areas, such as population,

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## Elementary Education

**ELED 308. Child Development: Birth Through Adolescence.** 3 credits.

Skills for observing, recording and interpreting the behavior of children ages three through 12 will be developed so that adult intervention and guidance is

appropriate and meaningful. *Prerequisites:* PSYC 160 and admission to teacher education. *Corequisites:* ECED 372, ELED 310, ELED 311 and READ 366.

**ELED 310. Diversity in Elementary Education with Service Learning.** 3 credits.

This course guides students in critically examining their own perspectives regarding diversity in our society. Through this course, students will expand their awareness and understanding of individuals and groups apparently different from themselves. Students will explore pedagogical issues and practices in the classroom that embrace the whole community of learners and their families. *Prerequisite:* Admission to teacher education. *Corequisites:* ECED 372, ELED 308, ELED 311 and READ 366.

**ELED 311. Practicum with a Focus on Learners and Learning.** 3 credits.

This field experience and seminar support the study of child development and learning in an organized environment. Through direct observation and interactions with children in a classroom setting, candidates will examine and reflect on how children develop and learn. Candidates will explore how their own personal attitudes, assumptions and behaviors toward students and their families are influenced by class, cultural and linguistic backgrounds. *Prerequisite:* Admission to teacher education. *Corequisites:* ECED 372, ELED 308, ELED 310 and READ 366.

**ELED 411. Practicum with a Focus on Curriculum Integration and Guiding Behavior.** 3 credits.

This field experience provides candidates with a classroom of students and a mentor teacher with whom to practice the teaching of reading, math, science and social studies. The accompanying seminar explores the integration and construction of meaningful curriculum in elementary education contexts and supports students in their ongoing professional development. *Prerequisite:* ELED 311. *Corequisites:* READ 436, ELED 432, ELED 433 and ELED 434.

**ELED 432. Children and Science.** 3 credits.

This course is a study of content, processes, pedagogy and materials for teaching science in the elementary classroom. Knowledge of cognitive development as applied to the selection of content and methodology for elementary learners will be examined. *Prerequisites:* ELED 308, ECED 372, ELED 310, ELED 311 and READ 366. *Corequisites:* READ 436, ELED 411, ELED 433 and ELED 434.

**ELED 433. Children and Mathematics: Number, Operations, Algebraic and Geometric Reasoning.** 3 credits.

The first of two courses that provides students with knowledge, skills and understanding of design and implementation for effective, developmentally appropriate mathematics instruction for grades PreK-6. Emphasis is on children's mathematical learning and pre-numerical stages through the acquisition of advanced numerical processes and operations and connections to geometric and algebraic reasoning. *Prerequisites:* MATH 107, MATH 108, MATH 207 and READ 366. *Corequisites:* READ 436, ELED 411, ELED 432 and ELED 434.

**ELED 434. Children and Social Studies.** 3 credits.

This course focuses on the content, processes, pedagogy and materials for teaching social studies in the elementary classroom. Knowledge of cognitive development as applied to the selection of content, methods, materials and strategies for organizing the learning environment for elementary learners will be examined. *Prerequisite:* ELED 311. *Corequisites:* ELED 411, ELED 432, ELED 433 and READ 436.

**ELED 490. Special Studies in Elementary Education.** 1-3 credits.

Designed to give students opportunities to complete independent research on educational problems under faculty guidance. The plan for the study must be presented to the department head in prescribed form for approval prior to registration.

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## Engineering

**ENGR 101. Engineering First Year Student Seminar.** 1 credit. Offered fall.

This seminar course will introduce the engineering curriculum and career options to first year students and will describe how various elements of the curriculum and available electives in other disciplines relate to the goals and objectives of the program. This course will not only describe the engineering curriculum, but it will also contextualize the engineering profession with practical examples to help students determine if they want to pursue a career in the engineering profession.

**ENGR 112. Introduction to Engineering (1,2).** 3 credits. Offered spring.

ENGR 112 is the first course in the engineering curriculum; its purpose is to introduce students to some of the over-arching themes and culture in engineering and in our curriculum. Topics of coverage include professionalism,

engineering and society, sustainable development, engineering fundamentals, systems approach in engineering problem solving, as well as creative problem solving practices.

**ENGR 212. Statics and Dynamics (3,1).** 4 credits. Offered fall, spring.

ENGR 212 provides the fundamental and governing principles of particles and rigid bodies for the analysis of these structures at rest (statics) and in motion (dynamics). Topics will include equilibrium of particles and rigid bodies, force and moment vectors, moments of inertia, kinematics of particles, work and energy. *Prerequisites:* Grade of "C" or better in ENGR 112, PHYS 240 and PHYS 140L and MATH 237.

**ENGR 221. Management of Technology I: Product Development and Entrepreneurial Engineering.** 3 credits. Offered spring.

ENGR 221 is the first of a two-course sequence introducing students to management of technology. The course will include general business functions (management, marketing, finance, accounting, and operations); systems analysis skills; and project management skills. Students will develop an understanding and appreciation for the importance of technology and innovation in organizations. *Corequisite:* ENGR 232. *Prerequisites:* Grade of "C" or better in ENGR 112 and ENGR 231.

**ENGR 231. Engineering Design I.** 2 credits. Offered fall.

This course is the first of six courses in the engineering design sequence. This course provides students with an overview of sustainable engineering design including history, concepts and practices; and an introduction to cognitive processes and interpersonal communication skills that lead to effective problem solving, idea generation and decision making; and basic technical design skills. *Prerequisite:* Grade of "C" or better in ENGR 112.

**ENGR 232. Engineering Design II.** 2 credits. Offered spring.

This course is the second course in the engineering design sequence. This course provides instruction in sustainable engineering design concepts and hands-on practice; individual cognitive processes, thinking and communication skills, and decision making; introduction to sustainability contexts (environmental, social, economic, and technical); and technical project design skills. *Prerequisite:* Grade of "C" or better in ENGR 231.

**ENGR 280. Projects in Engineering.** 1-4 credits. Offered fall, spring, summer.

Research projects, design projects, or special topics in engineering which are of interest to the lower-division student. May be repeated for credit when course content changes. Projects or topics selected may dictate prerequisites. Students should consult the instructor prior to enrolling in the course. *Prerequisite:* Permission of the instructor.

**ENGR 298. Topics in Engineering.** 1-3 credits.

This course is designed to provide students with the opportunity to explore engineering topics currently not covered in the standard curriculum. The specific topic of interest may dictate prerequisites. Students should consult the instructor prior to enrolling in the course.

**ENGR 301. Engineering Bridge Course for Transfer Students.** 3 credits. Offered fall, spring.

This course provides transfer students with an introduction to the JMU engineering program. The purpose is to familiarize our students with our curriculum and sustainability vision. The course will also provide design instruction while introducing transfer students to the specific software tools and machine tools they will use over the remainder of their curriculum. *Prerequisite:* Permission of the instructor.

**ENGR 311. Thermal-Fluids I.** 4 credits. Offered fall.

The first course of a two-part sequence focuses on the fundamental principles of thermodynamics, heat transfer and fluid mechanics in a unified approach. Coverage includes the 1st law of thermodynamics, basic heat transfer, and fluid statics. Wide-ranging applications of these principles to thermal-fluid systems across engineering disciplines are emphasized. An included laboratory component provides reinforcement of course material through experiments and computational modeling. *Prerequisites:* Grade of "C" or better in ENGR 212 and MATH 238.

**ENGR 312. Thermal-Fluids II.** 4 credits. Offered spring.

The second of a two-part sequence focuses on the fundamental principles of thermodynamics, heat transfer and fluid mechanics in a unified approach. Builds on concepts covered in ENGR 311 and incorporates the 2nd law of thermodynamics, transient heat transfer and fluid motion. Applications of principles to thermal-fluid systems across engineering disciplines are emphasized. An included laboratory component provides reinforcement of course material through experiments and computational modeling. *Prerequisite:* Grade of "C" or better in ENGR 311.

**ENGR 313. Circuits and Instrumentation.** 4 credits. Offered fall, spring.

This course presents the fundamentals of circuit analysis and measurement of physical phenomena. Circuit related topics include Ohm's law, Kirchoff's laws, complex impedance analysis, Laplace techniques and an introduction to AC circuits. Instrumentation topics include A/D conversion and common instruments such as strain gauges, thermocouples and accelerometers. Laboratory investigations will provide exposure to common electronics laboratory equipment, tools and measurement techniques. *Prerequisites:* Grade of "C" or better in MATH 238, PHYS 250 and PHYS 150L.

**ENGR 314. Materials and Mechanics.** 4 credits. Offered fall, spring.

The course explores the governing principles of materials science and mechanics of materials with an emphasis on materials selection in the engineering design process. Topics include process-structure-property relationships, crystalline structures, mechanical properties, strength of materials, mechanical design, failure mechanisms, and an introduction to materials processing. *Prerequisite:* Grade of "C" or better in ENGR 212.

**ENGR 322. Engineering Management II: Engineering Project Management.** 3 credits. Offered fall.

This is the second of a two-course sequence introducing students to management of technology. The course will include general business functions (management, marketing, finance, accounting, and operations), systems analysis skills, and project management skills. Students will develop an understanding and appreciation for the importance of technology and innovation in organizations and the principles of entrepreneurial engineering. *Corequisite:* ENGR 331. *Prerequisite:* Grade of "C" or better in ENGR 221.

**ENGR 331. Engineering Design III.** 3 credits. Offered fall.

This course is third in the six-course developmental design sequence. This project-based course provides instruction in life-cycle analysis, sustainability (environmental, social, technical, economic), design and construction, failure analysis and problem solving. *Corequisite:* ENGR 322. *Prerequisite:* Grade of "C" or better in ENGR 212 and ENGR 232.

**ENGR 332. Engineering Design IV.** 3 credits. Offered spring.

This course is fourth in the six-course 10-credit developmental design sequence. This project-based course provides instruction in holistic design principles, aesthetics and human interface in design, structured and unstructured problem solving, collaborative design, writing and communications, product modeling, and analytical prototyping. *Prerequisite:* Grade of "C" or better in ENGR 331.

**ENGR 360. Water in Africa.** 4 credits. Offered summer.

This course has a three-part focus: cross cultural training, promoting health in developing countries and using appropriate technologies for eradicating water-related illnesses. Project teams use course content as the foundation for developing and implementing service projects. This course is a service-learning course and addresses issues of social justice in West Africa.

**ENGR 411. Fundamentals of Sustainable Engineering and Design.** 3 credits. Offered fall, spring.

This course is the first in a part of a two-course sequence that provides a foundation in evaluating sustainable design and engineered systems. The material presented is a prerequisite for understanding the environmental, social and economic impacts of design and technology. The topics may be covered in a developmental manner in both courses, integrating the economic, environmental, social and technical components throughout ENGR 411 and ENGR 412. *Prerequisites:* Grade of "C" or better in CHEM 132 and 132L or CHEM 133E and CHEM 133L.

**ENGR 412. Sustainable Engineering and Design II.** 3 credits. Offered fall, spring.

This course is the second in a two-course sequence that provides a foundation in evaluating sustainable design and engineered systems. The material presented furthers the understanding of the environmental, social, and economic impacts of design and technology by exploring the relationships between industrial and ecological systems. *Prerequisites:* Grade of "C" or better in ENGR 312.

**ENGR 413. Systems Analysis.** 3 credits. Offered fall.

This course focuses on the concepts of systems thinking and analysis for complex engineered systems. Students will develop basic knowledge and tools to identify a system, decompose it into parts, define interactions, perform analysis and apply control measures if necessary. Application of computational tools and mathematical modeling will be emphasized. *Corequisite:* ENGR 431.

**ENGR 431. Engineering Design V.** 3 credits. Offered fall.

This course is the fifth in the six-course 10-credit developmental design sequence. This project-based course provides instruction in collaborative

project management, holistic design evaluation, social and community sustainability, design testing and marketing, principles of design marketing and accounting, problem solving analyses, software tools, project management and testing and analysis of prototypes. *Prerequisite:* Grade of "C" or better in ENGR 332.

**ENGR 432. Engineering Design VI.** 3 credits. Offered spring.

This course is the sixth in the six-course 10-credit developmental design sequence. This project-based course provides instruction in collaborative design practices, capstone design project completion, holistic design analysis and design accounting and manufacturing. *Prerequisite:* Grade of "C" or better in ENGR 431.

**ENGR 472. Biological Treatment Processes and Reactor Design.** 3 credits.

For engineering and environmental science students interested in biological reactor design. Water, wastewater and air treatment are emphasized. Students must be proficient in mathematics, chemistry and thermal sciences. Quantitative relationships are derived for characterizing water quality, designing biological reactors and modeling treatment systems. Systems are described by mass and energy balances that relate pollutant removal efficiency to process input parameters. *Prerequisites:* CHEM 131, CHEM 131L, and either MATH 231 or MATH 235.

**ENGR 474. Physical Chemical Treatment Processes.** 3 credits.

For engineering and environmental science students interested in physical/chemical waste treatment. Wastewater, groundwater, air and hazardous waste treatment is emphasized. Students must be proficient in mathematics, chemistry and thermal sciences. Quantitative relationships are derived for characterizing wastes, designing treatment processes, and modeling treatment systems. Systems are described by mass and energy balances that relate pollutant removal efficiency to process input parameters. *Prerequisites:* CHEM 131, CHEM 131L, and either MATH 231 or MATH 235.

**ENGR 476. Principles of Chemical Processes.** 3 credits.

An introduction to basic principles used in chemical, petroleum and environmental engineering. Emphasis on formulating and solving material and energy balances for simple and complex systems. Quantitative models and equilibrium concepts for chemical process systems will be developed and applied to assess product quality, economics, safety and environmental issues. For students interested in careers or graduate studies in chemical, environmental, biochemical, and petrochemical engineering.

**ENGR 478. Water Resources Engineering.** 3 credits.

This course will provide an introduction to basic engineering principles used in both water supply management and water excess management. Hydrologic and hydraulic processes will be investigated using the fundamentals of fluid mechanics. Specific emphasis will be placed on water sources flows, distribution and control. *Prerequisite:* ENGR 311.

**ENGR 480. Advanced Projects in Engineering.** 1-4 credits. Offered fall, spring, summer.

Research projects, design projects or special topics in engineering which are of interest to the upper-division student. May be repeated for credit when course content changes. Projects or topics selected may dictate prerequisites. Students should consult the instructor prior to enrolling in the course. *Prerequisite:* Permission of the instructor.

**ENGR 498. Advanced Topics in Engineering.** 1-3 credits.

This course is designed to provide upper-division students with the opportunity to explore engineering topics in greater depth. The specific topic of interest may dictate prerequisites. Students should consult the instructor prior to enrolling in the course.

**ENGR 499A. Engineering Honors I.** 1 credit. Offered spring.

First course in a three-course sequence. Student generates an idea for and writes a proposal for an independent research project that meets the requirements set forth by the Honors program and the Department of Engineering. Student must identify and analyze an engineering-based problem, identify potential solutions, recommend an approach and prepare a written proposal.

**ENGR 499B. Honors Engineering Design II.** 1-3 credits. Offered fall.

Second course in a three-course sequence. Student completes the research for and prepares an oral and written presentation of their results for an independent research project that meets the requirements set forth by the Honors program and the Department of Engineering. Student completes and presents (in written and oral form) the project described in his or her proposal from ENGR 499A. *Prerequisite:* ENGR 499A or permission of the engineering honors director/department head.

**ENGR 499C. Honors Engineering Design III. 2-3 credits. Offered spring.**

Third course in a three-course sequence. Student completes the research for and prepares an oral and written presentation of their results for an independent research project that meets the requirements set forth by the Honors program and the Department of Engineering. Student completes and presents (in written and oral form) the project described in his or her proposal from ENGR 499A. *Prerequisite: ENGR 499B.*

## English

**ENG 221. Literature/Culture/Ideas. 3 credits.**

This course will take a thematic approach to literature by examining multiple literary texts that engage with a common course theme concerned with the human experience. Themes address cultural, political, social, religious or philosophical aspect ideas through literature. Specific topics will vary. May be used for general education credit.

**ENG 222. Genre(s). 3 credits.**

An examination of representative works in a literary genre, in a set of related literary subgenres, or in both a literary genre and one or more closely connected genres in other humanities disciplines. May be used for general education credit.

**ENG 235. Survey of English Literature: From Beowulf to the Eighteenth Century. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 236. Survey of English Literature: Eighteenth Century to Modern. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 239. Studies in World Literature. 3 credits.**

Introduction to masterpieces of world literature with emphasis on non-Western literature. (May be focused regionally or topically). May be used for general education credit.

**ENG 247. Survey of American Literature: From the Beginning to the Civil War. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 248. Survey of American Literature: From the Civil War to the Modern Period. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 260. Survey of African-American Literature. 3 credits.**

Survey of literature by African-American authors from the 18th century to the present. May be used for general education credit.

**ENG 290. Intermediate Composition. 3 credits.**

This course stresses the argumentative and persuasive essay as well as grammar and usage. *Prerequisites: WRTC 103 or equivalent and junior or senior standing, or permission of the instructor.*

**ENG 293. Exploring Careers in English. 2 credits.**

An introduction to academic and career opportunities in English. Students will research and shape academic and career interests, with particular attention to articulating the relationship between the reading, writing and analytical skills they develop as majors and their long-term career plans. Does not count as an English elective.

**ENG 294. Internship in English. 1-3 credits.**

Provides English majors with work experience in career fields they are interested in pursuing. A journal, internship report, research paper, bibliography and evaluation from the intern provider are required. Does not count as an English elective. *Prerequisites: Major or minor status and approval of the internship director.*

**ENG 299. Writing About Literature. 3 credits.**

This course will provide students with the skills and knowledge necessary for interpreting, researching and writing about literature. Students will learn basic literary terms, acquire an understanding of canon formation and transformation, and gain a knowledge of literary theories. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: Declared English major.*

**ENG 301. Old English Language and Literature. 3 credits.**

An introduction to the Old English language through selected readings in poetry and prose. Formerly ENG 416.

**ENG 302. Special Topics in Literature and Language. 3 credits.**

Study of a particular literary or linguistics topic. May be repeated for credit when course content changes but not more than once, except with the approval of the department head.

**ENG 303. History of the English Language. 3 credits.**

Introduction to the historical study of English including its Indo-European origins. May be repeated for credit when course content changes.

**ENG 304. Feminist Perspectives on Literature and Religion. 3 credits.**

American authors and their fiction about God, faith and religion in the American experience. Gender and race will provide a constant thematic focus through a variety of novels and short stories.

**ENG 305. Mythology. 3 credits.**

Study of the nature and meaning of Greek myths as interpreted and reinterpreted in significant works of ancient and modern literature.

**ENG 306. The Bible as Literature. 3 credits.**

Study of Hebrew and Christian scripture as literary and cultural texts, which have influenced subsequent literature and culture.

**ENG 307. Literature and Psychology: A Psychoanalytical Approach to Literary Readings. 3 credits.**

This course will study the works of world literature authors from the perspective of psychoanalysis.

**ENG 308. Introduction to Linguistics. 3 credits.**

Introduction to the study of the various subfields of linguistics, including questions about the nature and use of language in general, with the English language as the primary example. Formerly ENG 418.

**ENG 309. Traditional English Grammar. 3 credits.**

Introduction to traditional grammar, probing its logic, system and history, with an examination of modern applications of conventional rules.

**ENG 310. Modern English Grammar. 3 credits.**

Introduction to modern English grammar with attention to the structure of the English language from a modern linguistic perspective.

**ENG 311. Medieval Literature and Culture. 3 credits.**

Studies in the literature and culture of the Middle Ages through selected Old English, Norse/Icelandic, Middle English, Old Irish, French, German, Latin and Arabic texts in translation.

**ENG 313. Sixteenth Century British Literature. 3 credits.**

Poetry and prose of the sixteenth century in Britain.

**ENG 315. Seventeenth Century British Literature. 3 credits.**

Poetry and prose of the seventeenth century in Britain.

**ENG 316. Early Modern Drama. 3 credits.**

Major works of British dramatists, excluding Shakespeare, from 1550-1660.

**ENG 317. Shakespeare's Tragedies and Romances. 3 credits.**

A study of selected tragedies and romances; nondramatic work may be considered. Formerly ENG 456.

**ENG 318. Shakespeare's Comedies and Histories. 3 credits.**

A study of selected comedies and histories; nondramatic work may be considered. Formerly ENG 457.

**ENG 319. Teaching Shakespeare. 3 credits.**

A study of Shakespeare's plays, with emphasis on pedagogical techniques for teaching drama in the classroom.

**ENG 320L. Shakespeare on the Page and Stage in London. 3 credits.**

Students will study the plays of Shakespeare currently in production in London and England with special emphasis on the productions of the Royal Shakespeare Company and the National Theatre. Course can be substituted for either ENG 317 (formerly 456) or ENG 318 (formerly 457) but may not be taken for credit in addition to both. Formerly ENG 458.

**ENG 321. Restoration and Eighteenth Century Literature. 3 credits.**

A study of poetry and prose (including the novel) written in England during the Restoration and eighteenth century.

**ENG 322. Restoration and Eighteenth Century British Drama. 3 credits.**

A study of British drama in the eighteenth century.

**ENG 325. Romantic Literature. 3 credits.**

A study emphasizing selected works of Romantic literature. Attention given to critical theories, intellectual and cultural movements, or poetic forms.

**ENG 326. Romantic Era Prose. 3 credits.**

A study of British literature written during the Romantic period, 1789-1832, with primary emphasis on prose, including the essay, memoir, and/or the novel.

**ENG 327. Gothic Literature. 3 credits.**

A study of the origins, influence and transformations of Gothic fiction from the 18th century to the present.

**ENG 329. Victorian Literature. 3 credits.**

Study of British literature of the Victorian period with primary emphasis on poetry and nonfiction prose.

**ENG 330. Nineteenth Century British Novel. 3 credits.**

The development of the British novel in the nineteenth century and the study of representative works.

**ENG 331. Studies in Poetry. 3 credits.**

A study of select poetic works. Specific time periods of genres studied may vary. Course may be repeated as topic changes.

**ENG 333. Modern Drama. 3 credits.**

Drama from 1900 to 1960.

**ENG 334. Contemporary Drama. 3 credits.**

Drama from 1960 to the present.

**ENG 340. Modern British and Irish Literature. 3 credits.**

Literature from Britain and Ireland, 1900 to 1945.

**ENG 341. Contemporary British and Irish Literature. 3 credits.**

Literature from Britain and Ireland, from 1945 to the present.

**ENG 342. Early American Literature. 3 credits.**

Significant genres, writers and literary movements of the seventeenth and eighteenth centuries.

**ENG 343. Antebellum American Literature. 3 credits.**

American Literature of the early nineteenth century.

**ENG 344. Late Nineteenth Century American Literature. 3 credits.**

American literature of the late nineteenth century.

**ENG/THEA 347. Playwriting. 3 credits.**

Study of the process of writing plays. Consideration of plot, character, thematic material, conflict and dramatic structure. Emphasis on individual writing assignments.

**ENG 352. The American Novel to 1914. 3 credits.**

A study of the development of the American novel from its beginnings to the modern period.

**ENG 355. Southern Literature. 3 credits.**

Southern authors, especially those of the twentieth century.

**ENG 356. Modern American Novel. 3 credits.**

The American novel from 1914 to 1945.

**ENG 357. Contemporary American Literature. 3 credits.**

A study of contemporary American literature written since 1945.

**ENG 358. Oral Literature. 3 credits.**

This course is a study of oral literature, which may be organized by theme, geography or genre. The course examines the social, political and artistic reasons for the creation and popularity of this literature. May be repeated for credit when course content changes.

**ENG 359. Studies in African-American Literature. 3 credits.**

A study of selected works of African American literature in multiple genres. May be repeated for credit when course content changes.

**ENG 360. Introduction to Ethnic American Literature. 3 credits.**

An overview of the literary production of one group or a variety of ethnic and immigrant American writers, including but not limited to Native American, Asian American, Mexican American, Indian American, Caribbean American, and Latino American literatures. Examines the experience of historically marginalized groups in the United States with a particular emphasis on identity, nationality, tradition, and language.

**ENG 361. African-American Fiction. 3 credits.**

Selected works of fiction by major African-American writers.

**ENG 362. African-American Poetry. 3 credits.**

Selected works of poetry by major African-American writers. May be repeated for credit when course content changes.

**ENG 363. Native American Literature. 3 credits.**

A study of Native American communities' and authors' literatures in North America, with emphasis on the relationship of that literature to their traditions and historical experiences.

**ENG 365. History of Literary Criticism. 3 credits.**

Survey of the nature, function and development of literary criticism from Aristotle to Eliot. Formerly ENG 425.

**ENG 366. Contemporary Critical Theory. 3 credits.**

Study of the major debates in current critical discourse. Formerly ENG 426.

**ENG/WGS 368. Women's Literature. 3 credits.**

A study of literature by women.

**ENG/WGS 369. Feminist Literary Theory. 3 credits.**

An intensive study of a variety of feminist critical approaches and their applications to literature. Formerly ENG 467.

**ENG/WGS 370. Queer Literature. 3 credits.**

An exploration of texts and issues in literature written by and about lesbian, gay, bisexual, transgender and queer writers, including critical and theoretical issues as well as questions of canon. Text studied may include fiction, poetry, drama, essays and memoirs written primarily, but not exclusively, in the 20th century.

**ENG 371. Literature and the Environment. 3 credits.**

A critical examination of literature's representation of the interconnections between human beings, non-human beings and the environment.

**ENG 372. Ecocriticism and Environmental Ethics. 3 credits.**

This course will examine ecocriticism, which investigates the interconnections between language, literature, ethics and the environment. A further exploration of environmental ethics will allow students to identify ideas about the purpose and appropriate use of landscape, wilderness and animals. Formerly ENG 471.

**ENG 375. Irish and Anglo-Irish Literature. 3 credits.**

A study of the works of Irish or Anglo-Irish writers.

**ENG 376. Introduction to Scottish Literature. 3 credits.**

An overview of Scottish literature, with an emphasis on fiction, from the Romantic period to the present. Emphasis on the problems of nation, identity and the politics of language and tradition in "minority literature."

**ENG 377. Introduction to African Literature. 3 credits.**

An introduction to African literature, tracing its changes over time. Examination of African literary theoretical concepts, literary genres (both oral and written), as well as an examination of Africa's contribution to familiar genres of written and oral literature.

**ENG 378. Studies in South Asian Literature. 3 credits.**

A study of selected works of South Asian literature. Formerly ENG 427.

**ENG 379. Literature and Empire. 3 credits.**

The course is designed as an overview of writings from regions of the world that were formerly colonized by Britain. It examines the colonial, nationalist and postcolonial shaping of individual and collective identities through literature; the intersections of race, gender and nation; the crafting of a new idiom in English in response to both political and literary histories; and the significance of choices of genre and form.

**ENG/SMAD 380. Introduction to Film. 3 credits.**

An introduction to the study of film as an aesthetic practice, including formal and industrial aspects of film analysis, theoretical approaches to film and writing and research methodologies of film and media studies.

**ENG 381. History of Film to 1960. 3 credits.**

An analysis of film from its beginnings to the modernism of the 1950s and early 1960s.

**ENG 382. History of Film Since 1960. 3 credits.**

An analysis of world cinema from early modernism through the present.

**ENG 383. Film Genre. 3 credits.**

Study of film genre through the consideration of one or more film genres.

**ENG 384. Film Authorship. 3 credits.**

Study of film authorship through the consideration of one or more directors.

**ENG 385. Special Topics in Film Study. 3 credits.**

Study of a particular topic in film. May be repeated for credit when course content changes but not more than once, except with the approval of the department head.

**ENG 390. The Environmental Imagination. 3 credits.**

An introductory creative writing class that provides a sampling of American environmental writing, with emphasis on the creative intelligence of the writer's imagination, process, and craft.

**ENG 391. Introduction to Creative Writing – Nonfiction. 3 credits.**

A basic workshop in reading and writing works of creative nonfiction.

**ENG 392. Introduction to Creative Writing – Poetry. 3 credits.**

A basic workshop in reading and writing poetry.

**ENG 393. Introduction to Creative Writing – Fiction. 3 credits.**

A basic workshop in reading and writing fiction. May be repeated for credit when course content changes.

**ENG 396. Advanced Composition. 3 credits.**

Extensive exercises in expository writing, with emphasis on rhetorical types of composition, designed to develop sophistication of style in the student's writing.

**ENG 397. Texts for Teachers I. 3 credits.**

An examination of selected poems and plays of particular relevance to students enrolled in the secondary education pre-professional licensure program. (This course satisfies the genre requirement for the pre-professional licensure program.) Formerly ENG 440.

**ENG 398. Texts for Teachers II. 3 credits.**

An examination of selected fiction and non-fiction of particular relevance to students enrolled in the secondary education pre-professional licensure program. (This course satisfies the period requirement for the pre-professional licensure program.) Formerly ENG 441.

**ENG 401. Advanced Studies in Medieval Literature. 3 credits.**

Advanced literary and philological study of non-British Medieval or British Medieval texts written in cross-cultural dialogue with those written circa 500-1480 c.e. in Old Irish, Old Norse/Icelandic, Old French, Old and Middle High German, Old Castilian, Classical and Medieval Latin, and Arabic. Readings in the original or in translation. Topics may be determined by period or geography, culture or politics, theme or genre. Course may be repeated as topic changes.

**ENG 402. Advanced Studies in British Literature Before 1700. 3 credits.**

British literatures written prior to 1700, both within and without the British isles. Topics may include Anglo-Saxon and Anglo-Norman literature, vernacular literature, neo-Latin literature, Chaucer, late-medieval literature, Tudor and early modern literature, Shakespeare, Milton, and seventeenth-century literature. May be repeated as course topic changes.

**ENG 403. Advanced Studies in British Literature After 1700. 3 credits.**

Advanced study of British literatures dating from 1700 to the present. Topics may focus on a particular period of literature (eighteenth century, Romantic, Victorian, Modernist, or contemporary), or topics may focus on a genre or them that engages multiple periods. Course may be repeated as topic changes.

**ENG 405. Advanced Studies in Anglophone Literature. 3 credits.**

Anglophone (English-speaking) literature from around the globe (including the Caribbean, Canada, Ireland, Australasia, Africa or India), in which identification with a particular nation, colonial status or imperial power is problematic or no longer applicable. Topic may focus on a particular theme or event, genre, time frame, formal or stylistic trend, author or set of authors, issue, or problem. May be repeated as topic changes.

**ENG 407. Advanced Studies in American Literature. 3 credits.**

Study of literature(s) of the United States and North America, from the Colonial Period through the 21st Century. May include writing in multiple genres: narrative prose, poetry, drama, nonfiction. Topics may be historically delimited or thematically organized; specific sections may focus on a group of authors, a literary movement, a historical moment, or a broad theoretical question. Course may be repeated as topic changes.

**ENG 408. Advanced Studies in African-American Literature. 3 credits.**

Study of literature produced by African-Americans, from the Colonial Period through the 21st century. May include writing in multiple genres: narrative prose, poetry, drama, nonfiction. Topics may be historically delimited or thematically organized; specific sections may focus on a group of authors, a literary movement, a historical moment or a broad theoretical question. Course may be repeated as topic changes.

**ENG 410. Advanced Studies in Author. 3 credits.**

Study of the works of one (or two) British, American or Anglophone writers. May be repeated for credit when course content changes.

**ENG 412. Special Topic Seminar. 3 credits.**

Study of a literary school, movement, genre or some other significant literary or linguistic topic. May be repeated for credit when course content changes; credit may not be earned in both ENG 412 and ENG 512 unless course content changes.

**ENG 413. Advanced Studies in Literature and Ideas. 3 credits.**

Advanced study of the literary treatment of an organizing theme, which may be framed broadly as part of the human experience or within a tradition of studies in the humanities. Course content may include pertinent readings from other disciplines. Possible themes: love, death, nature, evil, the comic spirit. May be repeated as course topic changes.

**ENG 414. Advanced Studies in Genre. 3 credits.**

Advanced study of works drawn from a specific literary or film genre or subgenre or a small, related set of (sub)genres. May be repeated as course topic changes.

**ENG 415. Advanced Studies in Textuality and the History of the Book. 3 credits.**

Detailed literary, bibliographical, political and cultural analysis of the material features of texts as physical objects. Topics may include the relation between a book's physical features and its intellectual contexts; the production, dissemination and receptions of texts; the history of manuscript, print and digital

text technologies; the material history of reading and of literacy; and so forth. May be repeated as course topic changes.

**ENG 417. Advanced Studies in Linguistics and the English Language. 3 credits.**

Advanced study of a particular topic in English linguistics or in English language studies. Course may focus on a particular subfield or linguistics, on particular linguistic theories, on an application of linguistic theory to literary studies or to other related fields, or on specific structural, historical, cultural, or other aspects of the English language. May be repeated as topic changes.

**ENG 420. Advanced Studies in Theory and Cultural Studies. 3 credits.**

Advanced study of a topic or debate within contemporary critical theoretical or cultural studies discourses in the humanities. Course may be repeated as topic changes.

**ENG/WGS 423. Advanced Studies in Gender and Sexuality in Literature. 3 credits.**

Advanced study of a topic using a gender and sexuality studies approach to literary texts. This course will explore how gender and sexuality and their representation in literature are shaped by social, cultural, historical and political contexts. Course may be repeated as topic changes.

**ENG 430. Advanced Studies in Comparative Literature. 3 credits.**

Comparative study of selected world literature. May be repeated as course topic changes.

**ENG 431. Advanced Studies in Caribbean Literature. 3 credits.**

Studies in the literary achievement of novelists, poets and dramatists of the Caribbean. May be repeated as course topic changes.

**ENG 432. Advanced Studies in African Literature. 3 credits.**

A study of selected works by African writers, focused by theme, geography or genre. May be repeated for credit when content varies.

**ENG 433. Studies in Arabic Literature. 3 credits.**

A study of Arabic writers. May be repeated for credit when content varies.

**ENG/SPAN 434. Advanced Studies in Latin American Literature in Translation. 3 credits.**

This course will study Latin American literature in translation. The course will focus on the work of major Spanish-American authors. May be repeated as course content changes.

**ENG/FR 435. Studies in French Literature. 3 credits.**

A study of selected works of French literature. Instruction is in English. Does not count toward a major, minor or licensure in French.

**ENG/GER 436. Studies in German Literature. 3 credits.**

A study of selected works of German literature. Instruction is in English. May be repeated for credit when course content changes.

**ENG/ITAL 437. Studies in Italian Literature. 3 credits.**

A study of selected works of Italian literature. Instruction is in English. May be repeated for credit when course content changes.

**ENG/RUS 438. Studies in Russian Literature. 3 credits.**

A study of selected works of Russian literature. Instruction is in English. May be repeated for credit when course content changes.

**ENG/SPAN 439. Advanced Studies in Major Authors of Literature in Spanish in Translation. 3 credits.**

This course will study the work of both Peninsular and Latin American authors in translation. The course will focus on major Spanish-speaking authors and their work, both in Latin America and in Spain. May be repeated as course content changes.

**ENG/THEA 447. Advanced Playwriting. 3 credits.**

An advanced workshop with emphasis on developing full-length dramatic material. *Prerequisite:* ENG/THEA 347.

**ENG 450. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits.**

Introduction to the interdisciplinary studio through discussion of the history of interdisciplinary art and exposure to contemporary examples from dance, theatre, music, creative writing, visual art, film and video. Emphasis on production of original work that evidences the use of another media or collaborative work by artists from different disciplines. *Prerequisites:* *Permission of the instructor(s) and advanced skill level in one or more of the creative arts.*

**ENG 463L. Film Adaptations. 3 credits.**

The study of the process of adapting literature into feature films. Consideration is given to the original literary work, as well as to the changes undergone in its adaptation to film. (Taught in London). *Prerequisites:* SMAD 301; for non-majors: ENG 381 or admission to the cross disciplinary minor in creative writing; or permission of the instructor.

**ENG/WGS 466. Advanced Studies in Women's Literature. 3 credits.**

Advanced study of women's literary achievements in several cultural and historical contexts. May be focused by theme. May be repeated as course content varies. *Prerequisite:* ENG 368 or ENG 369.

**ENG 483. Narrative Form. 3 credits.**

The study, development and practice of narrative craft. *Prerequisite:* ENG 393 or permission of the instructor.

**ENG 484. Poetic Craft and Creativity. 3 credits.**

The study, development and practice of poetic craft. *Prerequisite:* ENG 392 or permission of the instructor.

**ENG 490. Special Studies in English. 3 credits.**

Independent study for students with high academic standing. Students may select work in (1) a literary type, period or author; (2) imaginative writing; or (3) linguistics. Approval of department head required; may be repeated for credit when course content changes.

**ENG 493. Advanced Creative Nonfiction. 3 credits.**

An advanced workshop in the writing of creative non-fiction narrative, with emphasis on point of view, form and style. *Prerequisite:* ENG 391 or permission of the instructor.

**ENG 494. Advanced Poetry Writing. 3 credits.**

An advanced workshop with emphasis on developing sound poetic form, voice and vision. *Prerequisite:* ENG 392 or permission of the instructor.

**ENG 495. Advanced Fiction Writing. 3 credits.**

An advanced workshop with emphasis on developing sound narrative prose form, style and vision. May be repeated for credit when course content changes. *Prerequisite:* ENG 393 or permission of the instructor.

**ENG 496. Advanced Topics in Creative Writing. 3 credits.**

Study of a specific and concentrated aspect of creative writing. Topics will vary semester to semester. May be repeated for credit when the topic changes. *Prerequisite:* ENG 391, ENG 392 or ENG 393, as appropriate to course content.

**ENG 499. Honors. 6 credits.**

See catalog section "Graduation with Honors."

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## Environment

**ENVT 200. Environmental Systems Theory. 3 credits.**

Explores three aspects of understanding the environment. First, the kind of problem the environment is and the thinking strategies that will best yield insights and understanding. Second, how humans create and/or respond to environmental issues and crises. Third, examination of past environmental changes and how humans have been affected by and responded to those changes. Final synthesis explores what we can and cannot do practically to respond to future changes. Does not satisfy elective credit or count as credit for geology or earth science majors.

**ENVT 300. Topics in Environmental Humanities. 3 credits.**

Special topics in the humanities and arts that enhance the study of environmental humanities and are not currently taught in the regular curriculum.

**ENVT 301. Internship in Environmental Humanities. 3 credits.**

Provides the student with practical experience in areas pertinent to the study of environmental humanities. Any internship experience must be approved by the coordinator in advance, and details of supervision and evaluation should be spelled out in advance. The internship may also be through an academic unit, but must be approved for credit by the environmental humanities coordinator in advance of the experience.

**ENVT 400. Capstone Seminar in Environmental Problem Solving. 3 credits.**

Integrates perspectives from three environment programs: environmental management, environmental science and environmental studies. The course is team taught using a case-study approach to environmental issues, emphasizing teamwork and student initiative. Topics vary. *Prerequisites:* Completion of 15 hours in declared environment minor or permission of the instructor. Students wishing to complete more than one of the environmental minors (environmental studies, environmental science or environmental management) may receive dual credit for ENVT 400.

**ENVT 401. Studio or Independent Study in Environmental Humanities.**

3 credits.

Students may propose to engage in a creative, expressive or scholarly project either through their home department or using the ENVT identifier. Studio or independent study must be approved by the Environmental Humanities coordinator in advance of the experience.

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## Environmental Management

**ENVM 480. Selected Topics in Environmental Management. 1-4 credits.**

Topics in environmental management which are of interest to the upper-division student but not otherwise covered in the regular course offerings. Offered only with the approval of the director. May be repeated for credit when course content changes. Students should consult the instructor prior to enrolling. *Prerequisite:* Junior or senior standing in environmental management program. Topic selected may dictate additional prerequisites.

**ENVM 490. Environmental Management Seminar. 2 credits.**

A literature-based seminar in environmental management, this course emphasizes student investigation and research, presentation and discussion. *Prerequisite:* Senior standing in environmental management program.

**ENVM 491, 492. Senior Thesis/Project I and II. 3 credits each.**

In this two-course sequence, the student performs an independent research and/or engineering project to identify and analyze an environmental management problem and develop a practical solution. May be taken to satisfy the requirements set forth by the Honors program. *Prerequisite:* Senior standing in environmental management program.

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## Exceptional Education

**EXED 200. Foundations of Exceptional Education. 3 credits.**

This course is designed to support study of the historical perspectives, models, theories, philosophies and trends that provide the basis for exceptional education practice. The status of persons with exceptional learning needs (ELNs), legislative and judicial mandates and current regulation related to individuals with ELNs, and the 'rights and responsibilities' of various stakeholders as they relate to exceptionality will be stressed. The role of culture, environment, family and exceptionality will be explored.

**EXED 202. Field Experiences in Special Education. 3 credits.**

Provides students with supervised experiences with persons with disabilities. Placements are made in various settings including schools, institutions and recreational programs. *Prerequisites:* EXED 200 and permission of the instructor.

**EXED 300. Educational Technology for Students with Disabilities. 1 credit.**

An introduction to instructional technology for persons with disabilities. The role of assistive technology in the educational process is investigated. Students are exposed to a variety of instructional programs and equipment. Federal and state guidelines, interdisciplinary team functioning, and program, as well as equipment selection, are addressed. *Prerequisite:* Teaching and non-teaching minors only.

**EXED 302. Mentoring Children and Youth with Mild Disabilities. 2 credits.**

The course will provide students with the knowledge and skills to engage in mentoring of children and youth with learning disabilities and attentional disorders. Students will focus on increasing their understanding of self-awareness related to living with a disability, effective compensatory learning strategies and self-advocacy skills. *Prerequisite:* Because of the purpose of this course is to increase self-awareness and mentoring skills related to understanding disabilities, it is open only to students who are registered with the Office of Disability Services.

**EXED 303. Foundations of Classroom and Behavior Management. 3 credits.**

This course was designed to provide students with an understanding of and skill to apply classroom and behavior management techniques and interventions, including techniques that promote emotional wellbeing and teach and maintain behavioral conduct and skills consistent with norms, standards, and rules of the educational environment. Diverse approaches for classroom and behavior management based upon behavioral, cognitive, affective, social and ecological theory and practice will be learned.

**EXED 305. Characteristics of Acquired Brain Injury. 3 credits.**

EXED 305 provides an overview of acquired brain injury – its causes, consequences, and consideration for survivors. Students will learn how to use clinical case data to assess the learning and behavioral outcomes of ABI, how to develop and manage learning environments to facilitate recovery, and plan targeted instruction for cognitive rehabilitation. *Prerequisite:* EXED 200.

**EXED 306. Lifespan Issues for Individuals with Disabilities. 3 credits.**

This course examines how issues such as legal mandates and policies, self-advocacy, family involvement, educational services, transition, and interagency collaboration impact individuals with disabilities and their families from birth through postsecondary life. The students will be challenged to compare and analyze needs and services available and accessed by individuals with

disabilities. *Prerequisite: For special education non-teaching minors and students in the chronic illness concentration.*

**EXED 309. Supporting Community Access for Adults with Disabilities.** *3 credits.*

This course provides students with an understanding of and experience working with young adults with disabilities who are exiting Special Education eligibility. The goal is to support these young adults in learning to access the JMU community and gain experience with nondisabled sameage peers. *Prerequisites: EXED 200.*

**EXED 310. Survey of Emotional Disturbance.** *3 credits.*

A detailed study of the characteristics, diagnosis, treatment, assessment and education of individuals with emotional/behavioral disorders. Medical, psychological, behavioral and environmental causes are presented as well as therapeutic interventions, educational resources and instructional strategies. *Prerequisites: EXED 200 and non-teaching minors only.*

**EXED 312. Field Experience in Special Education and Diversity.** *1 credit.*

Students devote 30 clock hours to activities in school and non-school settings that emphasize diversity of individuals and families. *Prerequisite: Teaching and non-teaching minors only; Corequisite: EDUC 310.*

**EXED 320. Survey of Learning Disabilities.** *3 credits.*

A detailed study of the theories, characteristics, etiology and needs of individuals with learning disabilities including ADHD. Focus will be on causation and terminology as well as historical perspectives and current trends related to practices in identification and treatment of learning disabilities. *Prerequisites: EXED 200 and non-teaching minors only.*

**EXED 330. Survey of Intellectual Disabilities.** *3 credits.*

A detailed study of the characteristics, diagnosis, treatment, and education of individuals with intellectual disabilities. Medical aspects and implications for support needs are addressed as well as educational settings, resources and instructional techniques designed to facilitate integration for individuals with intellectual disabilities. *Prerequisites: EXED 200 and non-teaching minors only.*

**EXED 341. Characteristics of Learners with Disabilities Accessing the General Curriculum.** *3 credits.*

The course covers historical, ethical and legal aspects involving the education of children with disabilities. Definitions and foundational characteristics of teaching children with disabilities accessing the general curriculum are featured. Identification, education and evaluation of academic skills and behavior of students with disabilities are presented. How family, cultural, socioeconomic, and environment impact education are discussed. Professional behavior standards are examined. *Prerequisite: EXED 200. Corequisite: EXED 376.*

**EXED 375. Overview Study of Autism Spectrum Disorders.** *3 credits.*

This course provides an overview of the current issues involved in working with people who have been identified as having an autism spectrum disorder. Areas addressed will include learning characteristics; current research and factors involved with causation, assessment and diagnosis; positive behavioral supports; social skills development; sensory processing, motor planning and sensory integration; and communication and language development. *Prerequisites: EXED 200*

**EXED 376. Initial Practicum for Special Education Pre-Professional Preparation.** *2 credits.*

A practicum experience that will provide an opportunity to observe the roles of special education teachers who are working with students with disabilities who are accessing the general curriculum. Practicum students will have the opportunity to observe instruction at both elementary and secondary levels. They will be able to observe classroom management and instruction in math, reading and writing. Some introductory level instruction opportunities may be provided. *Prerequisites: EXED 200 Corequisites: EXED 341.*

**EXED 401. Issues in Exceptional Education.** *1-3 credits.*

Considers current problems and issues in special education as they relate to the professional education of teachers. EXED Teaching and non-teaching minors only with permission of the instructor.

**EXED 403. Models of Service Delivery for Exceptional Learners.** *2 credits.*

This course was designed to provide an overview of the structure and organization of general education classrooms and other instructional settings representing the continuum of educational and support services for learners who are gifted/talented, second language speakers and/or who have disabilities. Students will also learn of the school and community resources available to support the learning of individuals with exceptional learning needs. *Prerequisites: EDUC 300 and EXED 200.*

**EXED 416. Overview and Assessment of Autism Disorders.** *3 credits.*

This course is designed to provide an overview of the current issues involving working with children who have been identified as having an autism spectrum disorder. Areas covered in-depth will include learning characteristics, current research and factors involved with causation, assessment and diagnosis. We will discuss positive behavioral supports; social skills development; sensory processing, motor planning and sensory integration; and communication and language development as these will be covered in much greater depth in other courses. A range of institutional methodologies and techniques will be emphasized throughout the course.

**EXED 417. Communication, Language and Sensory Issues of Autism.**

*3 credits.*

This course is designed to provide an in-depth study of the current issues involved in working with children who have been identified as having an autism spectrum disorder. We will discuss only briefly learning characteristics, current research and factors involved with causation, assessment and diagnosis, and positive behavioral supports to set the stage. The bulk of our time will be spent exploring social skills development; sensory processing, motor planning and sensory integration; and communication and language development. We will consider a range of institutional methodologies and techniques for providing instruction, support and generalization of skills in these areas. *Prerequisite: EXED 416.*

**EXED 418. Challenging Behaviors, Positive Behavioral Supports, Functional Behavioral Assessment and Behavior Intervention Plans.** *3 credits.*

This course is designed to provide an in-depth look at the behavioral challenges those with a disability in the autism spectrum might face and display. Areas addressed will include behavioral characteristics, current research and factors related to behavioral challenges in this population, positive behavioral supports, Functional Behavioral Plan Development, implementation and monitoring. We will cover data collection in relation to assessment and monitoring behaviors. We will review social skills development; sensory processing, motor planning and sensory integration; and communication and language development as these are covered in much greater depth in other courses. A range of institutional methodologies and techniques will be emphasized throughout the course. *Prerequisites: EXED 416 and EXED 417.*

**EXED 420. Developing and Managing the Special Education Instructional Program.** *1 credit.*

This course explores the practical skills and strategies needed to develop and implement programming for K-12 special education students. Skills will be applicable in consultative, self-contained, resource and integrated settings.

**EXED 430. Practicum in General Education Methods.** *2 credits.*

This practicum experience is designed to enhance understanding of the scope and sequence of the general education curriculum, explore the impact of state curriculum standards and provide an opportunity to observe teaching methods in language arts and mathematics.

**EXED 431. Assistive Technology for Individuals with Sensory Impairments.** *2 credits.*

This course is designed to heighten the awareness of participants to specific technology and resources available to enhance and improve the abilities of individuals with sensory impairments to succeed in school, daily living activities and employment. This course is delivered via a distance education format. *Prerequisite or corequisite: EXED 435.*

**EXED 432. Braille Code.** *3 credits.*

This course provides instruction in the development, use and application of the Braille literary code and its implications for educational/literacy programs for students with visual disabilities. Students will develop the skills to read and write contracted and uncontracted Braille, while acquiring instructional methodologies for teaching children who are blind to read and write. Sources of Braille materials for educational purposes are identified. This course is delivered via a distance education format. *Prerequisite or corequisite: EXED 435.*

**EXED 433. Orientation and Mobility for Students with Visual Impairments.** *2 credits.*

This course provides the foundation for understanding the components and essence of orientation and mobility. It establishes how the need for independent travel by individuals with visual impairments created the field of Orientation and Mobility; explores the philosophy and history of orientation and mobility including cane instruction, dog guides and methods of travel; and addresses techniques in developing orientation skills and basic mobility instruction. Motor and concept skill development are emphasized. This course is delivered via a distance education format. *Prerequisite or corequisite: EXED 435.*

**EXED 434. Curriculum and Assessment for Students with Visual Impairments.** *3 credits.*

This course provides students with knowledge and understanding of the educational assessment of students with visual impairments and additional disabilities including deaf-blindness. Students practice assessing and planning educational programs for students with visual impairments. Also covered in this course are assessment technology for students with visual impairments; determination of learning needs and appropriate learning media; and the relationship of assessment, IEP development, and placement. This course is delivered via a distance education format. *Prerequisite or corequisite: EXED 435.*

**EXED 435. Characteristics of Students with Visual Impairments.** *1 credit.*

This course provides an overview of the characteristics of and services to persons with visual impairments, including the impact of visual impairments on infants' and children's growth and development, child and adolescent emotional and social development, and family interaction patterns. It considers the educational, conceptual, psycho-social and physical implications of a visual impairment. This course is delivered via a distance education format.

**EXED 440. Classroom Management and Professional Collaboration.** *3 credits.*

A focus on techniques used to manage the behavior of students. Emphasized are strategies used to prevent inappropriate behavior from occurring and/or worsening. Other interventions are taught such as techniques for working with others (e.g., parents, teachers, administrators) who may provide behavior management assistance to teachers and administrators.

**EXED 441. Functional Applications of Low Tech Assistive Technology.** *2 credits.*

This course will focus on functional applications of low-technology solutions within the areas of self-care; mobility and transfer; communication; stability and support; sports, recreation, and leisure; and academic and work environments. The course will include exploration and opportunities to design and create low-tech devices for children and adults. *Prerequisite: EXED 300.*

**EXED 442. Computer Technology and Individuals with Disabilities.** *3 credits.*

This course is designed to increase students' awareness and understanding of computer technology and its implications for individuals with disabilities. It will examine the accessibility of standard computer hardware and software as well as explore available assistive technologies designed to enhance computer accessibility and the functional capabilities of individuals with disabilities. Laboratory and demonstration experiences will enable students to better utilize devices and software in a variety of settings. *Prerequisite: EXED 300, EXED 441 or permission of the instructor.*

**EXED 443. Assistive Technology Use for Individuals with Disabilities.** *2 credits.*

This course is designed to enhance students' awareness and understanding of the range of assistive technologies available and their instructional implications for individuals with disabilities. Laboratory and demonstration experiences will enable students to select and utilize devices and software in settings serving individuals with disabilities. *Prerequisite: EXED 200.*

**EXED 450. Principles of Specialized Reading Instruction.** *3 credits.*

The course focuses on acquisition & development of reading skills for students with disabilities. Content includes characteristics of students with reading disabilities; informal assessment; relationship of oral language to reading; stages of reading development; research-based methods; principles of specialized reading instruction; and collaboration to support reading development. At least 10 hours of reading instruction to a K-12 student is required and is in addition to any assigned practicum. *Prerequisite: READ 430. Corequisite: EXED 476.*

**EXED 455. Collaborative Teaching for Learners with Disabilities.** *3 credits.*

Students in this course will gain knowledge and practice skills in consultation, case management, and collaboration with individuals, families, educators, related service providers and other human service professionals. An overview of collaborative processes, collaborative models for supporting the education of students with disabilities and for effective management of paraprofessionals will be studied. *Prerequisites: EXED 200 and special education non-teaching minors.*

**EXED 460. Differentiation of Instruction and Academic Collaboration.** *3 credits.*

This course assists preservice teachers in using their understanding of exceptional learners and learning to accommodate the diversity of students in the general education classroom. In addition, preservice teachers will explore the roles of teachers and how general and special education teachers collaborate to meet the needs of exceptional students. Teaching education students only.

**EXED 465. Perspectives of Early Childhood Special Education.** *3 credits.*

This course is designed to provide the student with an overview of educational programming and service delivery for children with developmental delays and/or disabilities, ages 0 to 5. Particular attention is given to federal legislation, historical perspective and current recommended practice in programming educational services for young children with delays and/or disabilities.

**EXED 474. Assessment and Evaluation for Management of Instruction and Behavior.** *4 credits.*

This course was designed to provide study and application of the foundations of assessment and evaluation related to management of instruction and behavior of individuals with ELNs. The course emphasizes issues and skills in selection, administration, interpretation and use of a variety of tools and techniques in all stages of the decision making process for instruction and behavior management. Application of this new knowledge and skill will be through case-studies and direct assessment. *Prerequisites: EXED 200, EXED 341, PSYC 270 . Corequisite: EXED 476.*

**EXED 475. Building Instructional Programs and Plans for Learners with Disabilities.** *3 credits.*

Designed for exploration of practical skills and strategies in development and use of programming to meet the academic and behavioral needs of students with disabilities accessing the K-12 general curriculum. Skills will be applicable in a variety of settings and service delivery models. Includes purposes and procedures involved in the development of IEPs and the selection or design of CBA to plan and evaluate instruction in academics, social behaviors, and life skills. *Prerequisites: EXED 200 and EXED 341.*

**EXED 476. Practicum in Assessment and Reading Instruction.** *3 credits.*

This practicum is designed to provide a structured supervised experience assessing learning, planning and delivery of instruction to students with disabilities accessing the general education curriculum, and gathering data to make decisions about the effectiveness of instruction. Application of skills in planning direct instruction, creating instructional materials, collecting performance data, managing behavior and developing social skills will be emphasized. *Prerequisites: EXED 341 Corequisites: and EXED 450.*

**EXED 484. Instructional Methods for Learners with Disabilities.** *3 credits.*

This course is designed to teach specialized methods for teaching academic skills and supporting individuals with disabilities and other struggling students within the K12 general education classroom. Emphasis is on collaborative strategies and effective professional communication skills. Focus is on integrating scaffolding, specific support skills, reteaching and preteaching strategies. *Prerequisite: EXED 476. Corequisite: EXED 486.*

**EXED 485. Systematic Behavioral Support and Interventions.** *3 credits.*

Designed for application and evaluation of group management techniques and individual interventions that teach and maintain emotional, behavioral and social skills. Systematic behavioral interventions to support the behavior and learning of individuals with disabilities accessing the general education curriculum (positive behavioral supports, functional assessments of behavior, teaching social skills) are studied. Data collection procedures to inform practice are examined. *Prerequisites: EXED 303 or EXED 440, EXED 341.*

**EXED 486. Supervised Clinical Practice with Methods and Individualized Behavior Support.** *3 credits.*

This practicum provides a structured supervised experience in selecting and using specialized methods for teaching academic skills, group management techniques and individual interventions that teach and maintain emotional, behavioral and social skills instruction to students with disabilities, and gathering data to make decisions about the effectiveness of intervention. Students will also have the opportunity to refine knowledge and skill application from previous program work. *Prerequisites: EXED 303 or EXED 440, EXED 341, EXED 474. Corequisites: EXED 484.*

**EXED 490. Special Studies in Special Education.** *1-3 credits each semester.*

Designed to allow the student to complete independent study under faculty supervision. Prerequisite: Permission of the department head.

**EXED 499. Honors.** *6 credits.*

See catalog section "Graduation with Honors."

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## Family Studies

**FAM 133. The Contemporary Family.** *3 credits.*

Concepts of variations in forms and lifestyles of families. Consideration is given to the family life cycle and the interdependency between the family and society.

**FAM 300. Child Development.** *3 credits.*

A study of the factors influencing the physical, cognitive, social and emotional growth of the young child. Emphasis is given to the importance of family relations and development of observational skills. *Prerequisite: PSYC 101, PSYC 160 or equivalent.*

**FAM 335. Parent-Child Relationships Across the Lifespan.** *3 credits.*

Focuses on intergenerational caregiving and interactions across the lifespan and generations. Uses a developmental framework to explore family life as the territory in which people fulfill relational responsibilities to children and parents while simultaneously attending to independent life stage challenges. *Prerequisite: FAM 133 or SOCI 374.*

**FAM/GERN/NPS/SOWK 375. Grant Writing for Agencies.** *3 credits.*

Emphasizing active learning, this course teaches the basics of grant and proposal writing. Efficient research, persuasive prose and the importance of relationships are stressed. Private and corporate philanthropy and government grants are examined.

**FAM/SOWK 386. Youth Empowerment Strategies (YES).** *3 credits.*

Students learn to use group activities that include the creative arts, low ropes and self-discovery in youth empowerment. The goal is to help youth build life skills and make informed decisions. Prior to beginning work with youth, students complete 25 hours of training.

**FAM 400. Issues and Applications.** *3 credits.*

This seminar is designed to integrate and apply knowledge from the student's major and the family issues minor. A substantial, in-depth Individualized project will strengthen the student's capabilities in research, information access and self-directed learning. *Prerequisites: FAM 133 or SOCI 374, three additional courses in the family studies minor, and junior or senior standing.*

**FAM 487. Special Topics in Family Studies.** *3 credits.*

Examination of selected topics that are of current importance to family studies. Course may be repeated for credit. *Prerequisite: FAM 133 or SOCI 374.*

**FAM 490. Special Studies in Family Studies.** *1-3 credits.*

The course is designed to give capable students in family studies an opportunity to complete independent study under faculty supervision. Course may be repeated for credit. *Prerequisites: FAM 133 or SOCI 374 and two additional courses in the family studies minor or permission of the instructor.*

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## Finance

**FIN 250. Introduction to Quantitative Finance.** *3 credits. Spring only.*

The purpose of this course is to provide a broad introduction to the markets and instruments of engineered finance. The focus of the course is to expose students to the properties and uses of the array of non-traditional financial instruments that are increasingly trading in both the exchange and over-the-counter markets. *Prerequisites: Minimum grade of "C" in MATH 235, MATH 236, ECON 201 and ECON 200.*

**FIN 301. Principles of Finance.** *3 credits.*

The purpose of this course is to provide a foundation in the principles and tools of finance, which include financial analysis, the time value of money, capital budgeting and capital structure. Open to students with a B.S. or B.A. economics major with a concentration in finance as well as students majoring in health sciences. Open to students as a repeat/forgive for COB 300B. *Prerequisites: Junior standing and COB 241.*

**FIN 310. Principles of Real Estate.** *3 credits.*

The purpose of this course is to assist students in developing a foundation in real estate principles, apply finance and economic principles to valuation and evaluation of real estate and analyze contracts and financing in residential and commercial real estate transactions. *Prerequisites: "C" or better in both FIN 360 and COB 300B.*

**FIN/ECON 325. Money and Banking.** *3 credits.*

The purpose of this course is to examine the economic role of money, banking, and monetary policy within current institutional settings and under alternative theories explaining the interrelationships between money, the financial system and economic activity. *Prerequisites: ECON 201 and ECON 200.*

**FIN/MATH 328. Time Series Analysis.** *3 credits.*

The purpose of this course is to examine regression and exponential smoothing methods for forecasting nonseasonal and seasonal time series, stochastic processes, and Box-Jenkins' autoregressive and moving average models. *Prerequisites: MATH 238 or MATH 300 and MATH 318.*

**FIN 345. Finance Fundamentals for Non-Business Majors.** *3 credits.*

Offers an introduction to the basic principles in financial decision-making, providing an overview of the role of the forms of business, taxation and financing of a business enterprise. This course develops the basic financial skills and tools necessary for financial analysis, capital investment project analysis and valuation. Not recommended for students seeking admission to MBA programs. Students will not receive credit for this course if they also take FIN 301 or COB 300B. *Prerequisites: ACTG 244 or COB 242, junior standing (60 hours) and a cumulative 2.0 GPA in all courses taken at JMU. Restricted to non-college of business majors.*

**FIN 355. International Financial Management.** *3 credits.*

The purpose of this course is to provide a comprehensive examination of the investing and financing decisions of a multinational business entity. Particular emphasis is on global financial markets and instruments, exchange-rate risk management, short-term and long-term financing for multinational firms and asset-liability management in an international environment. *Prerequisite: COB 300B. International business majors only.*

**FIN 360. Analytical Methods in Finance.** *3 credits.*

The purpose of this course is to introduce the finance major to quantitative methods in finance, as applied to financial instruments and capital markets. Emphasis is placed in the theoretical determination of asset prices, risk, and return, as well as the estimation and analysis of returns and asset prices. *Corequisites: COB 300 or FIN 301. Not permitted for quantitative finance majors. Prerequisites: COB 300 or FIN 301, and a minimum of a "C" in COB 242. Not permitted for quantitative finance majors.*

**FIN 362. Financial Analysis.** *3 credits.*

The purpose of this course is to prepare the finance major to use and interpret economic and accounting information that is essential in financial analysis and valuation. *Prerequisites: Minimum grade of "C" in COB 300B and FIN 360, and minimum grade of "B" in COB 241 and COB 242.*

**FIN 365. Intermediate Financial Management.** *3 credits.*

The purpose of this course is to provide an in-depth study of the theories of capital structure, long-term financing decisions, working capital management and current topics such as mergers and bankruptcy. Computer applications. *Prerequisites: Minimum grade of "C" in COB 300B and "C" in FIN 360 (finance majors); minimum grade of "C" in FIN 250 (quantitative finance majors).*

**FIN 370. Real Estate Finance.** *3 credits.*

The purpose of this course is to offer a comprehensive examination of the decision-making processes involved in purchasing and financing real assets. The focus is on the cost of funds and optimal financial structure of complex real estate projects. *Prerequisites: Minimum grade of "C" in COB 300B and FIN 360.*

**FIN 371. Principles of Investments.** *3 credits.*

The purpose of this course is to provide an investor's view of the operation of the capital markets. This course covers the theories and practice of investments, including analysis of financial instruments and real assets and their effective combination into portfolios. *Prerequisites: Minimum grade of "C" in FIN 301 and "C" in FIN 360 (economics B.A. and B.S. majors); minimum grade of "C" in COB 300B and "C" in FIN 360 (finance majors); minimum grade of "C" in FIN 250 (quantitative finance majors).*

**FIN/ECON 372. International Finance and Payments.** *3 credits.*

Examines international financial markets, instruments and institutions; determination of spot and forward exchange rates, interest arbitrage, hedging and speculation; and alternative policies for achieving equilibrium in international payments. *Prerequisites: ECON 201 and ECON 200.*

**FIN 375. Madison Investment Fund Management.** *3 credits.*

The course is an accelerated introduction to the investment environment with a focus on fundamental analysis of stocks, overlay strategies to enhance portfolio performance and familiarization with the trading and pricing of the wide variety of instruments in the modern financial marketplace. The course is limited to members of the Madison Investment Fund. *Prerequisites: FIN 371 and department head permission with membership in the Madison Investment Fund.*

**FIN 378. Fixed Income Analysis.** *3 credits.*

The purpose of this course is to examine the market for and the price/yield determinants of various fixed income securities including Treasury debt, corporate bonds, agency debt, municipal bonds and mortgage and asset-backed securities. Topics include securitization, the term structure of interest

rates, and portfolio management strategies such as duration, convexity and immunization. *Prerequisite:* FIN 371.

**FIN 380. Elemental and Derivative Securities Analysis.** 3 credits.

The purpose of this course is to undertake an in-depth examination of the broad array of financial instruments traded in contemporary finance markets that are available for financing, investing, and managing financial price risk. *Prerequisites:* Minimum grade of "C" in COB 300B and "C" in FIN 360 (finance majors); minimum grade of "C" in FIN 250 (quantitative finance majors); minimum grade of "C" in FIN 301 and "C" in FIN 360 (economics B.S. and B.A. majors).

**FIN/MATH 395. Mathematical Finance.** 3 credits. Spring only.

The purpose of this course is to present an overview of the role of mathematical concepts in financial applications. Topics include continuous time finance, optimization, numerical analysis and applications in asset pricing. *Prerequisites:* MATH 237 and FIN 380.

**FIN/MATH 405. Securities Pricing.** 3 credits. Fall only.

The purpose of this course is to present a quantitative treatment of the theory and method of financial securities pricing to include an examination of closed-form pricing models such as the Black-Scholes and its various derivatives as well as numerical solution techniques such as binomial methods. *Prerequisite:* FIN/MATH 395.

**FIN 416. Seminar in Real Estate Investment and Development.** 3 credits.

The purpose of this course is to provide an investigation of the investment process in real assets with emphasis on investment profitability. The real estate investment cycle is examined in detail to determine the sources of cash flow to the equity investor and how those cash flows may be maximized. *Prerequisite:* FIN 370.

**FIN 450. Financial Risk Management.** 3 credits.

The purpose of this course is to explore forward contracts, futures, swaps, and options, which are the basic building blocks for creating financial risk management programs for companies subject to financial risks such as changes in exchange rates, commodity price fluctuations and changes in interest rates. *Prerequisites:* FIN 371 and a minimum grade of "B-" in FIN 380.

**FIN 451. Risk Management II.** 3 credits.

The purpose of this course is to present an intermediate treatment of the theory and applications of market, credit, liquidity and operational risk management. It builds upon concepts introduced in previous course work to present the theoretical constructs underlying risk management, as well as the quantitative skills required for risk analysis and the implementation of risk management techniques. *Prerequisite:* A minimum grade of "B-" in FIN 450.

**FIN 455. Advanced International Financial Management.** 3 credits.

The purpose of this course is to focus on the analysis of major international financial management issues and risk faced by businesses operating in global markets. The emphasis is on the management of foreign exchange transactions, operating and translation exposures by multinational corporations, the functions of various currency hedging instruments, and the application of international funding and investment techniques. *Prerequisites:* Minimum grade of "C" in COB 300B and FIN 360.

**FIN 460. Commercial Banking.** 3 credits.

The purpose of this course is to study the objectives, functions, policies, organizational practices and government regulation of commercial banks. An intensive study is undertaken of the asset and liability structure of commercial banks. Special emphasis is placed on how banks are adapting to the changes in their operating and regulatory environments. *Prerequisites:* Minimum grade of "C" in COB 300B and FIN 360.

**FIN/MATH 465. Seminar in Actuarial Science I.** 3 credits.

The course covers the theory and application of contingency mathematics in the areas of life and health insurance and annuities from both a probabilistic and deterministic approach. Together with FIN/MATH 466, the two-course sequence helps to prepare the student for the professional actuarial examinations. *Prerequisite:* FIN/MATH 395 or consent of instructor. *Prerequisite or corequisite:* MATH 426.

**FIN/MATH 466. Seminar in Actuarial Science II.** 3 credits.

Continuation of FIN/MATH 465 with additional coverage of contingency mathematics in the areas of life and health insurance, annuities, pensions and risk theory from both a probabilistic and deterministic approach. The two-course sequence helps to prepare the student for the professional actuarial examination. *Prerequisite:* FIN/MATH 465. *Prerequisite or corequisite:* MATH 427.

**FIN 471. Portfolio Management.** 3 credits.

The purpose of this course is to cover the application of investment concepts within a case format. The course focuses on investment management, bringing

together economics, capital markets and valuation to form a basis for decision making in financial asset selection, risk/reward analysis, portfolio selection and formation. *Prerequisite:* FIN 371.

**FIN 475. Financial Modeling and Risk Analysis.** 3 credits.

The purpose of this course is to introduce students to practical methods used to identify, quantify, predict, value, diversify, and manage risk in the financial environment. Students use sensitivity analysis, Monte Carlo and Latin Hypercube simulations, bootstrapping, time series forecasting and dynamic optimization techniques as applied to capital budgeting and structure, pro forma financial statements, multi-objective portfolio allocation, discounted cash flow analysis and real options. *Prerequisites:* FIN 365 and FIN 371.

**FIN 480. Seminar in Financial Engineering.** 3 credits. Spring only.

The purpose of this course is to explore financing engineering which is the process of adapting existing financial instruments and developing new ones to meet the needs of participants in domestic and international financial markets. This process is taught within a case and project format in order to simulate actual market participation as closely as possible. *Prerequisite:* FIN/MATH 405.

**FIN 488. Advanced Financial Policy.** 3 credits.

The purpose of this course is to examine the financing of business enterprises and the financial condition of existing firms using a case format. The objective of this examination is to elicit a policy decision which effectively addresses the issues identified in the case. *Prerequisites:* 12 hours of FIN courses, including FIN 360 and FIN 365 and completion of 105 hours. Open only to graduating finance majors.

**FIN 490. Special Studies in Finance.** 1-3 credits.

Designed to give capable students in finance an opportunity to complete independent study under faculty supervision. Admission by recommendation of the instructor and permission of the director. Forms may be obtained in the department office before registration.

**FIN 498. Special Topics in Finance.** 3 credits.

The purpose of this course is to provide an opportunity for students to explore areas of current topical interest or to exploit special situations. Course content will vary. For current course content, consult your adviser or the department head. *Prerequisite:* FIN 250 or FIN 360; additional prerequisites may vary with the specific offering.

**FIN 499. Honors.** 6 credits.

See catalog section "Graduation with Honors." Credits will not count toward the finance major.

## Foreign Language

\*\*These courses are taught in the various languages offered by the department. The title of the course will designate the specific language studied.

**FL 267. The Literature of Opera in Translation.** 3 credits.

A survey of the literature of opera from the 17th century to the present. All lectures and readings are in English.

**FL 309. \*\* Civilization: Travel-Study.** 1-3 credits.

A directed program of travel-study designed to augment a student's knowledge of a particular civilization. Arrangements must be made with the faculty member designated by department head. Permission of the department head is required prior to enrollment in the program.

**FL 446. \*\* Special Topics in Foreign Literature.** 3 credits.

Study of a particular topic in literature. May be taught in English or in the language but cannot be counted for major, minor or licensure unless taught in the language. Course may be repeated if content varies. *Prerequisite:* Permission of the instructor.

**FL 447. Special Topics in Civilization and Culture.** 3 credits.

Students will study a particular topic in the civilization and/or culture of a specific country in the world. Course may be repeated. *Prerequisite:* Permission of the instructor.

**FL 448. Special Topics in Linguistics.** 3 credits.

Students will study a particular topic in the linguistics of a specific country. Topics could include an introduction to sociolinguistics and psycholinguistics. Course may be repeated. *Prerequisite:* Permission of the instructor.

**FL 490. \*\* Special Studies in Foreign Languages.** 1-4 credits each semester.

Allows superior students an opportunity to complete independent studies under faculty supervision. Work may be done in all languages offered in the department but may not replace course offerings. *Prerequisite:* Permission of the department head.

**FL 499. Honors.** 6 credits.

## Foreign Language Education

### FLED 370. Modern Foreign Language Assessment. 3 credits.

This course is designed to prepare prospective foreign language teachers to create and evaluate both formal and informal learner assessments and to prepare candidates to meet future teacher evaluation criteria.

### FLED 470. Methods of Modern Foreign Language Teaching. 3 credits.

Research findings about language teaching will be used to identify the most effective instructional strategies for teaching languages to students in grades preK-12. Emphasis will be on developing plans for employing the strategies and making appropriate instructional decisions based on instructional goals, the learner, and available resources. *Corequisite: FLED 471. Prerequisites: Full admission to teacher education program; PSYC 160 and EDUC 300.*

### FLED 471. Modern Foreign Language Field Experience. 3 credits.

Provides practical classroom experience in elementary, middle and high school settings to preK-12 Foreign Language students under the supervision of an in-service teacher and a clinical professor. Students engage in classroom activities that provide an opportunity for them to practice the strategies and concepts learned in the methods courses. *Corequisite: FLED 470.*

### FLED 475. Supervised Student Teaching Experience. 12 credits.

Participants will experience the full range of conditions and tasks expected of a teacher for students in grades preK-12. They will be expected to develop and demonstrate competencies in teaching with the supervision and support of experienced teachers. Students must register for two eight-week blocks during the same semester for a total of twelve credits. *Prerequisite: All required courses for licensure and approval for student teaching through the teacher education program. Corequisite FLED 476.*

### FLED 476. Student Teaching Seminar. 3 credits.

A seminar designed to promote reflective decision making among teacher candidates during their student teaching experiences. Teacher candidates will engage in case analysis and complete the Teacher Work Sample as their culminating senior project. *Corequisite: FLED 475.*

## French

### FR 101. Elementary French I. 3-4 credits.

The fundamentals of French through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course.

### FR 102. Elementary French II. 3-4 credits.

The fundamentals of French through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite: FR 101.*

### FR 109. Accelerated Review of Elementary French (3, 1). 3 credits.

Reviews elementary French grammar, reading, writing, speaking and listening skills in French. One hour's work a week in the language laboratory. For students who have had no more than two or three years of French in high school and qualify through the placement exam. *Prerequisite: Permission of the department head or placement exam score.*

### FR 111. Intensive French I. 6 credits.

The fundamentals of French through intensive listening, speaking, reading and writing. The 4-week course is the equivalent of FR 101-102.

**FR 212. Intensive French II. 6 credits.** The fundamentals of French through listening, speaking, reading and writing. This four-week course is the equivalent of FR 231-232. *Prerequisite: FR 102 or FR 109 or FR 111 or per placement exam score.*

### FR 231. Intermediate French I. 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: FR 102 or FR 109 or FR 111 or placement exam score.*

### FR 232. Intermediate French II. 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading at the advanced intermediate level. *Prerequisite: FR 231 or permission of the instructor or per placement exam score.*

### FR 300. Grammar and Communication. 3 credits.

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in French. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: FR 212 or FR 232 or placement exam score.*

### FR 307. History of French Civilization. 3 credits.

A study of the social, economic, political and artistic development of France from the Middle Ages to 1900. Instruction is in French. *Prerequisite: FR 300.*

### FR 308. Contemporary French Civilization. 3 credits.

A study of French life and culture with emphasis on France in the 20th century. Instruction is in French. *Prerequisite: FR 300*

### FR 315. French Phonetics. 3 credits.

Intensive drill in French sounds and intonation patterns. Instruction is in French. *Prerequisite: FR 300.*

### FR 320. French Oral and Written Communication. 3 credits.

Intensive training in the use of modern, everyday French with emphasis on conversation and composition. Readings in French will provide a context for discussion and writing. *Prerequisite: FR 300 or equivalent.*

### FR 330. Business French. 3 credits.

A study of commercial and technical vocabulary and trade customs in conjunction with practice in the art of commercial communication including interviews, letter writing and simultaneous interpretation. Instruction is in French. *Prerequisite: FR 300.*

### FR 335. Introduction to French Literature. 3 credits.

A study of the main literary schools from Classicism to the Nouveau Roman. Textual analysis of sample writings representative of the most important literary movements. Instruction is in French. Required for majors. *Prerequisite: FR 320.*

### FR 339. A Survey of French Literature. 3 credits.

339A: A thorough analysis of selected passages from important authors of the Middle Ages and the Renaissance. *Prerequisite: FR 320.*

339B: A thorough analysis of selected passages from important authors of the 17th century. *Prerequisite: FR 320.*

339C: A thorough analysis of selected passages from important authors of the Age of Enlightenment. Instruction is in French. *Prerequisite: FR 320.*

### FR 351. French/English Translation. 3 credits.

An intensive course in writing and translation from French into English and from English into French. Contemporary topics taken from various fields. Comparative terminology. *Prerequisite: FR 320.*

### FR 375. Business and Society in France. 3 credits.

This course explores the development of French society in the historical, political, and economic context. In this course several aspects will be investigated: agricultural, textile, fashion, wine industry, and motion picture, music, media industries, and import and export products. In addition, this course will include the study of banking and financial institutions, health and education systems. *Prerequisite: FR 300.*

### FR 400. Advanced Conversation. 3 credits.

Discussions deal with topics of current interest. Students may also participate in a performance. *Prerequisite: FR 320.*

### FR 405. Nineteenth-Century French Literature. 3 credits.

405A: French literature of the first half of the 19th century with special emphasis on the works of Hugo, Lamartine, Vigny and Musset. *Prerequisite: FR 320.*

405B: French literature of the second half of the 19th century with special emphasis on the works of Balzac, Stendhal, Flaubert and Zola. Instruction is in French. *Prerequisite: FR 320.*

### FR 420. Advanced Genre Studies. 3 credits.

420A: A study of French theatre from the Middle Ages to the 20th century. *Prerequisite: FR 320.*

420B: A study of French poetry from the Middle Ages to the 20th century. *Prerequisite: FR 320.*

420C: A study of French narrative fiction from the Middle Ages to the 20th century. Instruction is in French. *Prerequisite: FR 320.*

### FR 425. Twentieth-Century French Literature. 3 credits.

425A: A study of the works of major French writers of the first half of the 20th century. *Prerequisite: FR 320.*

425B: A study of contemporary French novels written since 1950 with the emphasis on current fiction. Instruction is in French. *Prerequisite: FR 320.*

### FR/ENG 435. Studies in French Literature. 3 credits.

A study of selected works of French literature. Instruction is in English. Does not count toward a major, minor or licensure in French.

### FR 446. Special Topics in French Literature. 3 credits.

Study of a particular topic in French literature. It may cover one or more genre of French literature. Course may be repeated if content varies. *Prerequisite: FR 320.*

**FR 447. Special Topics in French Civilization and Culture. 3 credits.**

Students will study a particular topic in the civilization and/or culture of Francophone countries. Course may be repeated if content varies. *Prerequisite: FR 320.*

**FR 448. Special Topics in French Linguistics. 3 credits.**

Students will study a particular topic of French linguistics. Topics could include an introduction to French sociolinguistics and psycholinguistics. Course may be repeated if content varies. *Prerequisite: FR 320*

**FR 465. French Cinema 1930-1980. 3 credits.**

A study of French cinematography from 1930 to 1980. Emphasis given on the following directors: Renoir, Pagnol, Carné-Prévert, Cocteau, Vadim, Chabrol, Resnais, Godard, Rohmer, Lelouch, Truffaut and Malle. Instruction is in French. Counts as a culture course, not as a literature course. *Prerequisite: FR 320.*

**FR 466. Contemporary French Cinema. 3 credits.**

A study of French cinema from the 1990s until the present and its place in contemporary French culture. The course will focus on films dealing with specific moments or events in French history, as well as the evolution of the French film industry. Films to be analyzed in terms of their socio-political context and judged by their cultural perspective. *Prerequisite: FR 320.*

**FR 490. Special Studies in French. 1-4 credits.**

Allows students an opportunity to complete independent studies under faculty supervision. *Prerequisite: Permission of the department head.*

## General Business

**BUS 160. Business Decision Making in Modern Society. 3 credits.**

This course introduces the concepts of basic technology literacy, information retrieval via electronic and hard copy; along with critical thinking skills. Basic business principles will be introduced to reinforce these concepts and their relationships. The course provides opportunity for applying the skills of oral and written communication to a variety of learning activities. Open to students who have not completed COB 300.

## General Education: The Human Community

**AFST 200. Introduction to Africana Studies. 3 credits.**

An introductory survey of basic theoretical concepts to analyze the Black experience, with special focus on the general historical process common to Africa and the African Diaspora. May be used for general education credit.

**AMST 200. Introduction to American Studies. 3 credits.**

This interdisciplinary course will highlight the student's role in interrogating the cultural and political function of representations of America in literature, history, philosophy, religion, popular culture, music and art. Students will gain an understanding of why definitions of American identity matter and learn about the contemporary debates that inform the discipline of American Studies today. Questions about the changing role of national studies in the face of globalization are central. May be used for general education credit.

**ANTH 195. Cultural Anthropology. 3 credits.**

An introduction to the nature of culture and its relationship to language, economics, politics, kinship and other institutions in diverse cultures. The course also provides an overview of the theories, methods and ethical responsibilities involved in the study of cultural systems and ethnographic writing. May be used for general education credit.

**ANTH 196. Biological Anthropology. 3 credits (B,R).**

An introduction to the origins, evolution and genetic variability of humans and their relationship to nonhuman primates. Examination of the fossil record, the relationship between biology and culture and human genetics are included. Theories and methods used in the study of biological anthropology are also introduced. May be used for general education credit.

**ANTH 205. Buried Cities, Lost Tribes: The Rise and Fall of Early Human Societies. 3 credits.**

This course takes an archaeological and comparative perspective on the origins of human institutions, including art, architecture, religion, centralized political formations and urban life. The development and collapse of early societies in multiple world regions, including Mesopotamia, Egypt, the Indus Valley, Mesoamerica and the Andes will be explored. May be used for general education credit.

**ART 200. Art in General Culture. 3 credits.**

An exploratory course which aims to develop a non-technical, general, cultural understanding of the space arts, such as architecture, painting, sculpture and industrial design. Emphasis is on the contemporary. May be used for general education credit.

**ARTH 205. Survey of World Art I: Prehistoric to Renaissance. 3 credits.**

An introduction to the art and architecture of the world from cave painting through European pre-Renaissance art. Includes ancient through medieval art in Europe and the Near East as well as Asian and African arts. May be used for general education credit.

**ARTH 206. Survey of World Art II: Renaissance to Modern. 3 credits.**

An introduction to the art and architecture of the world from the Renaissance through Modern ages. Includes European Renaissance, Baroque, Enlightenment, 19th and 20th centuries as well as Asian and African arts. May be used for general education credit.

**ASTR 120. The Solar System. 3 credits.**

An introductory course in astronomy, which includes the following topics: motions of celestial objects, eclipses, historical development, the nature of light, telescopes, properties and evolution of the solar system. May be used for general education credit.

**ASTR 121. Stars, Galaxies and Cosmology. 3 credits.**

An introductory course in astronomy which includes the following topics: the Sun, stellar properties, stellar evolution, black holes, the Milky Way, galactic evolution, quasars and cosmology. May be used for general education credit.

**BIO 103. Contemporary Biology (3, 0). 3 credits.**

An in-depth exploration of selected biological concepts, connected to current, relevant topics and emphasizing an understanding of science as a way of obtaining knowledge. Not available for major or minor credit in biology. May be used for general education credit. May not be used for major credit.

**BIO 114. Organisms (3, 3). 4 credits.**

An exploration of how diverse life forms carry out fundamental processes that sustain life, including acquiring and using essential molecules, growing and reproducing, responding to environmental stimuli, and maintaining a stable internal environment. Labs will introduce students to the scientific method in a series of investigative lab and field experiences. Biology and biotechnology majors receive registration priority in the fall.

**BIO 222. Interdisciplinary Biology for Engineering and Physical Sciences. (3, 0). 3 credits.**

Case studies and an issues-based approach will provide a framework to understand the science of biology, to stimulate critical thinking, and to appreciate the interdisciplinary nature of biological investigations. This interdisciplinary biology course is intended for students who have at least sophomore status and who are physical science, engineering or mathematics majors. This course is not available for credit toward the major or minor in biology or biotechnology. *Prerequisite: MATH 231 or MATH 235.*

**BIO 270. Human Physiology (3, 2). 4 credits.**

An introduction to basic physiological principles using humans as the primary organism. Physiological adaptations will be examined at the molecular through organismal levels. Intended for students in health-related fields and Cluster 3 of the General Education program. Not available for biology or biotechnology major credit. *Prerequisites or corequisites: CHEM 120 or CHEM 131 or equivalent, and MATH 220 or equivalent.*

**BUS 160. Business Decision Making in a Modern Society. 3 credits.**

This course introduces the concepts of basic technology literacy, information retrieval via electronic and hard copy; along with critical thinking skills. Basic business principles will be introduced to reinforce these concepts and their relationships. The course provides opportunity for applying the skills of oral and written communication to a variety of learning activities. Open to students who have not completed COB 300.

**CHEM 120. Concepts of Chemistry. 3 credits.**

A one-semester introduction to the fundamental principles, laws and applications of chemistry. Examples relating to the health sciences are emphasized. Not available for major or minor credit in chemistry. May be used for general education credit.

**CHEM 131. General Chemistry I. 3 credits.**

The first of a two-course general chemistry sequence for science majors. It is designed to introduce students to basic chemical concepts including atomic structure, periodic properties of the elements, nomenclature, basic stoichiometry, theories related to reactivity and bonding, and the behavior of materials. May be used for general education credit. *Corequisite: CHEM 131L or CHEM 135L.*

**CHEM 131L. General Chemistry Laboratory. 1 credit.**

This laboratory course is designed to complement and supplement the CHEM 131 lecture course. The laboratory and lecture portions must be taken concurrently. Chemistry majors are to take CHEM 135L and 136L. May be used for general education credit.

**ECON 200. Introduction to Macroeconomics. 3 credits.**

Behavior of systems at the national and international levels. Topics include the methodology of economics as a social science, supply and demand, definition and measurement of important macroeconomic variables, and theoretical models of growth, inflation, interest rates, unemployment, business cycles, stabilization policy, exchange rates and the balance of payments. Not open to students who are enrolled in or who have received credit for ECON 332. May be used for general education credit.

**ENG 221. Literature, Culture, Ideas. 3 credits.**

This course will take a thematic approach to literature by examining multiple literary texts that engage with a common course theme concerned with the human experience. Themes address cultural, political, social, religious, or philosophical aspect ideas through literature. Specific topics will vary. May be used for general education credit.

**ENG 222. Genre(s). 3 credits.**

An examination of representative works in a literary genre, in a set of related literary subgenres, or in both a literary genre and one or more closely connected genres in other humanities disciplines. May be used for general education credit.

**ENG 235. Survey of English Literature: From Beowulf to the 18th Century. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 236. Survey of English Literature: 18th Century to Modern. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 239. Studies in World Literature. 3 credits.**

Introduction to masterpieces of world literature with emphasis on non-Western literature. (May be focused regionally or topically). May be used for general education credit.

**ENG 247. Survey of American Literature: From the Beginning to the Civil War. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 248. Survey of American Literature: From the Civil War to the Modern Period. 3 credits.**

A general survey presented chronologically. May be used for general education credit.

**ENG 260. Survey of African-American Literature. 3 credits.**

Survey of literature by African-American authors from the 18th century to the present. May be used for general education credit.

**GEOG 200. Geography: The Global Dimension. 3 credits.**

This course promotes global understanding through the study of humans, their institutions and processes, and the resulting interactions between humans and the environment. The course will include the study of western and non-western peoples and their social, cultural, political and economic relationships. May be used for general education credit.

**GEOL 102. Environment: Earth (3, 0). 3 credits.**

A study of geological processes causing global change and their impact on human thought. The relationship between some geological processes and life on the Earth is also considered. Not available for major or minor credit in geology. May be used for general education credit.

**GEOL 110. Physical Geology (3, 2). 4 credits.**

A systematic study of earth materials and the internal and external processes that affect earth structure and landforms. Topics include the genesis/properties of rocks and minerals, plate tectonics and the agents of change that drive surface processes and land form development. May be used for general education credit. *Corequisite: GEOL 110L.*

**GEOL 115. Earth Systems and Climate Change. 3 credits.**

This course explores cycles, trends and abrupt events in the Earth system. Analyses of the geologic record and global climate models provide perspective for understanding paleoclimate and future climate changes, including global warming. Current hypotheses for causes of climate change are evaluated, including plate tectonics, orbital cyclicity, variations in the sun's strength and human activities. The two reoccurring questions of this class are: What are Earth's climate stories? How do we know? May be used for general education credit.

**GEOL 200. Evolutionary Systems (3, 2). 4 credits.**

An investment of a theoretical principle behind evolutionary systems of all types based on mathematical modeling in chaos, complexity theory and artificial life studies with extensive computer experimentation and examples

drawn from physical, chemical, biological, economic and social systems. The purpose is to explore what is common and universal to all evolutionary processes. May be used for general education credit.

**GEOL 210. Applied Physical Geology. 3 credits.**

A problem-based study of earth materials and the processes that affect earth structure and landforms. Topics include plate tectonics, the genesis/properties of rocks and minerals, and agents of change that drive surface processes and landform development. Quantitative problem-solving skills will be applied to case studies that address 3D visualization and time-based processes, such as earth materials, solid earth and surface processes, natural hazards and engineering applications. May be used for general education credit. *Prerequisites: Either PHYS 140 or PHYS 240 or CHEM 131 or by permission of the instructor. Corequisites: MATH 205 or MATH 220 or MATH 235 or by permission of the instructor.*

**GEOL 211. Introduction to Oceanography. 3 credits.**

An introduction to the oceanography of coastal environs including barrier islands, estuaries and tidal marshes. The physical, geological and biochemical characteristics of coastal waters will be discussed in the context of the economic and social pressures brought to bear on these areas by an increasing global population. May be used for general education credit.

**HIST 101. World History to 1500. 3 credits.**

A survey of important historical developments from prehistoric times to 1500. Emphasis is given to the rise and decline of great world civilizations and their lasting contributions to humanity. May be used for general education credit.

**HIST 102. World History Since 1500. 3 credits.**

A survey of important historical developments from 1500 to the present. Emphasis is given to the growth of nationalism, the development of colonialism, and to world events, problems, and conflicts of the present century. May be used for general education credit.

**HIST 150. Critical Issues in Recent Global History. 3 credits.**

This course examines issues in recent history as a means to introduce, develop and enhance critical thinking skills and to supplement writing, oral communication, library and computing skills objectives for General Education Cluster One. A seminar format allows for careful examination of issues in both oral and written formats. The course emphasizes the development and articulation of well-reasoned arguments in organized and grammatically acceptable prose. May be used for general education credit. May not be used for major credit.

**HIST 225. U.S. History. 4 credits.**

A survey of U.S. history from the Colonial period to the present, emphasizing the development of American civic life, the involvement of the U.S. in world affairs and the cultural richness of the American people. This course stresses the analysis and interpretation of primary sources. May be used for general education credit.

**HTH 100. Personal Wellness. 3 credits.**

Emphasizes lifestyle behaviors contributing to health promotion and disease prevention. General areas affecting health status are identified. Suggestions are made as to how health-related behaviors, self-care and individual decisions contribute to health and influence dimensions of wellness. May be used for general education credit.

**HUM 200. Great Works. 3 credits.**

An intensive examination of great literary works that focus on key issues of knowledge and reality, meaning and purpose, ethics, and aesthetics. Discussion, analysis and intensive writing are required. Texts will vary by section and instructor. May be used for general education credit.

**HUM 250. Foundations of Western Culture. 3 credits.**

This course is a study of the roots of our Western tradition in Greek, Roman, Medieval or Renaissance culture. Students examine the interrelationships among history and literary works; the fine arts; philosophical and religious thought and intellectual contexts. Content will vary depending on section and instructor. May be used for general education credit.

**HUM 251. Modern Perspectives. 3 credits.**

An interdisciplinary study within the modern period of arts and humanities. Students will examine the interrelationships among history and the arts, philosophy, religion and the intellectual ideas of the time. Topics will vary by section. May be used for general education credit.

**HUM 252. Global Cultures. 3 credits.**

This course is an inter-disciplinary study of cultures or regions commonly referred to as non-Western. Students examine diverse responses to enduring human questions at the intersection of local and global cultures. The course offers ways to critically engage comparative views on global cultures and in so doing broaden students' understanding of those cultures and their own. Sections may address

themes that span multiple cultural spaces (such as sports or the environment) or focus on regions. Section topics vary by instructor. Only approved topics may count for General Education Cluster Two credit.

**ISAT 100. Environmental and Energy Sustainability.** 3 credits.

This course explores scientific and technical issues important to environmental and energy sustainability. Students study fundamental chemistry and physics and then apply this knowledge to better understand air quality, water quality, and conventional and alternative energy processes. The class also explores the societal impacts of our energy choices and the potential impact we as individuals can have through personal initiative. May be used for general education credit.

**ISAT 112. Environmental Issues in Science and Technology (2, 3).** 4 credits.

This course integrates the study of biology, chemistry and statistics within the context of environmental issues that include ozone depletion, acid rain, global warming, waste management and biodiversity. May be used for general education credit.

**ISAT 113. Biotechnology Issues in Science and Technology (2, 2).** 4 credits.

This course introduces current topics in the life science technologies through lecture and laboratory exercises. Topics include advances in genetic engineering, the hierarchy of life and the rise of infectious diseases. May be used for general education credit.

**ISAT 151. Topics in Applied Calculus in ISAT.** 4 credits.

This course introduces the concepts of differential and integral calculus and ordinary differential equations to model real-world applications in science, business, technology and economics. This course includes a computer laboratory component emphasizing modeling and numerical methods. Course assumes familiarity with algebra and trigonometry. May be used for general education credit.

**ISAT 160. Problem Solving Approaches in Science and Technology.** 3 credits.

This course examines issues in modern science and technology as a means to introduce, develop and enhance critical thinking and problem solving skills. Current scientific and technological research and applications will be introduced to reinforce problem solving, instruction in systems thinking and critical inquiry. The course provides opportunities for using both oral and written communication in a variety of learning activities. May be used for general education credit.

**ISAT 251. Topics in Applied Statistics in ISAT.** 3 credits.

This course introduces statistical thinking – the discipline and methods for collecting, analyzing, and interpreting data for making decisions, doing science, and understanding our world. Topics covered include an introduction to data analysis methods, probability and chance, statistical reasoning and inference, and experimental design. The course includes a laboratory component emphasizing hands-on analysis of data taken from a variety of applications in ISAT. May be used for general education credit. *Prerequisite: Sophomore standing or permission of the instructor.*

**ISCI 101. Physics, Chemistry and the Human Experience.** 3 credits.

A survey of the fundamental concepts, principles and ideas of chemistry and physics. Particular emphasis is placed on understanding the development of the principles and their application in understanding the world around us. May be used for general education credit. *Prerequisite or corequisite: One of the following: MATH 103, MATH 107, MATH 205, MATH 220, MATH 231 or MATH 235.*

**ISCI 104. Scientific Perspectives.** 1 credit.

A study of topics selected to allow students to participate in mathematical and scientific problem solving approaches to knowledge. May be used for general education credit. *Prerequisite or corequisite as indicated on MyMadison.*

**ISCI 171. Earth and Planetary Science for Teachers.** 3 credits.

This course provides university-level foundations of earth and planetary science for future pk-8 teachers. Content aligns with various teacher competencies, and includes such topics as the formation and evolution of the earth and the earth's solar system, the characteristics of stars, planets, asteroids, and comets, and how earth and planetary science knowledge and technologies function with social context. Hands-on, experiential inquiry will be integrated into the course, as will an exploration of such methods as observation, classification, comparison, measurement, data interpretation, mathematical analysis, inference, prediction and hypothesis testing. Normally open to IDLS majors only, but other students may request admission by special permission. May be used for general education credit.

**ISCI 172. Physical Science for Teachers.** 3 credits.

This course provides university-level foundations of physical science for future pk-8 teachers. Content aligns with various teacher competencies, and includes such topics as matter, conservation of mass and energy, chemical structures and bonds, coordinate systems and their use in describing motion and force, thermodynamics, light, sound, magnetism and electricity, and how physical science knowledge and technologies function with social context. Hands-on, experiential inquiry will be integrated into the course, as will an exploration of such methods as observation, classification, comparison, measurement, data interpretation, mathematical analysis, inference, prediction and hypothesis testing. Normally open to IDLS majors only, but other students may request admission by special permission. May be used for general education credit.

**ISCI 173. Life and Environmental Science for Teachers.** 3 credits.

This course provides university-level foundations of physical science for future pk-8 teachers. Content aligns with various teacher competencies, and includes such topics as energy, environment, ecological succession, biological diversity and evolution, life systems and systems feedback, air and water quality, resource use and conservation, and how life and environmental science knowledge and technologies function with social context. Hands-on, experiential inquiry will be integrated into the course, as will an exploration of such methods as observation, classification, comparison, measurement, data interpretation, mathematical analysis, inference, prediction, and hypothesis testing. Normally open to IDLS majors only, but other students may request admission by special permission. May be used for general education credit.

**JUST 225. Justice and American Society.** 4 credits.

This course introduces the student to the concept and reality of justice in America. It is a broad-based, interdisciplinary consideration of justice: What it is, what it means, and how it intersects with society and social institutions in American. Philosophical and theoretical underpinnings of the notion of justice and the historical context of justice in American society will be considered. May be used for general education credit. May not be used for major credit.

**KIN 100. Lifetime Fitness and Wellness (2, 2).** 3 credits.

This course is designed to help students adopt and maintain the behaviors associated with an active and healthy lifestyle. Through this course students will learn the importance of maintaining wellness through a physically active lifestyle. Through lectures and labs, students study and develop the behavioral patterns consistent with the current knowledge base in fitness and wellness. May be used for general education credit.

**MATH 103. The Nature of Mathematics.** 3 credits.

Topics such as geometry, computing, algebra, number theory, history of mathematics, logic, probability, statistics, modeling and problem solving intended to give students insight into what mathematics is, what it attempts to accomplish and how mathematicians think. May be used for general education credit.

**MATH 105. Quantitative Literacy and Reasoning.** 3 credits.

*Offered fall and spring.*

Applications and interpretation of numerical information in context. Selection and use of appropriate tools: scientific notation, percentages, descriptive summaries, absolute and relative changes, graphs, normal and exponential population models, and interpretations of bivariate models. Making informed decisions and effectively communicating them. Identifying limitations of information sources, assessing reasonableness of results, and basic concepts of confidence amid uncertainty. Not open to majors in mathematics or statistics. May be used for general education credit.

**MATH 107-108. Fundamentals of Mathematics I-II.** 3 credits each semester.

These courses, along with MATH 207, form a sequence that covers the topics of sets, logic, numeration systems, development of real numbers, number operations, number theory, geometry, measurement, algebra, functions, probability and data analysis. Sequence is required for early childhood, elementary, or middle school teacher licensure. May be used for general education credit. *Prerequisite for MATH 107: MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. Prerequisite for MATH 108: MATH 107.*

**MATH 220. Elementary Statistics.** 3 credits.

Descriptive statistics, frequency distributions, sampling, estimation and testing of hypotheses, regression, correlation and an introduction to statistical analysis using computers. May be used for general education credit. *Prerequisite: MATH 105 or sufficient score on the Mathematics Placement Exam.*

**MATH 231. Calculus with Functions I.** 3 credits.

MATH 231 and MATH 232 form a sequence that combines first-semester calculus with algebra and trigonometry. The sequence is designed for students whose pre-calculus skills are not strong enough for MATH 235. Calculus material in MATH 231 includes limits and derivatives of algebraic functions

and their applications. May be used for general education credit. *Prerequisite:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. *NOTE: MATH 231-232 together are equivalent to MATH 235 for all prerequisites. Not open to students who have already earned credit in MATH 235.*

**MATH 235. Calculus I.** 4 credits.

Differential and integral calculus of functions of one variable. Sequences and infinite series. May be used for general education credit. *Prerequisite:* Sufficient score on the Mathematics Placement Exam. MATH 235 is not open to students who have already earned credit in MATH 232.

**MUS 200. Music in General Culture.** 3 credits.

Designed to increase the student's perceptual ability in listening to music and to encourage an interest in both familiar and unfamiliar music. Primary study will be on music from the classic, Western heritage. Folk, jazz, popular and non-Western music may also be considered. May be used for general education credit. May not be used for major credit.

**MUS 203. Music in America.** 3 credits.

Knowledge and skills to increase the student's perceptual ability in music listening with a survey of American music; examining relationships between popular and classical music styles. May be used for general education credit. May not be used for major credit.

**MUS 206. Introduction to Global Music.** 3 credits.

A survey of various world music traditions, including those of Asia, the Pacific, Europe, Africa and the Americas. The course will focus on aesthetics, musical forms and styles, and the relationship between music and other arts. Emphasis will be placed on historical, religious, and cultural events and their influence on the creation and development of music. May be used for general education credit.

**PHIL 101. Introduction to Philosophy.** 3 credits.

An introduction to the basic problems and concepts of philosophy – the nature of man and the self, ethics, theories of knowledge, philosophy of religion, etc., as revealed in the writings of the major philosophers. May be used for general education credit.

**PHIL 120. Critical Thinking.** 3 credits.

An introduction to the techniques for analyzing and evaluating information in everyday experience. The functions of language will be discussed. Techniques for judging the strengths of arguments and the probable truth of the arguments' premises will be examined. This course does not meet the philosophy requirement for the B.A. degree. May be used for general education credit. May not be used for major credit.

**PHIL 150. Ethical Reasoning.** 3 credits.

An introduction to the principles and techniques of critical thinking in ethics, including analysis of arguments and fallacies, ethical theories, and applications of moral principles to moral issues. This course does not meet the philosophy requirement for the B.A. degree. May be used for general education credit. May not be used for major credit.

**PHYS 121. The Physical Nature of Light and Sound (3, 1).** 4 credits.

A study of the physical properties of light and sound waves. Topics include production, propagation and spectral analysis of waves. Applications to be covered include musical instruments, sound reproduction, room acoustics, optical instruments (cameras, projectors, lasers), and color in art and nature. The course will include outside-of-class experiential activities. May be used for general education credit.

**PHYS 140. College Physics I.** 3 credits.

The first semester of a non-calculus sequence in general physics. Topics include principles of mechanics, thermal properties of matter, wave motion and sound. A working knowledge of algebra and trigonometry is required. May be used for general education credit.

**PHYS 140L. General Physics Laboratory.** 1 credit.

This laboratory course is designed to complement and supplement the PHYS 140 and PHYS 240 lecture courses. May be used for general education credit. *Prerequisite or corequisite for PHYS 140L: PHYS 140 or PHYS 240.*

**PHYS 215. Energy and the Environment.** 3 credits.

Energy use, sources and trends; fossil fuels, heat-work conversions, thermodynamic restrictions and electric power production; nuclear fission reactors and fusion energy; solar energy and technologies; alternative energy sources; energy storage; energy conservation; issues of waste and safety. Environmental, social and economic aspects will be discussed. Not open to ISAT majors scheduled to take ISAT 212 as part of their degree requirements. May be used for general education credit. *Prerequisites: One college course in science and one in mathematics.*

**PHYS 240. University Physics I.** 3 credits.

Kinematics, dynamics, energy and momentum conservation, oscillatory motion, fluid mechanics and waves. May be used for general education credit. *Prerequisite or corequisite: MATH 232 or MATH 235.*

**POSC 200. Global Politics.** 3 credits.

An exploration of political, social and economic issues and structures existing within and between states in the contemporary global community. Students are introduced to alternative approaches to analyzing these issues in diverse cultures and political settings. May be used for general education credit.

**POSC 225. U.S. Government.** 4 credits.

An examination of institutions, processes and intellectual concepts which structure American political activity. The interaction of the political system with the changing American society and America's changing role in world affairs are also treated. The course provides an introduction to quantitative methodology. May be used for general education credit.

**PSYC 101. General Psychology.** 3 credits.

A study of the nervous system, sensation, perception, consciousness, learning, memory, language, intelligence, motivation, emotion, life span development, personality, psychopathology, psychotherapy, social psychology and the scientific method. May be used for general education credit.

**PSYC 122. The Science of Vision and Audition.** 3 credits.

A study of human interaction with light and sound waves. Topics include physiological and perceptual mechanisms for processing light and sound, along with connections to real-world applications (e.g., human factors and careers within vision science and audition). Includes activities designed to provide students with in-depth, hands-on experience with course topics. May be used for general education credit.

**PSYC 160. Life Span Human Development.** 3 credits.

An introduction to human development. Emphasis is on life span processes within physical, emotional, cognitive, psychosexual, social, personality and moral development. May be used for general education credit.

**REL 101. Religions of the World.** 3 credits.

An investigation of the world's major religions which will give attention to their origin, history, mythology and doctrines. May be used for general education credit.

**REL 102. God, Meaning and Morality.** 3 credits.

A study of the ways in which various communities perceive and understand the basis of knowledge, reality, meaning and purpose, ethics, and aesthetics. Students will explore religious and nonreligious approaches to these issues.

**SCOM 121. Fundamental Human Communication: Presentations.** 3 credits.

Study of human communication as a process. Overview of the principles and practices of interpersonal, small group and public communication. Emphasis on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process, using power and managing conflict, applying critical listening, practicing audience analysis within informative speech making. Public speaking required. May be used for general education credit. May not be used for major credit.

**SCOM 122. Fundamental Human Communication: Individual Presentations.** 3 credits.

Study of human communication as a process. Overview of the principles and practices of communication in a public environment. Emphasis on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process, using power and managing conflict, applying critical listening, practicing audience analysis, and constructing informative and persuasive speeches. Public speaking required. May be used for general education credit. May not be used for major credit.

**SCOM 123. Fundamental Human Communication: Group Presentations.** 3 credits.

Study of human communication as a process. Overview of the principles and practices of communication in small group and public communication contexts. Emphasis on examining the role of self-concept, perception, culture, verbal and nonverbal dimensions in the communication process, using power and managing conflict, applying critical listening, practicing audience analysis, and constructing informative and persuasive group presentations. Public speaking required. May be used for general education credit. May not be used for major credit.

**SMAD 150. Mediated Communication: Issues and Skills.** 3 credits.

Study of how mediated communication shapes the content, meaning and impact of spoken, written and pictorial messages. Emphasis on the skills required to integrate speech, text and imagery into mediated presentations. Consideration of issues involving the critical evaluation of mass-mediated communication, their effectiveness and influence. May be used for general education credit. May not be used for major credit.

**SOCI 110. Social Issues in a Global Context.** *3 credits.*

This course introduces the discipline of sociology from a macrosociological perspective, emphasizing large-scale changes in social organization and institutions. We examine the global forces that shape societies, and the historical, political, social, cultural and economic origins of contemporary social problems. We consider competing theoretical models used in the study of social change as well as the conceptual and methodological challenges in analyzing societies different from one's own. May be used for general education credit.

**SOCI 140. Microsociology: The Individual in Society.** *3 credits.*

This course introduces the discipline of sociology and the subfield of microsociology. We examine the mutually constitutive relationship between the individual and society. Questions addressed include: How does society influence how we think, feel, believe, act, and interact with others? What influences the self, social identity, shared social meanings, social roles, and one's position in society? How do we, as individuals and as members of social groups, recreate, contest, and change society? May be used for general education credit.

**THEA 210. Introduction to Theatre.** *3 credits.*

Study of the theatre as an art form. Emphasis on introducing students to a broad spectrum of theatrical activity and opinion. Consideration of the components that comprise a theatre event including acting, directing, design, costuming, lighting and playwriting. May be used for general education credit. May not be used for major credit.

**WGS 200. Introduction to Women and Gender Studies.** *3 credits.*

Cross disciplinary introduction to theories and scholarship in Women's and Gender Studies. Examines the social construction of gender, how gender affects access to opportunity, and the experiences and contributions of women throughout history. Provides a foundation for subsequent work in the women's and gender studies minor. May be used for general education credit.

**WRTC 103. Critical Reading and Writing.** *3 credits.*

Fosters reflective, critical reading, writing, and research in public discourse, culture, humanities, technology, and science. Challenges students to consider cross disciplinary modes of inquiry through multiple genres with an attention to enlightened, global citizenship. Emphasizes revising for rhetorical effectiveness. WRTC 103 fulfills the General Education Cluster One writing requirement and is a prerequisite for all WRTC courses numbered 200 or above. May be used for general education credit. May not be used for major credit.

## Geographic Science

**GEOG 161. Geospatial Tools and Techniques.** *1-6 credits, variable.*

An introduction to the use of geospatial tools, such as geographic information systems (GIS), global positioning systems (GPS) and remote sensing, applied to a variety of areas, including cultural geography, environmental science, ecology, geology and public planning.

**GEOG 200. Geography: The Global Dimension.** *3 credits.*

This course promotes global understanding through the study of humans, their institutions and processes, and the resulting interactions between humans and the environment. The course will include the study of Western and non-Western peoples and their social, cultural, political and economic relationships. May be used for general education credit.

**GEOG 210. Physical Geography (2, 2).** *4 credits.*

This introductory course is an examination of systems and processes that influence patterns of Earth's atmosphere, biotic communities, soils and landforms at multiple spatial and temporal scales. Included are classroom and laboratory experiences that are geared toward investigating interrelationships among atmospheric conditions, Earth's natural surface characteristics and human-induced modifications of Earth's features.

**GEOG 215. Cartography and GIS.** *3 credits.*

An introduction to cartography and geographic information systems (GIS). Basic concepts will be illustrated with examples from a variety of application areas including cultural geography, environmental science, land use and planning and business.

**GEOG 216. Earth Observation and GPS.** *3 credits.*

An introduction to remote sensing, global positioning system (GPS) and computer fundamentals in Geographic Science. Basic concepts will be illustrated with practical applications, including hands-on work collecting data with GPS units and exploring remote sensing images from a variety of different instruments. Environmental applications will be featured.

**GEOG 230. Spatial Thinking and Problem Solving.** *3 credits.*

Introduction to the critical thinking skills associated with problems with inherent spatial components. Identification of the spatial elements of a given problem, the data requirements for addressing that problem, collections/acquisitions and

organization of data, and use of geographic information systems to explore spatial patterns relevant to the problem of interest. *Prerequisite: GEOG 215 with a "C" or better, GEOG 216 with a "C" or better and an introductory course in statistics (ISAT 251, MATH 220 or equivalent) or permission of instructor.*

**GEOG 260. Selected Topics in Geography.** *3 credits.*

Exploration of geographic topics, tools or techniques of current interest. Can be repeated as course content changes.

**GEOG 280. Human Geography: The Cultural Landscape.** *3 credits.*

The course themes are human culture, cultural variations over the face of the Earth and how these variations are related to selected global issues. Topics covered include world demographics, world religions and languages, patterns of human migration, political systems and human conflict, agricultural systems and impact on the physical world.

**GEOG 290. Human-Environment Interactions.** *3 credits.*

This course evaluates human-environment interactions from a holistic point of view. It incorporates geographic perspectives of these interactions, which include political, cultural, social, economic, and ethical factors that influence how people perceive, impact, and manage the natural world. The course will emphasize geographic theories of resource use, humans as part of the landscape and human vulnerability to environmental changes. *Prerequisites: GEOG 210 with a "C" or better and GEOG 280 with a "C" or better.*

**GEOG 300. Population Geography.** *3 credits.*

An introduction to population measurement, sources of population data and modern population problems. Topics include distribution, the changing age structure and migration issues affecting the U.S. At the global scale, topics include distribution, global migration patterns, the refugee crisis and prospects for feeding the rapidly increasing human population.

**GEOG/HUMN 301. Introduction to Natural Disasters.** *3 credits.*

This course is designed to give students an overview of the various types of natural disasters; a look at the world regions that are most vulnerable to each type of disaster; and, a preview of disaster planning, management, relief and response as related to natural disasters.

**GEOG 305. History and Philosophy of Geography.** *3 credits.*

Topics from the classical period to the modern period include 20th century theories and paradigm shifts involving cultural geography, physical geography, human-environment traditions, regional geographies and modeling. Diverse philosophies such as quantitative /positivist, qualitative/humanistic, social theory, and GIS are viewed for their contributions to the discipline of geography. *Prerequisites: A grade of "C" or better in GEOG 210 and GEOG 280, and junior standing or permission of the instructor.*

**GEOG/GEOL 310. Environmental Issues.** *1-4 repeatable credits.*

Courses cover environmental issues such as air pollution, forest and wildlife management, water, resource management, soils and land use, and energy and the environment (among other topics). Courses examine the interface between humans and environmental systems while addressing the impact of social, economic and political systems and activities on the environment. May be repeated as course content changes.

**GEOG 311. Endangered Environments.** *3 credits.*

In this course an investigation is made of a selected number of environmental problem areas around the world. Some examples include the temperate rainforest of Valdivia, South America, the tropical rainforests of Borneo and the Aral Sea of Eastern Europe. In the course, students will explore physical aspects of each environment and explore human impact and potential solutions to the problems.

**GEOG 315. Field Studies in Geography.** *3 credits.*

This course exposes students to the methods and techniques commonly used by geographers while conducting fieldwork. The course will cover identifying and defining a researchable project, designing and testing data collection methods, and different methods of collecting, recording and presenting data. Students will also become familiar with various types of field equipment.

**GEOG 320. Human Dimensions of Global Change.** *3 credits.*

This course addresses global change and human development. Conservation, sustainability and development are core themes that will be related to current changes occurring on a global scale. Global changes to be discussed in the course relate to the climate, biodiversity, natural resources and human populations. Sustainability will be introduced as a dimension of human development. *Prerequisite: GEOG 290 with a "C" or better.*

**GEOG 322. Agricultural Systems.** *3 credits.*

This course covers four distinct areas: the foundation of agriculture, the nature and distribution of soils on a global basis; the history of agriculture from the

original selection of domestic crops to the 20th century; modern industrial agriculture and trade; and alternatives to chemical and energy intensive agriculture in the 21st century. *Prerequisite: GEOG 290 with a "C" or better or permission of instructor.*

**GEOG 323. The Geography of Human Genetics, Infectious Diseases and Diet.** 3 credits.

Throughout history, infectious diseases have profoundly affected human populations. Using a case study approach, this course will give students an opportunity to investigate social and historical aspects of infectious disease as well as the microbiology, genetics, biochemistry and medical aspects of human infectious diseases and diet.

**GEOG 325. Environmental Ethics.** 3 credits.

Examines the basic principles of resource use including geographic, economic, social and political processes. Explores concepts underlying such issues as resource consumption and conservation, environmental perception, resource and environmental conflict, population growth and control, carrying capacity, and the evolution of the environmental movement.

**GEOG 327. Climatology.** 3 credits.

The systematic study of the atmosphere with emphasis on such phenomena as temperature, pressure, humidity, air masses and fronts; the occurrence of these phenomena on a global basis; and a detailed survey of the worldwide distribution of climate types. *Prerequisite: GEOG 210 with a "C" or better or GEOL 320.*

**GEOG 329. Global Climate Change.** 3 credits.

This course examines the interrelationship of the physical nature of the climate system, climate variability and change, and human activities. Case studies (El Nino, global warming, and stratospheric ozone depletion) are used to investigate how climate affects society, how human activities affect climate, and how non-climatic issues complicate our understanding of the relationship between climate and society. We consider how projections of future weather and climate affect decision-making. *Prerequisite: GEOG 210 with a "C" or better.*

**GEOG 331. Geography of Virginia.** 3 credits.

The course will examine the human and physical geography of the development of modern-day Virginia, providing an overview of its prehistory, then tracing its development from the beginning of the seventeenth century through the present. The course will include an analysis of Virginia's population, resources, and regional landscapes as they have been influenced by physical, cultural, historical, and economic factors. The relationship of Virginia to the rest of the world will also be examined.

**GEOG 332. Geography of Europe.** 3 credits.

Geographic assessment of regional and national characteristics of the European nations.

**GEOG 333. Geography of Russia and the Former Soviet Union.** 3 credits.

A study of the people and culture of Russia with an emphasis on their social, economic and political processes and situation. An analysis of how the interaction of geographic, social, political and economic factors affect the lives of the Russian people.

**GEOG 334. Geography of East and Southeast Asia.** 3 credits.

A survey of the physical and cultural environments of China, Taiwan, Japan, the Koreas, Indochina and the countries of Southeast Asia. Topics covered include weather and climate, physiography, natural resources, population characteristics, political systems, aspects of the economy and the role that each country plays on the regional and world stage.

**GEOG 335. Geography of Africa.** 3 credits.

An introduction to the regional geography of Sub-Saharan Africa that examines the physical geography of the continent, the historical roots of its present political geography, the consequences of its colonial past on communities and cultures as well as its natural resources. Students will examine continental issues such as resource management, food production, hunger, disease patterns and management of wildlife.

**GEOG 336. Environmental Hazards: A Focus on Southeast Asia.** 3 credits.

This course will focus on interactions between earth surface systems and social environments to demonstrate the complexity of natural hazards, and particularly those of Southeast Asia. Through regional geography, students will learn differing adaptation mechanisms of societies and cultures unique to the area and some of the natural hazards within the region. *Prerequisite: GEOG 210 with a "C" or better or permission of instructor.*

**GEOG 337. Geography of Latin America.** 3 credits.

A study of countries in Latin America which includes their physical landforms, weather and climate, biogeography, natural resource base, attitudes toward the physical environment, characteristics of the economy, the current political role in

international activities, and population characteristics that include growth rate, distribution, migration and ethnicity.

**GEOG 338. Geography of the Philippine Islands: Problems and Possibilities.** 3 credits.

Exploration of the Philippines focuses on poverty, environmental conservation, resource exploitation and ecosystem degradation in upland and marine environments. Topics include population dynamics, political pressure and instability, and urban challenges. The future of the country is investigated on all geographic scales with regard to its role in a globalized world economy.

**GEOG 339. Geography of the Caribbean.** 3 credits.

This course is designed to give students a general geographical overview of the islands states and territories surrounded by the Caribbean Sea. Students will study physical landforms, weather and climate, environmental issues, population characteristics, history, local and regional politics, and economic aspects of political units in the region.

**GEOG 340. Biogeography.** 3 credits.

This course emphasizes geographical biogeography and is as an advanced physical geography class. Included are analyses of spatial patterns of biota from local to global scales and examinations of the systems and processes that result in spatial and temporal patterns of species existence and diversity, community composition, energy pathways, adaptive traits, and human influences on biotic systems and processes. *Prerequisite: GEOG 210 with a "C" or better.*

**GEOG 341. Wilderness Techniques.** 3 credits.

Wilderness legislation, legal mandates and wilderness issues are examined. Human impacts due to overuse or conflicting uses are studied, as are the philosophical aspects of wilderness ethics. This course is taught entirely in the field. Camping and hiking are required. *Prerequisite: Permission of the instructor.*

**GEOG 342. Management and Protection of Natural Resources.** 3 credits.

This course provides a managerial perspective for protection and management of natural resources. A systems approach for applied management strategies is provided for aquatic, terrestrial, threatened and endangered ecosystems. Topics include application of state, federal, international laws, regulations, policies and guidelines. Students develop management plans and explore jurisdictional resource protection issues.

**GEOG 343. Wildlife Management.** 3 credits.

An introductory discussion of applied management strategies for wildlife species and their ecological requirements is provided relative to human influences. Management techniques that are useful for determining population or health status are demonstrated for select vertebrate species. The evolution of wildlife laws, policies and management strategies are addressed to provide relevant awareness into the appropriate concepts of wildlife management.

**GEOG 344. Economic Geography and Development Issues.** 3 credits.

An overview of the classification of economic activities, the factors involved in the location of various types of economic activities and the regional variation in the standard of living associated with economic development. Additional topics include regional economic growth and types of economic systems and development perspectives, the roles that politics and demographics play in the economic development of a country, and the globalization of economic activities.

**GEOG 345. Geography of Poverty.** 3 credits.

This course provides a geographical perspective on poverty faced by communities and countries of the world today. The focus is on how poverty is defined, measured and mapped, the causes and impacts of poverty, theories for ending poverty and organizations that work to address poverty. It includes a geographical study of communities and countries that have successfully alleviated extreme poverty.

**GEOG 348. Indigenous Geographies.** 3 credits.

This course introduces indigenous geographic representations. Topics include territorial sovereignty, traditional resource use, sustainable development and protection of sacred sites. Students will explore the central geographic practice of cartography, which has taken on new meaning as cultural identification for Indigenous peoples. The use of new technologies to represent traditional understandings of Earth is also explored. *Prerequisite: GEOG 290 or permission of instructor.*

**GEOG 350. Topics in Geography.** 3 credits.

Examination of geographic topics that are of current interest. Can be repeated as course content changes. *Prerequisite: GEOG 200, GEOG 210, GEOG 215 or GEOG 280, or permission of the instructor.*

**GEOG/HUMN 360. GIS for Humanitarian Assistance.** 3 credits.

In responding to humanitarian crises, governments and aid organizations must deploy aid workers, deliver essential services, set up temporary settlements, and distribute items such as water and food that are needed for survival.

Spatial analysis and maps are critical to the success of these efforts. In this course, students learn the basics of Geographic Information Systems (GIS) for humanitarian assistance and learn how relief organizations use GIS in their work. *Prerequisite: GEOG 215.*

**GEOG 365. Cartography and Geospatial Visualization.** 3-6 credits.

This course examines the fundamentals of visualizing spatial data in static and dynamic environments. Students will learn about cartographic design, thematic cartographic techniques, developing spatial data from non-spatial information and with GPS equipment, and geographic visualization. Students will also develop a portfolio of hard copy and soft copy visualizations. *Prerequisite: GEOG 215 with a "C" or better.*

**GEOG 366. Introduction to Geographic Information Science.** 3 credits.

An overview of geographic information science and its role in technology and society. Spatial databases and descriptive data will be created and implemented into various geographic information systems. Advanced analytical operations will be used to practice the analysis capabilities of geographic information systems. *Prerequisites: GEOG 215 with a "C" or better or GEOG 161 and permission of the instructor.*

**GEOG 375. Political Geography.** 3 credits.

Geopolitical conflicts and issues are examined. Concepts such as territoriality, nationalism, religious and ethnic struggle, environmental degradation, and freedom and justice are discussed in the context of political unrest. Significant geopolitical theories and social and economic processes are explored.

**GEOG 376. Urban Geography.** 3 credits.

Study of the city in its geographic setting, giving perspective of modern urban problems, origin and growth of cities and influence of location on city functions. Looks at the internal structure of cities and the influence of the internal structure on its population groups.

**GEOG 380. Cultural Geography.** 3 credits.

Introduction to cultural geography with emphasis on diversity of language, religion and folklore, as well as culture traits and practices and their historical diffusion. Ties to livelihood, the rural-urban continuum and demographic change are explored, as are foci on philology, power, race, class and gender. Exploitation and sustainability will be introduced as dimensions of cultural and environmental interaction.

**GEOG 385. Principles of Remote Sensing (2, 2).** 3-6 credits.

This course is an introduction to remote sensing, the study of images and other types of data acquired by satellites and aircraft. Topics include the principles underlying multiple type of remote sensing, the properties of common data types, making measurements using aerial photographs, basic digital image processing, and applications. *Prerequisite: GEOG 216 with a "C" or better.*

**GEOG 390. Practicing Geographic Science.** 1 credit.

Professional development for students in geography. Educational opportunities and career options. Library and literature research skills. *Prerequisite: Junior standing.*

**GEOG/BIO 402. Forest Ecology.** 4 credits.

A study of the function, structure, and composition of forested ecosystems. The effect of physiography on the distribution of forest communities will be explored. Issues of forest management and restoration will also be considered. Field laboratory topics will include dendrology and sampling techniques within different forest successional stages. *Prerequisite: BIO 124 or permission of the instructor.*

**GEOG 406. Forest Inventory: A Geospatial Approach.** 3 credits.

This course teaches forest measurement at the tree, plot, stand, and forest levels. It includes heights, stem diameters, volumes, and biomasses of individual trees; fixed and variable radius plots; basal area estimates; sampling designs, and stand and stock table construction. Students learn how geospatial technologies can be used to collect data on forests, make forest inventories more accurate and precise, and assist in performing forest-related analyses and visualizations. *Prerequisite: GEOG 230 or permission of instructor.*

**GEOG 410. Geography and Film.** 3 credits.

This course is concerned with the intersection of geography and film. An always-present undercurrent focuses on films whose location and/or culture are an essential backdrop in the cinematic experience. *Prerequisite: GEOG 290 or permission of instructor.*

**GEOG 415. Environment, Landscape and Culture.** 3 credits.

This seminar analyzes human-environment interactions as shaped by cultural perceptions, past events, and ecological processes. Place-based and interdisciplinary, landscape studies focus on the unique circumstances of a location and shift temporal and geographic scales to achieve broader understandings of cultural and ecological adaptation and resilience. Methods

of historical ecology and field research are introduced. Regional projects underscore readings and research assignments. *Prerequisite: GEOG 290 or permission of instructor.*

**GEOG 427. World Water Resources.** 3 credits

Humans face water challenges that can be understood through the lens of geography. Students will study different physical aspects of Earth's water, including the hydrologic cycle, climate controls of precipitation, river basin hydrology, water quality and availability, and aquatic ecosystems. The course investigates human dimensions of water such as economics, disease, management and planning, conflict, and the future of water resources. *Prerequisite: GEOG 210 or permission of instructor.*

**GEOG/ISAT 429. Sustainability: An Ecological Perspective.** 3 credits.

This course examines present global environmental impacts and efforts made to change production and consumption patterns toward those that reduce impact on ecosystems or promote increased ecosystems health. The focus lies in understanding the basic resources of productivity including soils, agricultural systems, agroforestry, forestry and aquatic environments and applying solutions on a personal and community level. *Prerequisite: GEOG 290 or permission of the instructor.*

**GEOG 430. Geography of Crop Plants.** 3 credits.

This course evaluates the influence of geography on crops and crop development by examining the evolution, genetic diversity and cultivation of agricultural crops. Topics include the origins of agriculture, patterns of geographic spread, and the interrelationships between domesticated plants and the societies that grow them.

**GEOG 440. Global Biodiversity.** 3 credits

This project-based course emphasizes physical and human-oriented processes that influence Earth's biodiversity. It includes how human constructs influence the number of species counted, biodiversity measurement techniques and how geographers contribute to conservation methods. It introduces human challenges that are causing a decline in biodiversity and resultant impacts on human quality of life. *Prerequisites: GEOG 290 and GEOG 340.*

**GEOG 465. Topics in GIS.** 3 credits.

The course examines varying topical issues in geographic information science. The course may be repeated as course topics vary. *Prerequisite: GEOG 366 or permission of the instructor.*

**GEOG 466. GIS and Geographic Databases.** 3 credits.

An introduction to the creation, use and management of digital spatial data used by industry and government. Integration of large spatial data sets into the geographic information system, data management and data exchange, and the geodetic transformation of data sets are emphasized. Digital elevation models, land use data, population data, digital topographic map and street network data will be used. *Prerequisite: GEOG 366 or permission of the instructor.*

**GEOG 467. GIS Project Management.** 3 credits.

An introduction to geographic information systems (GIS) project management. Basic project management techniques will be applied by defining, designing, implementing and documenting a geographic information system. *Prerequisite: GEOG 366 or permission of the instructor.*

**GEOG 468. Internet Geographic Information Systems.** 3 credits.

Theoretical and practical exploration of methods, standards and policies related to the development and utilization of geographic information systems on the Internet. Students will create and utilize distributed geospatial data and analytical systems using the World Wide Web and the Internet to address geographical problems. *Prerequisite: GEOG 365 or GEOG 366.*

**GEOG 469. Applications of Geographic Information Systems.** 3 credits.

The course advances the knowledge of GIS in theory and practice by focusing on specific application areas. Spatial databases and complex attribute data will be created, and GIS modeling techniques will be used to solve problems relevant to the specified topical area. The course may be repeated once for additional credit when the topic changes. *Prerequisite: GEOG 366 or permission of the instructor.*

**GEOG 470. Senior Seminar in Environmental Conservation, Sustainability and Development.** 3 credits.

This capstone seminar integrates the student's previous class experiences to provide a holistic exploration of linkages between environmental conservation and human development status and strategies through in-depth analysis of compelling human-environment issues. Topics vary by semester and include environmental politics, global perspectives on population, sustainable communities and global biodiversity. For majors and minors only. *Prerequisites: GEOG 290 and senior standing.*

**GEOG 476. Sustainable Cities Seminar. 3 credits**

This seminar explores ways to make cities more environmentally, socially and economically sustainable. Students will study key urban sustainability principles, examine global case studies, undertake local fieldwork and pursue projects developing interventions in real-world city settings. The course emphasizes a geographical approach in addressing urban human and environmental challenges. *Prerequisite: GEOG 290.*

**GEOG 485. Processing Remotely Sensed Data. 3 credits.**

This course focuses on computer-based techniques for processing remotely sensed data and applications of these techniques. Subjects covered will include geometric and radiometric correction, image enhancement, data transformations, change detection and quantification, and classification. Both traditional techniques and techniques designed for newly available data types will be examined. *Prerequisite: GEOG 385 or permission of the instructor.*

**GEOG 486. High Spatial Resolution Remotely Sensed Data. 3 credits.**

This course focuses on the acquisition and use of high spatial resolution remotely sensed data. Topics include aerial photograph acquisition, digital terrain model creation, orthorectification, object oriented image processing, image fusion, visual image interpretation, collecting and processing LiDAR data, and ethical and legal issues associated with high spatial resolution data. *Prerequisite: GEOG 385 or permission of the instructor.*

**GEOG 490. Senior Research or Field Practicum. 3 credits.**

Working with a research adviser, student completes an internship, a study abroad program, or project research. Student delivers interim progress reports and an annotated bibliography or other relevant research products. May be repeated once. *Prerequisites: GEOG 390 and permission of their research adviser.*

**GEOG 491. International Studies. 1-3 credits.**

Student will make arrangements for the international experience. A research project or work-study project will be designed by the student and faculty member prior to departure. The research of work will be carried out in the country of travel. May not be taken for capstone credit. Project must be approved by GS faculty. May be repeated for credit.

**GEOG 495. Internship in Geography. 3-6 credits.**

Practical experience within a public agency, non-profit or private business utilizing geographic methodology. Work experience will be supervised by an official of the business or agency and a faculty member. Periodic seminars and written reports are required. *Prerequisites: Permission of the faculty sponsor and the GS Program Operations Manager. May not be taken for capstone credit.*

**GEOG 497. Independent Study. 3 credits.**

Student performs an independent research project, either alone or within an investigative team, to identify and analyze a problem from a geographic perspective. *Prerequisite: Permission of the instructor. May not be taken for capstone credit.*

**GEOG 499 A, B, C. Honors. 1-3 credits.**

Year course.

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## Geology

**GEOG 102. Environment: Earth. 3 credits.**

A study of geological processes causing global change and their impact on human thought. The relationship between some geological processes and life on the Earth is also considered. Not available for major or minor credit in geology. Students may not receive credit for both GEOG 102 and ISCI 102.

**GEOG 110. Physical Geology. 3 credits.**

A systematic study of earth materials and the internal and external processes that affect earth structure and landforms. Topics include the genesis/properties of rocks and minerals, plate tectonics, and the agents of change that drive surface processes and land form development. The laboratory and lecture portions of GEOG 110 must be taken concurrently. *Corequisite: GEOG 110L.*

**GEOG 110L. Physical Geology Laboratory. 1 credit.**

This laboratory course is designed to complement and supplement the GEOG 110 course. The laboratory and lecture portions must be taken concurrently. *Corequisite: GEOG 110 or permission of the instructor.*

**GEOG 115. Earth Systems and Climate Change. 3 credits.**

This course explores cycles, trends and abrupt events in the Earth system. Analyses of the geologic record and global climate models provide perspective for understanding paleoclimate and future climate changes, including global warming. Current hypotheses for causes of climate change are evaluated, including plate tectonics, orbital cyclicity, variations in the sun's strength and

human activities. The two recurring questions of this class are: What are Earth's climate stories? How do we know?

**GEOG 130. Quantitative Geology. 2 credits.**

An introduction to quantitative techniques used in descriptive and predictive aspects of the earth and environmental sciences, with emphasis on algorithmic approaches. The focus is on pragmatic application of mathematical methods to geologic problems, considering requirements, uses and limitations. Automatic computation is stressed.

**GEOG 167. History and Philosophy of the Geosciences. 3 credits.**

As an introductory experience in the Bachelor of Arts in Earth Science, students will be inculcated in the philosophy of geosciences as an interdisciplinary medium for extending classical science viewpoints to complex earth systems. Students will study the geosciences as distinct among sciences, establishing relevance and value of earth science literacy in professional and personal settings.

**GEOG 200. Evolutionary Systems (3, 2). 4 credits.**

An investment of a theoretical principle behind evolutionary systems of all types based on mathematical modeling in chaos, complexity theory and artificial life studies with extensive computer experimentation and examples drawn from physical, chemical, biological, economic and social systems. The purpose is to explore what is common and universal to all evolutionary processes. May be used for general education credit.

**GEOG 210. Applied Physical Geology. 3 credits.**

A problem-based study of Earth materials and the processes that affect Earth structure and landforms. Topics include plate tectonics, the genesis/properties of rocks and minerals, and agents of change that drive surface processes and landform development. Quantitative problem-solving skills will be applied to case studies that address 3D visualization and time-based processes, such as Earth materials, solid earth and surface processes, natural hazards and engineering applications. May be used for general education credit.

**GEOG 211. Introduction to Oceanography. 3 credits.**

An introduction to the oceanography of coastal environs including barrier islands, estuaries and tidal marshes. The physical, geological and biochemical characteristics of coastal waters will be discussed in the context of the economic and social pressures brought to bear on these areas by an increasing global population. Cannot receive credit for both GEOG 211 and GEOG 401. May be used for general education credit.

**GEOG 230. Evolution of Earth (3, 2). 4 credits.**

An introduction to the evidence, methods and assumptions used by scientists to unravel the Earth's origin and history. Emphasis on rock analysis/interpretation, modern and ancient processes of mountain building, origin and evolution of life and the history of the North American continent. *Prerequisite: GEOG 110L or permission of the instructor.*

**GEOG 272. Planetary Geology (2, 2). 3 credits.**

A survey of currently developing ideas in planetology including origin of the planets, meteorites and planetary interiors. Also included are geologic processes and land forms on the moon and terrestrial planets, their modification under various planetary environments, and analogies to familiar earth land forms. Includes laboratory. *Prerequisite: GEOG 110L.*

**GEOG 280. Mineralogy (3, 2). 4 credits.**

A comprehensive study of minerals, including: crystallography, mineral chemistry, x-ray diffraction, mineral optics with thin section recognition using petrographic microscope, and hand specimen identification of both silicate and non-silicate minerals. *Prerequisite: GEOG 110L.*

**GEOG 290. Optical Mineralogy (3, 2). 3 credits.**

A study of the optical properties of minerals and mineral identification with the petrographic microscope. *Prerequisite: GEOG 280.*

**GEOG 291. Writing and Communicating in the Geosciences. 1 credit.**

This course prepares students for independent research by providing them the fundamental skills in literature searches, writing, critical reading and communication in the geosciences. *Prerequisite: GEOG 110 or GEOG 102 or GEOG 115; must take prior to senior year.*

**GEOG 300. Introduction to Petrology (3, 3). 4 credits.**

Igneous and metamorphic processes explained using crystallization theory, phase diagrams, thermodynamics and geochemistry; laboratory study of rocks, their chemical and mineralogical signatures, and their geologic origins. *Prerequisites: GEOG 280 and CHEM 131, or permission of the instructor.*

**GEOG 301. Earth Sciences for Teachers. 4 credits.**

Earth science content is blended with a systems approach to provide pre-service teachers with an understanding of how the Earth works, as well as strategies for teaching it. Major content themes include reconstructing the geologic history of

the mid-Atlantic, exploring the interaction of living things and the environment, and predicting how matter and energy circulate in the earth system.

**GEOL 302. Sedimentary Petrology. 1 credit.**

This is a course about sedimentary rocks in hand sample and thin section. With the polarizing microscope, students will study thin sections of outcrop and core samples. They will identify common minerals, textures and fabrics. They will identify the four components of all sedimentary rocks (framework grains, cements, matrix, pore types) and will make qualitative and quantitative measurements at a fundamentally different scale than is possible with just a field study of sedimentary rocks. *Prerequisite: GEOL 280 or permission of the instructor.*

**GEOL/GEOS 310 A-D. Environmental Impact. 2-3 credits, repeatable to 6 credits.**

Focuses on a selected environmental realm. The course will examine the interface between human activities and environmental systems. It will address the impacts of social, economic and political activities on the environment. A-Atmosphere (air pollution); B-Biosphere (vegetation/wildlife); C-Hydrosphere (water); D-Lithosphere (geologic hazards/land issues).

**GEOL 320. Meteorology. 3 credits.**

A survey of the science of weather including weather forecasting, weather maps and related atmospheric processes. Emphasis is placed on the dynamic aspects of meteorology and the interrelationships of atmospheric phenomena with land masses and the world ocean.

**GEOL 340. Environmental Soil Science (2, 2). 3 credits.**

The origin, distribution, and chemical, biological, and physical properties of soil are introduced. Processes responsible for soil properties are emphasized. Field trips highlight the sustainability of soils, their distribution across the Shenandoah Valley and their role in biogeochemical cycles. *Prerequisite: GEOL 110 or GEOL 210 or permission of the instructor may be granted for students with 4 hours of a lab course.*

**GEOL/BIO 350. Paleobiology (3, 2). 4 credits.**

The evolution and ecological structure of the biosphere from the origin of life to the present, emphasizing the evolution and paleobiology of animal life as shown by the fossil record. Lectures discuss methods used to interpret the fossil record and cover topics such as phylogeny and systematics, functional morphology, biostratigraphy, paleoecology, evolution and extinction. Laboratories focus on the major groups of invertebrates that are common in the geologic record. *Prerequisite: GEOL 230, BIO 114, BIO 150 or permission of the instructor.*

**GEOL/CHEM 355. Geochemistry of Natural Waters. 3 credits.**

Study of chemical theory and reactions important in natural water systems. The role of atmospheric, geologic and biological inputs in determining the geochemistry of streams, rivers and oceans. *Prerequisites: CHEM 131 and CHEM 132 or equivalent.*

**GEOL 360. GIS for the Geoscientist. 3 credits.**

This course is designed to help students master practical geospatial skills helpful for an entry-level job or graduate school in the geosciences.

**GEOL 367. Genesis of Solid Earth Materials (3, 2). 4 credits.**

This course addresses the natural relationship between minerals and the rocks they make up. Using the concept of mineralizing environments, illustrated by classic examples, students will investigate minerals through the processes of mineral genesis and associated rock types. This approach provides insight and predictive value for natural conditions in which specific minerals and rocks occur. Not acceptable for B.S. in geology. *Prerequisite: GEOL 110L.*

**GEOL 377. Earth Surface Processes (2, 2). 3 credits.**

The interrelationships among climate, landscapes, soils and bedrock geology are examined using the mid-Atlantic region as a conceptual laboratory. Course instruction includes lecture, laboratory and field trip meetings. The processes of rock weathering and erosion and soil formation are reinvestigated. Topographic maps and aerial photography are examined for landforms and landscape evolution. *Prerequisite: GEOL 110L, GEOL 210 or permission of the instructor.*

**GEOL 380. Genetic Mineralogy (2, 2). 3 credits.**

A study of mineral genesis. Emphasis is directed toward mineralogical environments, mineral associations and the geology/mineralogy of classical localities. An appreciation of mineral value and aesthetics is incorporated throughout the course. *Prerequisite: GEOL 280.*

**GEOL 387. Stratigraphy, Structure, and Tectonics (3, 2). 4 credits.**

Examination of how stratigraphic, structural, and tectonic principles control the character and distribution of rocks. Study of principles, regional patterns in sedimentary rocks, and stresses that deform rocks are explored in laboratory and field exercises. Topics and techniques are discussed within the framework of the 1.2 billion year geologic history of the VA region and its connection with

tectonic processes throughout the rest of the world. *Prerequisites: GEOL 110L and GEOL 230.*

**GEOL 388. Advanced Stratigraphy, Structure, Tectonics (3, 2). 4 credits.**

Advanced concepts in structural geology (analyses of rheology, stress & strain, deformation fabrics, and chronologic constraints) applied to the tectonic evolution of orogens and basins. This will include exploration of the mechanisms controlling the stratigraphic record (auto- and allogenic mechanisms and sequence theory) of basins, as well as methods of dating the stratigraphic record (biofacies and biostratigraphy, geochronology and chronostratigraphy, and magneto and chemostratigraphy). *Prerequisite: GEOL 387.*

**GEOL 390. Laboratory Techniques in Geology (2, 2). 3 credits.**

An elective course for science majors. A study of the basic theories and techniques of laboratory methods and instrumentation. Implementation and application of techniques to geological problems. *Prerequisites: GEOL 280 and permission of the instructor.*

**GEOL/MATS 395. Geologic Perspectives in Materials Science and Engineering. 3 credits.**

A one-semester course which emphasizes the commonalities between the geological sciences and materials science. Course includes topics from mineralogy, crystallography, petrology and structural geology which are also important in metallurgy and ceramics. *Prerequisites: An introductory course in any physical science or integrated science and technology (GEOL 110, CHEM 131, PHYS 140 or ISAT 141) and at least one additional advanced course in the major.*

**GEOL/MATS 396. X-ray Characterization of Solid Materials. 3 credits.**

Covers fundamental principles and theory behind two powerful, X-ray based, technologies: X-ray Diffraction and Energy Dispersive Analysis of X-rays (EDS). Students will collect and analyze data from a single crystal Gandolfi X-ray camera, automated powder diffraction system (focusing goniometer) and EDAX system (EDS). *Prerequisite: GEOL 280, MATS/CHEM/PHYS 375 or ISAT 300.*

**GEOL 398. Topics in Geology. 1-4 credits.**

Topics in geology at the advanced level. May be repeated for credit when course content changes. Topics selected may determine prerequisites. Students should consult the instructor prior to enrolling in the course. *Prerequisite: Permission of the instructor.*

**GEOL 399. Field Geology. 6 credits.**

Field Geology is the capstone course for geology majors. Students learn to recognize and interpret a wide variety of rocks and structures, as well as geomorphic, hydrologic, and other geologic features. Methods of mapmaking, data recording, and report preparation are emphasized. Projects from one to five days' duration are conducted in regions where igneous, metamorphic, and sedimentary rocks, surficial deposits, and karst features are well-exposed. *Prerequisites: GEOL 300 and GEOL 387 or permission of the instructor.*

**GEOL/BIO 400. Geology and Ecology of the Bahamas. 3 credits.**

This course explores the geology and ecology of the shallow-water marine environment by examining the preeminent modern example, the Bahamas platform. The Bahamas provide an excellent model for understanding modern and ancient carbonate and reef deposits and a variety of terrestrial/aquatic habitats. Biological processes are responsible for many of the geological features of the Bahamas, so the course considers the biology/ecology of marine organisms in addition to geological topics. *Prerequisites: GEOL 110 or GEOL 211 or a 200-level GEOL or BIO course; at least four hours of additional lab science, at least sophomore status, and permission of the instructor.*

**GEOL 401. Oceanography for Teachers. 3 credits.**

A comprehensive study of the world's oceans and the interrelationships among physical, chemical, biological and geological oceanography for pre- and in-service teachers. Special emphases on Virginia coastal oceanography, the National Ocean Literacy Principles and the integration of pedagogy applicable to K-12 instruction. Includes a field trip to the Virginia coast. Credit may not be earned in both GEOL 211 and GEOL 401.

**GEOL/BIO 405. Vertebrate Paleontology. 3 credits.**

A study of the origin and evolution of the vertebrates. Emphasis will be on understanding how the processes of earth evolution and biological evolution have interacted through time to produce a coherent picture of vertebrate history. *Prerequisite: GEOL 230, BIO 114, BIO 150 or permission of the instructor.*

**GEOL 406. Paleoclimatology and Paleoceanography. 3 credits.**

Investigate the methodologies and data used to reconstruct Earth's climate history. Emphasis will be placed on the marine sediment and ice core records of the Cenozoic through detailed lecture and lab activities. Case studies include the Paleocene Eocene Thermal Maximum, the glaciation of Antarctica, Milankovitch

cyclicality and Northern Hemisphere glaciation. *Prerequisite: GEOL 230 or GEOL/BIO 350 or permission of the instructor.*

**GEOL 410. Engineering Geology (2, 2).** 3 credits.

Study of the applications of geology to engineering practice. Topics include soil mechanics, foundations, engineering classification of soils, slope stability and mineral aggregates. *Prerequisites: GEOL 110, GEOL 210 or GEOG 210, and either MATH 231 or MATH 235 or equivalent.*

**GEOL 415. Geological Evolution of North America.** 3 credits.

A systematic survey of the tectonic evolution of the North American continent and the corresponding evolution of depositional basins and paleoenvironments. *Prerequisites: GEOL 387 and GEOL 388 or permission of the instructor.*

**GEOL 440. Geophysics (3, 2).** 4 credits.

A survey of geophysical methods, with joint attention on near-surface and solid earth applications. Topics include seismology, heat flow, gravity, magnetism, electrical methods, ground penetrating radar and geophysical aspects of plate tectonics. Labs focus on practical experience with data acquisition, reduction, and interpretation and are a combination of field, classroom and computational activities. *Prerequisite: GEOL 110L or PHYS 140-150 or PHYS 240-250 or permission of the instructor.*

**GEOL 442. Field Geophysics.** 3 credits.

This course focuses on collection of geophysical data in the field and interpretation, analysis and technical reporting afterwards. Case studies discussed include applications to geology, archaeology, and engineering. Students will get hands-on experience with geophysical equipment and an understanding of how and where these tools can be applied. Topics include Ground Penetrating Radar, Electrical Resistivity, Magnetism, Seismic Refraction and Total Station Data. *Prerequisite: GEOL 110 or GEOL 210 or ANTH 197 or consent of instructor.*

**GEOL 444. Topics in Geophysics.** 1-4 credits.

An in-depth investigation into selected aspects of geophysics. Topics will be chosen by the instructor and students and may vary from year to year. Some common candidate issues include earthquake seismology, field survey planning and execution, geophysical interpretation theory and the geophysical underpinnings of plate tectonic theory. *Prerequisite: Permission of the instructor.*

**GEOL 450. Geology Seminar.** 1 credit.

An in-depth study of a particular problem in geology (e.g., plate tectonics, astrogeology, low-temperature geochemistry, etc.). Scientific literature will be reviewed and discussed. *Prerequisite: 20 credits in geology.*

**GEOL 460. Hydrogeology (2, 2).** 3 credits.

Basic concepts of subsurface water as a part of the hydrologic cycle. Topics include storativity and permeability in porous media, principles of flow, computer applications, groundwater exploration, and mapping and environmental aspects of groundwater. *Prerequisites: GEOL 110L and two semesters of calculus or permission of the instructor.*

**GEOL 477. Contemporary Issues in the Geosciences.** 3 credits.

As a capstone experience, this course serves as an opportunity for students to view issues of the Earth system from an Earth-based perspective. Building on previous course work in the major (physical geology, meteorology, oceanography, etc.), students will investigate such issues as global warming, population and sustainable development and environmental ethics. Particular emphasis is placed upon the Earth's perspective from a historical viewpoint. *Prerequisites: GEOL 211, GEOL 320, GEOL 367 and GEOL 377.*

**GEOL 489. Quantitative Methods in Geology.** 3 credits.

An introduction to the mathematical methods and statistical techniques that are employed by scientists in the disciplines of geochemistry, geophysics, hydrology and the petroleum/mineral industry. The course provides the quantitative skills necessary to manipulate geological data.

**GEOL 491. Geological Literature and Research.** 2 credits.

Provides advanced instruction in literature research to meet the B.A. Earth Science and B.S. Geology research requirements. Activities include the identification of a literature-based research problem, literature research techniques, critical reading and discussion, and the preparation of individual review papers on each student's research topic. *Prerequisite: GEOL 291 or permission of the instructor.*

**GEOL 494. Internship in Geology.** 1-3 credits.

Student conducts a research or applied project in geology outside of the university. Requires an approved proposal prior to registration and a final report at the culmination of the project. *Prerequisites: Minimum of eight credit hours in geology, GEOL 291 and a geology GPA of 2.5 or higher.*

**GEOL 497. Problems in Geology.** 1-3 credits.

An undergraduate research course in one of the fields of geology. Open to advanced students who have adequate preparation. *Prerequisites: GEOL 291 and permission of the instructor.*

**GEOL 499A. Honors in Geology.** 1 credit.

*Prerequisites: GEOL 291 and 3.25 GPA or higher.*

**GEOL 499B. Honors in Geology.** 2 credits.

*Prerequisites: GEOL 291 and 3.25 GPA or higher.*

**GEOL 499C. Honors in Geology.** 3 credits.

*Prerequisites: GEOL 291 and 3.25 GPA or higher.*

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## German

**GER 101. Elementary German I.** 3-4 credits.

The fundamentals of German through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school, he/she will not receive credit for the course.

**GER 102. Elementary German II.** 3-4 credits.

The fundamentals of German through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school, he/she will not receive credit for the course. *Prerequisite: GER 101.*

**GER 109. Accelerated Review of Elementary German.** 3 credits.

Reviews elementary German grammar, reading, writing, speaking and listening skills in German. One hour of work a week in the language laboratory. For students who have had no more than two or three years of German in high school or qualify through the placement exam. *Prerequisite: Permission of the department head or per placement exam score.*

**GER 111. Intensive German I.** 6 credits.

The fundamentals of German through intensive listening, speaking, reading and writing. This four-week course is the equivalent of GER 101-102.

**GER 212. Intensive German II.** 6 credits.

The fundamentals of German through intensive listening, speaking, reading and writing at the intermediate level. This four-week course is the equivalent of GER 231-232. *Prerequisite: GER 102, GER 109 or GER 111, or per placement exam score.*

**GER 231. Intermediate German I.** 3 credits.

A thorough review of grammar and vocabulary building, conversation, composition and reading. *Prerequisite: GER 102, GER 109 or GER 111, or per placement exam score.*

**GER 232. Intermediate German II.** 3 credits.

A thorough review of GER 231 grammar and vocabulary building. Conversation, composition and reading will be chosen to reach competency at the advanced intermediate level. *Prerequisite: GER 231 or sufficient score on the foreign language placement test.*

**GER 300. Grammar and Communication.** 3 credits.

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in German. Fulfills the College of Arts and Letters writing-intensive requirements for the major. *Prerequisite: GER 232 or per placement exam score.*

**GER 307. A History of German Civilization.** 3 credits.

A study of society, economics, politics and the arts in central Europe from Indo-European beginnings to the present. Emphasis is also placed on outstanding contributions of German-speaking people. Instruction is in German. *Prerequisite: GER 300 or equivalent.*

**GER 308. Contemporary German Civilization.** 3 credits.

A study of life, culture, politics and economics in modern Germany. May be repeated for credit. *Prerequisite: GER 300 or equivalent.*

**GER 320. German Oral and Written Communication.** 3 credits.

Intensive training in the use of modern, everyday German with emphasis on conversation and composition. Readings in German will provide a context for discussion and writing. *Prerequisite: GER 300 or equivalent.*

**GER 330. Business German.** 3 credits.

A study of commercial and trade vocabulary and customs in conjunction with practice in commercial communication, including letter writing, interviews and interpretation. Instruction is in German. *Prerequisite: GER 300 or equivalent.*

**GER 335. Introduction to German Literature.** *3 credits.*

A survey of German literature from 750 to the present. Textual analysis of sample writings of the most important literary movements. Instruction is in German. *Prerequisite: GER 300 or equivalent.*

**GER 341. German-English Technical/Commercial Translation.** *3 credits.*

German-English translation applied in several commercial (i.e., marketing, finance) and technical (i.e., electricity and electronics, software, hardware) fields. Focus will be on the acquisition of specialized knowledge (both linguistic and extralinguistic) and the delivery of professional documents in real-market conditions. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: GER 300 or equivalent.*

**GER 375. Business and Society in Germany.** *3 credits.*

Germany—"The Land of Ideas"—known for its engineering and technology, is a leader in innovation and research in every field. It is the strongest economic power in Europe. The course explores German society in its historical, political and economic contexts. Several aspects will be investigated: the EU, Globalization, immigration, environment, family policies, current affairs and the latest trends in the society. Instruction is in German. *Prerequisite: GER 300.*

**GER 400. Advanced Conversation.** *3 credits.*

Discussions deal with topics of current interest. *Prerequisite: GER 300 or permission of the instructor.*

**GER 405. The Age of German Classicism.** *3 credits.*

Reading and interpretation of significant works of Lessing, Goethe and Schiller. Instruction is in German. *Prerequisite: GER 300 or permission of the instructor.*

**GER 415. German Romanticism and Realism.** *3 credits.*

A study of Romanticism and Realism with emphasis on Romantic poetry and the Realistic novel. Instruction is in German. *Prerequisite: GER 300 or permission of the instructor.*

**GER 425. Modern German Literature.** *3 credits.*

A study of the works of major German writers of the 20th century. Instruction is in German. *Prerequisite: GER 300 or equivalent.*

**GER/ENG 436. Studies in German Literature.** *3 credits.*

A study of selected works of German literature. Instruction is in English. May be repeated for credit when course content changes.

**GER 446. Special Topics in German Literature.** *3 credits.*

Study of a particular topic in German literature. It may cover all or specific German literature genre. Course may be repeated if content varies. *Prerequisite: GER 300.*

**GER 447. Special Topics in German Civilization and Culture.** *3 credits.*

Students will study a particular topic in the civilization and/or culture of Germany. Course may be repeated if content varies. *Prerequisite: GER 300.*

**GER 448. Special Topics in German Linguistics.** *3 credits.*

Students will study a particular topic in German linguistics. Topics could include an introduction to German sociolinguistics and psycholinguistics. Course may be repeated if content varies. *Prerequisite: GER 300.*

**GER 465. German Cinema.** *3 credits.*

An analysis of the German cinema from the 1920s through the present. Emphasis will be on the relations between the German film and certain seminal periods in German history. *Prerequisite: GER 300 or permission of the instructor.*

**GER 490. Special Studies in German.** *1-4 credits.*

Allows students an opportunity to complete independent studies under faculty supervision. *Prerequisite: Permission of the department head*

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## Gerontology

**GERN/SOCI 280. Social Gerontology.** *3 credits.*

An interdisciplinary introduction to the study of aging. The course provides an overview of issues surrounding aging in contemporary society: personal, familial, communal and societal. *Corequisite: 20 hours of community service-learning.*

**GERN 305. Programs and Services for the Elderly.** *3 credits.*

A review of the programs and services provided for the elderly in the public and private sectors of America. Observations and participation in local programs for the elderly will be required. *Prerequisite: GERN/SOCI 280.*

**GERN/FAM/SOWK 375. Grant Writing for Agencies.** *3 credits.*

Emphasizing active learning, this course teaches the basics of grant and proposal writing. Efficient research, persuasive prose and the importance of relationships are stressed. Private and corporate philanthropy and government grants are examined.

**GERN 400. Skills and Techniques in Gerontological Assessment.** *3 credits.*

The study of the skills and techniques used in assessing the elderly client. Assessment is made from the holistic approach: physical, psychological and social. *Prerequisite: GERN/SOCI 280.*

**GERN 487. Special Topics in Gerontology.** *3 credits.*

Examination of selected topics in gerontology that are of current importance in the field of gerontology. Course may be repeated for credit.

**GERN 490. Special Studies in Gerontology.** *1-3 credits.*

Independent study in gerontology under faculty supervision. Limited to gerontology minors. Can be repeated for credit. *Prerequisites: GERN/SOCI 280, GERN 305 and GERN 400 or permission of the instructor.*

**GERN 495. Field Experience/Seminar in Gerontology (1, 6).** *3 credits.*

Supervised field experience in gerontology settings that allows observation and experience with the well and frail elderly. A minimum of six hours in the assigned setting each week and one hour seminar on campus. *Prerequisites: GERN/SOCI 280, GERN 305 and GERN 400, major elective, and approval of the gerontology minor adviser.*

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## Graphic Design

All 200-level GRPH courses are limited to declared art, art history, graphic design, architectural design and industrial design majors during the fall and spring semesters. GRPH courses at the 300-level and above are restricted to graphic design majors. During May and summer sessions, 200-level GRPH courses are open to all students who meet the additional stated course prerequisites. Non-majors wishing to enroll in GRPH 200, GRPH 202 or GRPH 206 during fall and spring semesters may request permission of the instructor.

**GRPH 200. Design Methodology (0, 6).** *3 credits.*

Exploration of strategies for conceptualizing, analyzing and solving design problems. Emphasis is placed on graphic presentation of ideas and the creative process. *Prerequisite: ART 102.*

**GRPH 202. Computer Graphics (0, 9).** *3 credits.*

Introduction to graphics on the computer. Students will explore hardware and software that relate to the presentation of graphic design projects and computer generated imaging. *Prerequisites: ART 102 and ART 104 or permission of the instructor.*

**GRPH 206. Introduction to Typography (0, 9).** *3 credits.*

An introduction to the study of letter forms for their aesthetic and communicative value. Typographic fundamentals of alphabet history, type classification, printing technology effects, font design, visual space, hierarchy and grid systems will be explored. *Prerequisite: GRPH 200.*

**GRPH 208. Portfolio Review.** *0 credit.*

Portfolio review required to enroll in graphic design courses at upper division standing. May be repeated once for pass/fail standing. *Prerequisites: GRPH 200 and GRPH 202. Prerequisite or corequisite: GRPH 206.*

**GRPH 300. Illustration (0, 9).** *3 credits.*

Through demonstrations, theory and practical application, students are introduced to numerous media and illustrative techniques. Encouraged experimentation is tempered by an understanding of problem solving and conceptualization. *Prerequisite: GRPH 208.*

**GRPH 304. Package Design (0, 9).** *3 credits.*

Through theory, demonstrations and practical application, students learn to design in three-dimensions. Focus will be placed on aesthetics, as well as the form and function of a product's housing. *Prerequisite: GRPH 208.*

**GRPH 306. Intermediate Typography (0, 9).** *3 credits.*

An intermediate study of typography for its aesthetic and communicative value. Context effects on legibility and readability, type as image, type in sequence, and typographic systems will be explored. *Prerequisite: GRPH 208.*

**GRPH 312. Web Design.** *3 credits.*

Introduction to Web design through theory and practical application. Assignments will focus on the unique form, content and structures associated with designing for the World Wide Web. Special emphasis on the creative process and the graphic presentation of ideas. *Prerequisite: GRPH 208.*

**GRPH 313. Interactive Media.** *3 credits.*

Through theory, demonstration and practical application, students are introduced to visual interface design. Focus will be placed on digital, interactive media and bridging the gap between functionality and usability. *Prerequisite: GRPH 208.*

**GRPH 340. Poster Design (0, 9).** *3 credits.*

Through theory and practical application, students learn to design for the poster realm. Focus will be placed on aesthetics, as well as form and function.

Encouraged experimentation is tempered by an understanding of problem solving and conceptualization. *Prerequisite: GRPH 208.*

**GRPH/ART 375. Letterpress.** *3 credits.*

This studio course offers students an opportunity to engage in the process and product of letterpress printing through various techniques and conceptual approaches. Instruction focuses on text and image relationships by integrating metal and wood type, and other type-high surfaces. Emphasis will be placed on the acquisition of skills and vocabulary and the creative use of type and image. The course will address the history of letterpress and its contribution to contemporary art and design. *Prerequisite: ART 276; Also for GRPH credit: GRPH 208.*

**GRPH/ART 376. Intermediate Book Arts: Concept, Content, Form.** *3 credits.*

This course challenges the student to develop a limited edition hand-made artists' book. The appropriate format for each individual's concepts are identified, adapted, customized, applied, and produced. Content development, book design, integration of various media and the functionality of various bookmaking materials are explored. We will consider the artists' book as a sculptural form and locate it within the broader context of contemporary writing and visual art. *Prerequisites: ART 276; ENG 391, ENG 392 or ENG 393. Also for GRPH credit: GRPH 306.*

**GRPH 390. Independent Studies in Graphic Design.** *1-3 credits. Offering varies.* Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Projected studies in Graphic Design must be arranged with the instructors who will direct them. Offered only with the consent of the instructor. *Prerequisite: GRPH 208.*

**GRPH 392. Topics in Graphic Design.** *3 credits. Offering varies.*

Study of selected topics in graphic design at the intermediate level. May be repeated when course content changes. See MyMadison for current topics. *Prerequisite: GRPH 208.*

**GRPH 406. Advanced Typography (0, 9).** *3 credits.*

An advanced study of typography for its aesthetic and communicative value. Topics of research, narrative, information design, format organization and production techniques will be explored. Solutions reflect advanced text and image integration knowledge through complex and variable structure development. *Prerequisite: GRPH 306.*

**GRPH 408. Brand Identity.** *3 credits.*

Exploration of visual identities utilizing a holistic, systems approach to design. Introduces business strategies and design techniques associated with brand development. Emphasis is placed on methods of thinking, research and implementation. *Prerequisite or corequisite: GRPH 406.*

**GRPH 410. Graphic Design Portfolio.** *3 credits.*

An examination of the business of graphic design, employment strategies and freelance opportunities. Focus is placed on solidification of the portfolio for employment and/or graduate school. This course is strongly recommended for the last semester prior to graduation. *Prerequisite: GRPH 406. Prerequisite or corequisite: GRPH 408.*

**GRPH 490. Independent Studies in Graphic Design.** *1-3 credits, repeatable. Offering varies.*

Independent activity, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with consent of the director. *Prerequisite: GRPH 208.*

**GRPH 491. Studio Assistant.** *1-3 credits, repeatable. Offering varies.*

An on-campus program monitored on an individual basis designed to provide practical studio experience in the visual arts. Students will learn safe studio practices and management skills, including material use, inventory control, and the proper operation of equipment found within various individual classroom studios. *Prerequisite: Permission of the instructor.*

**GRPH 492. Topics in Graphic Design.** *3 credits. Offering varies.*

Study of selected topics in graphic design at the advanced level. May be repeated when course content changes. See MyMadison for current topics. *Prerequisite: GRPH 208.*

**GRPH 496. Internship in Graphic Design.** *1-6 credits.*

*Offered fall, spring and summer.*

An off-campus program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. *Prerequisites: Permission of the instructor and GRPH 208; students can only enroll for a maximum of 3 credits per Internship.*

**GRPH 499. Honors (1, 3, 2).** *6 credits total for three semesters.*

*Prerequisite: GRPH 208.*

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## Greek

**GRK 101. Elementary Greek I.** *3-4 credits.*

Designed to provide a reading knowledge of Classical Greek as well as New Testament koine. Greek life, thought and culture are also discussed. Especially recommended for history, English, and philosophy and religion majors.

**GRK 102. Elementary Greek II.** *3-4 credits.*

Designed to provide a reading knowledge of Classical Greek as well as New Testament koine. Greek life, thought and culture are stressed. Especially recommended for science, English and philosophy majors. *Prerequisite: GRK 101 or equivalent.*

**GRK 231. Intermediate Greek I.** *3 credits each semester.*

An intensive reading course. Selections from Classical Greek writers and/or the New Testament. *Prerequisite: One year of college Greek or equivalent.*

**GRK 232. Intermediate Greek II.** *3 credits.*

An intensive reading course. Selections from Classical Greek writers and/or the New Testament. *Prerequisite: GRK 231 or permission of the instructor.*

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## Health

**HTH 100. Personal Wellness.** *3 credits. Offered fall, spring and summer.*

Emphasizes lifestyle behaviors contributing to health promotion and disease prevention. General areas affecting health status are identified. Suggestions are made as to how health-related behaviors, self-care and individual decisions contribute to health and influence dimensions of wellness. May be used for general education credit.

**HTH 150. Introduction to Health Sciences.** *1 credit.*

This course orients students in the major to foundational expectations and requirements for successful completion of the Health Science major and Health Studies concentration. The course introduces conceptual ideas such as a wide array of health careers, importance of gaining early and regular field experiences, and writing and research basics.

**HTH 151. Foundations of the Health Sciences.** *3 credits. Offered fall and spring.*

Review of the basic competencies and foundations of the health sciences including academic planning, professionalism, writing and presentation skills, information literacy, foundational principles, and the roles and responsibilities of selected health science fields. This is intended to be the first course that a student takes in the health sciences major.

**\*\*HTH 204. Emergency Health Care (2, 2).** *3 credits.*

A survey of various dimensions of the legal aspects of emergency care, cardiorespiratory emergencies, hemorrhage control, wounds, shock, heat injuries and other health emergencies. Selected American Red Cross and American Heart Association certifications available.

**\*\*** The American Red Cross registration fees apply.

**HTH 206. Advanced Athletic Training.** *3 credits.*

This course involves advanced study of injuries associated with physically active individuals including injury mechanisms, signs and symptoms, and treatments. Other topics include relationships athletic trainers build with other health care professionals; environmental issues related to physical activity; and special needs of various populations. *Prerequisites: BIO 290 and HTH 205.*

**HTH 210. Medical Terminology.** *3 credits.*

Study of terms that relate to body systems, anatomical structures, medical processes and procedures, and a variety of diseases/disorders that afflict human organisms.

**HTH 230. Community Health.** *3 credits. Offered fall and spring.*

An introduction to community health including its foundations, the tools of community health such as epidemiology, community organization, disease control and health promotion. The course focuses on the populations, settings and special issues of community health. *Prerequisite: HTH 100.*

**HTH 231. Population Health Determinants.** *3 credits.*

Many factors combine together to affect the health of individuals and communities. In an effort to advance public health, health professionals must be cognizant not only of behaviors which may compromise or promote health, but also the interaction of social and physical factors which impact health outcomes.

**HTH 245. Foundations of Infectious Disease.** *3 credits.*

An overview of the incidence, prevalence, causation, and prevention of the major infectious diseases which are currently of concern in the twenty-first century. Major signs and symptoms of the diseases as well as treatment will be reviewed. The course will also cover the body's defense system and the principles of disease occurrence.

**HTH 252. Sexually Related Diseases.** *1 credit.*

Sexually transmitted diseases and other sexual systems problems (breast and testicular cancer), nonvenereal diseases, chromosomal anomalies, sexual disorders of the genitalia and urinary system problems.

**HTH 270. Personal Health Promotion.** *3 credits.*

A survey of principles for the promotion of optimum individual, family and community health through intelligent self-direction of health behavior. Topics include the physical, mental and social dimension of health economics, disease control, human sexuality, chemical abuse, injury control, and nutrition.

**HTH 278. Alcohol: Use and Abuse.** *1 credit.*

Survey of the drug alcohol. Topics include pharmacological effects, patterns of use, potential for abuse, treatment programs and prevention of alcohol abuse and alcoholism.

**HTH 308. Physiological Responses to Human Movement.** *3 credits.*

*Offered spring.*

The purpose of this course is to present an overview of established and current knowledge of physiological responses to human movement as they relate to health and wellness. *Prerequisite: BIO 290.*

**HTH/KIN 312. The Profession of Teaching Health & Physical Education.** *2 credits.*

Introductory study of the roles of the teacher and the learner and the pedagogical content knowledge of health and physical education. An in-depth examination of the unique position and qualifications of the specialist in physical education and health. Systematic observations will occur. *Prerequisite: Admission to teacher education.*

**HTH/IPE/NSG/SOWK 314. Rural Health: An Interdisciplinary Approach.** *3 credits. Offered May.*

Students study, observe and participate in interdisciplinary assessment, planning and delivery of community-based primary health care in partnership with residents and agencies of a host rural county. Learning activities will emphasize rural culture, rural health care and interdisciplinary practice.

**HTH 320. Statistical Methods for Health Science Research.**

*3 credits. Offered fall and spring.*

This course reviews statistical concepts and techniques with special reference to health science applications and issues. It also reinforces the logic of statistical decision making for health and medical research concerns. *Prerequisite: MATH 220.*

**HTH 340. Chronic Disease and Disabilities.** *3 credits. Offered fall and spring.*

An overview of the incidence, prevalence, causation, and prevention of chronic diseases and disabilities across the lifespan. Major signs and symptoms of the diseases and disabilities as well as treatment will be reviewed. *Prerequisites: HTH 100, HTH 150, HTH 210 or HTH 300, HTH 231 or HTH 230, HTH 245.*

**HTH 351. Health Behavior Change.** *3 credits. Offered fall and spring.*

This course will identify individual and group characteristics that influence health behaviors and the features of programs designed to change behavior that makes them more or less effective. Students will develop the skills necessary to formulate health-modification programs. *Prerequisites: HTH 100, HTH 150, HTH 245 or junior status.*

**HTH 352. Environmental Health.** *3 credits. Offered fall and spring.*

An investigation of environmental factors and their effects on the health of the individual, community and society.

**HTH 354. U.S. and Global Health Care Systems.** *3 credits.*

*Offered fall and spring.*

The course provides an overview of the U.S. health care system by examining the organization, financing, and delivery of health services. The class will include current issues in health care policy, the future of health care systems in America, and a comparative global analysis of health care systems.

**HTH 355. HIV/AIDS: A Global Perspective.** *1 credit.*

Discussion includes theories of origins, statistics and characteristics of the causative pathogen, incubation, illness patterns, transmission, prevention and treatment of AIDS and other STDs. AIDS and other STDs in relation to prisons, children, schools, global concerns, health care systems and legal factors will be considered.

**HTH 357. Coping with Stress.** *1 credit. Offered fall.*

Identifying causes and personal symptoms associated with stress and individual methods of handling stress.

**HTH 368. International Health.** *3 credits.*

This course involves participation with an interdisciplinary team which will travel outside of the United States to observe and experience the health care challenges in a developing nation.

**HTH 370. Child and Adolescent Health.** *3 credits. Offered fall and spring.*

This course will discuss the CDC priority health risk categories and the Healthy People 2010 Objectives for the Nation as they relate to child and adolescent health. In addition, the CDC model for Coordinated School Health Programs will be explored to determine specific strategies for health improvement. *Prerequisite: Restricted to PHETE or health sciences majors.*

**HTH 371. Behavior and Health of Children and Adolescents.**

*3 credits. Offered spring.*

This course will review the current health status and health risk behaviors of children and adolescents. It will focus on epidemiological trends and behavioral and social etiological factors. In addition, this course will include an overview of the theoretical approaches to children and adolescent health behavior. Application of theory will be made to the development of strategies for health promotion and interventions to reduce specific health problems for children and adolescents that would be appropriate for teachers and schools. *Prerequisite: Admission to the PHETE program.*

**HTH 372. Human Sexuality.** *3 credits. Offered fall and spring.*

An in-depth study of sexuality across the lifespan. Emphasis is placed on the development of sexuality with attention given to the psychological, physiological, ethical and socio-cultural implications. *Corequisite: HTH 230.*

**HTH 375. Pregnancy Control and Abortion.** *1 credit.*

An in-depth study of four areas concerning the following sexual aspects of living: contraception, abortion, sterilization and fertility-enhancing methods. The biochemical, physiological, legal, cultural and ethical aspects are considered.

**HTH 378. The Use and Effects of Drugs.** *3 credits. Offered fall and spring.*

A study of the use and pharmacological properties of popular legal and illegal drugs and their effects on the health of individuals and society. *Prerequisite: HTH 230.*

**HTH 389. Practicum in Health Education.** *1-3 credits. Offered fall and spring.*

Selected practicum experiences which provide students with supervised practicum experiences.

**HTH 390. Selected Topics in Health Science.** *1-3 credits. Offered fall and spring.*

Study of selected topics in health science. Consult MyMadison for specific topics. May be repeated for credit when course content changes.

**HTH 402. Topics in Health Education I.** *3 credits. Offered every other spring.*

An overview of selected topics in health content required for students preparing to teach health in public schools. Selected topics will include addictions, alcohol, tobacco, drug use and abuse, safety, nutrition and weight management in children, immunity, and prevention and control of infectious and chronic diseases. Special emphasis will be on issues relevant to teaching these topics in schools. *Prerequisite: Admission to the PHETE program.*

**HTH 403. Topics in Health Education II.** *3 credits. Offered every other spring.*

An overview of selected topics required for students preparing to teach health in public schools. Selected topics include consumer health, environmental health, mental-emotional health, personal health, aging, and death and dying. Special emphasis will be on issues relevant to teaching these topics in schools. *Prerequisite: Admission to the PHETE program.*

**HTH 407. Health Education Facilitation/Synthesis.** *2 credits. Offered fall and spring.*

Students apply health knowledge by identifying needs, designing and facilitating programs in various settings on pertinent topics. These topics include sexual health, STD/HIV prevention, eating disorders, stress management, sexual assault and alcohol/drug abuse. Upon completion of all course requirements, students will be credentialled as a Certified Peer Educator (CPE). *Prerequisite: Permission of the instructor.*

**HTH 408. Health Research Methods.** *3 credits. Offered fall and spring.*

This course will present an overview of research methods within public health, emphasizing the steps involved in the research process. Methodological issues covered will include the ethics of health studies research, qualitative and quantitative research designs, operationalization of concepts, measurement of variables, and techniques of sampling, data collection, and analysis. *Prerequisites: HTH 320, HTH 330 or HTH 340, HTH 351 or senior public health education or senior health assessment and promotion concentration students or junior pre-occupational therapy students applying to the JMU accelerated OT program.*

**HTH 409. Therapeutic Interaction.** 3 credits. Offered summer.

This course focuses on the fundamental aspects of the therapeutic process, small group dynamics and understanding professional relationships in occupational therapy practice. Students will investigate concepts, attitudes and behavioral strategies that will support effective professional communication. They will also investigate inter- and intra- personal strategies that facilitate collaborative relationships as an occupational therapist in health or human service provision. *Prerequisites:* Admission into the occupational studies concentration and successful completion of all previous concentration course work.

**HTH/NSG/VGS 417. Women's Global Health and Human Rights.** 3 credits.

An international and human rights approach providing an overview of health issues within the context of a woman's life cycle. Attention will be given to critical issues of women's health such as access to health care and gender based violence. Such issues as sexuality, nutrition, diseases affecting women, violence, harmful traditional practices, and sex trafficking will be discussed.

**HTH 420. Global Perspectives on Alcohol and Drug Policies.** 3 credits.

This course will study drug policy from a public health perspective. Students will examine global alcohol and other drug policies assessing their impact at the regional, state, national and international levels. Emphasis will be given to the contemporary phases of alcohol and other drug policies and the war on drugs.

**HTH 423. Ethics and Critical Thinking in Health.** 3 credits.

*Offered fall and spring.*

This course will provide an overview of the leading health indicators and emerging health issues from the US Department of Health and Human Services. The course applies critical thinking and ethical reasoning skills and uses knowledge from previous courses about population health determinants, human diseases and behavior change. *Prerequisites:* HTH 320, HTH 330 or HTH 340, HTH 351 or senior public health education concentration students.

**HTH 424. Occupational Development Through the Lifespan.**

3 credits. Offered summer.

The fundamental aspect of occupational development that occurs throughout life is examined. Interactions between the individual and the environment across the several domains of occupation are explored. Acquisition of values, roles, habits, temporal adaptation and interests during each developmental stage are reviewed. *Prerequisites:* Admission to occupational studies concentration and successful completion of all previous concentration course work.

**HTH 431. Human Occupation and the Foundations of the Profession.**

3 credits. Offered summer.

The relationship between human behavior and occupation is examined. Issues important to occupational engagement are explored and linked to occupational science and the occupational therapy profession. *Prerequisites:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 435. Level I Fieldwork One.** 1 credit. Offered spring.

The course offers an opportunity to develop clinical skills in health and human service programs serving pediatric and adolescent clients. This experience will link knowledge and skills developed in didactic course work with a clinical environment. *Prerequisites:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 441/KIN 407. Rehabilitative Biomechanics.** 3 credits.

*Offered fall and spring.*

This course is designed to introduce the student to a variety of biomechanical concepts and applications as related to the health professions. Specific attention will be given to the biomechanical aspects of the musculoskeletal system. *Prerequisite:* BIO 290.

**HTH 442. Chronic Diseases.** 3 credits. Offered fall.

This course examines the pathophysiological effects of chronic diseases on health and well-being. Discussions include various strategies which improve the functional status and health of individuals at risk. *Prerequisites:* HTH 308 or KIN 302 and KIN 302L.

**HTH 445. The Occupational Therapy Process.** 3 credits. Offered summer.

The occupational therapy process is examined from assessing an occupational profile to focusing on engagement in occupation to achieve desired outcomes. Methods of assessment are studied as a defining step in the therapeutic process. Goal development, intervention strategies and documentation are also addressed. *Prerequisites:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 450. Epidemiology.** 3 credits. Offered fall and spring.

A study of the causation and prevention of the major diseases that affect the quality of an individual's life. Practical skills utilized by practicing

epidemiologists are emphasized. *Prerequisites:* HTH 320, HTH 330 or HTH 340, HTH 351 or senior public health education or senior health assessment and promotion concentration students or senior health services administration concentration students or junior pre-occupational therapy (OT) students applying to the JMU accelerated OT program.

**HTH 453. Public Health Education Methods.** 3 credits. Offered fall.

This course is designed for public health education students to develop competencies necessary for working in community and public health settings. Presentation skills, developing print, computer and Internet materials, facilitating groups and coalitions, and advocacy are some of the topics covered. *Prerequisites:* HTH 351 and senior public health education concentration students or permission of the instructor.

**HTH 458. Health Program Planning and Evaluation.** 3 credits. Offered fall and spring.

This lecture and laboratory course introduces students to principles and techniques employed to plan, implement and evaluate health promotion programs. Students will conduct a campus or community event and compile a formal report. *Prerequisites:* Public health education concentration and HTH 351 or health services administration major and HSA 358 or senior substance abuse prevention minor.

**HTH 460. Sensorimotor Foundations of Occupation.** 3 credits. Offered spring.

The importance of sensory processing and motor response and the impact on behavior, movement and occupational engagement are examined. Normal and abnormal sensorimotor function is presented with specific emphasis on how dysfunction impacts upon performance in the domains of occupation. *Prerequisites:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 461. Therapeutic Media in Occupational Therapy.** 2 credits. Offered fall.

This course examines the use of various forms of media used in occupational therapy practice. An understanding of the importance of media and its impact on the history and philosophical base of the profession will be addressed. The ability to grade and analyze activities relative to areas of occupation, performance skills, performance patterns, activity demands, context(s) and client factors is presented. A focus on developing the ability to adapt tasks for individuals who require a compensatory approach will be examined. *Prerequisites:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 470. Instructional Methods in Health Education.** 4 credits. Offered spring.

An overview and application of methods for teaching health in the schools. Students will develop skills in planning, instructional methods and classroom management. Micro-teaching experiences and a practicum in the schools are incorporated into this course to provide for the application and practice of material and skills learned. *Prerequisite:* Admission into teacher education.

**HTH 471. Health Aspects of Gerontology.** 3 credits. Offered fall and spring.

Promotion of health in the aged; physiological aspects of the aging process; community, state and federal health programs, and services for the aged.

**HTH 472. Family Life Education for Teachers.** 2 credits.

This course will present an overview of issues affecting the sexual health of children and youth. A variety of family life education curricula will be discussed, however, the approved Virginia Department of Education curriculum will be examined and students will be trained in implementing and evaluating its various modules.

**HTH 478. Occupational Dysfunction-Cause & Impact.** 3 credits. Offered spring.

Various illnesses, injuries and circumstances that can impede areas of occupation and performance skills are examined. The practice framework detailed in the domain of occupational therapy will be applied to all reviewed conditions. *Prerequisite:* Admission to the occupational studies concentration.

**HTH 479. Foundations of Research in Occupational Therapy.**

3 credits. Offered spring.

This course will present an overview of the foundations of research application, interpretation and communication. A variety of research methods will be reviewed. Published research will be examined for relevance in clinical decision making. *Prerequisites:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 480. Health Assessment Techniques.** 3 credits. Offered fall.

Examination of health risk appraisals and metabolic assessments used to implement strategies for behavioral change and improved overall wellness.

Other topics include programming and group dynamics used to promote healthy lifestyle behaviors.

**HTH 482. Advanced Health Assessment Techniques.** 3 credits. Offered spring. Skill acquisition of current health assessment techniques. These assessments are used to determine risk factors which play a role in heart disease and selected chronic diseases and to evaluate current health status. *Prerequisite:* HTH 480.

**HTH 485. Psychosocial Perspectives in Occupational Therapy Practice.** 3 credits. Offered spring.

This course will provide an overview of psychosocial conditions that impact client function in areas of occupation, performance skills and performance patterns. Occupational therapy assessment and intervention from an individual and group treatment standpoint will be examined as it contributes to the interdisciplinary process. A historical overview of occupational therapy in behavioral health service provision will be covered that will review traditional and contemporary treatment and provider settings. *Prerequisites:* Admission into the Occupational Studies concentration and successful completion of all previous concentration course work, or permission of the program director.

**HTH 488. Substance Abuse Prevention Basics.** 1 credit. Offered spring.

This course focuses on basic, cutting-edge substance abuse prevention theory, research and practice. It is designed for the substance abuse prevention minors who have completed the content courses and are preparing for entry-level practitioner positions in health education and/or substance abuse prevention/intervention. Instruction will bridge theory to practice by incorporating practicing professionals.

**HTH 490. Special Studies in Health Education.** 1-3 credits each semester. Offered fall and spring.

Designed to give the superior student in health education an opportunity to complete independent study and/or research under faculty supervision. *Prerequisite:* Permission of the department head.

**HTH 491. Occupational Therapy Tutorial I.** 1 credit. Offered spring.

Tutorial I is a small group case-based discussion seminar, facilitated by a clinical tutor who is an occupational therapist. Students research and discuss clinical cases related to content that is integrated from all courses that semester in the occupational studies concentration. *Prerequisites:* Admission into the occupational studies concentration and successful completion of all previous concentration course work.

**HTH 495. Internships in Health Organizations.** 3 credits. Offered spring and summer.

Full-time directed field experience in a health organization. Opportunity provided to work in an appropriate setting. Student furnishes off-campus living and traveling expenses. *Prerequisites:* Permission of the instructor and a 2.5 grade point average.

**HTH 499A. Honors.** 1 credit. Offered spring.

**HTH 499B. Honors.** 1-3 credits. Offered fall.

**HTH 499C. Honors.** 2 credits. Offered spring.

## Health Services Administration

**HSA 290. Gerontology for Health Services Administration.** 3 credits. Offered fall and spring.

This course provides an introduction to the study of aging from a multidisciplinary perspective including the biological, psychological and sociological aspects of aging. Emphasis will be placed on theoretical and practical application of course content to careers in health services administration.

**HSA 358. Health Administration.** 3 credits. Offered fall.

This course provides an introduction to management functions, tasks and roles as they are carried out in health services organizations. Discussion of emerging issues affecting the management of health services organizations is provided. This course uses the case method of analysis to develop critical thinking skills. *Prerequisite:* HTH 354 or permission of the instructor.

**HSA 360. Health Care Marketing.** 3 credits. Offered fall.

This course introduces the role, functions and tasks of health care marketing. Attention is devoted to understanding basic marketing principles; using oral, written and visual electronic communications media; and developing marketing plans for health care organizations.

**HSA 363. Health Economics.** 3 credits. Offered fall.

This course explains how economic forces affect the health service sector and how economic tools can be used to assess and improve health industry performance. Efficiency and equity trade-offs are considered. *Prerequisite:* ECON 201 or equivalent and HTH 320.

**HSA 365. Values in Health Care.** 3 credits. Offered fall and spring.

This course provides an overview of health ethics and health law for students majoring in health sciences. Students will address the major principles facing a health service professional in the delivery of health services. Particular attention will be paid to development of methodologies for ethical decision-making. *Prerequisite:* HTH 354 or permission of the instructor.

**HSA 367. Comparative International Health Systems.** 3 credits. Offered spring every other year.

This course concentrates on various approaches used to provide public and personal health services around the world. Strengths and weaknesses of different health care systems in terms of availability, accessibility, cost effectiveness, continuity and quality of services will be considered. *Prerequisite:* HTH 354.

**HSA 385. Health Services Administration Career Seminar.** 1 credit. Offered fall and spring.

This course is a career development seminar for health services administration students. An array of health administrators from varied health care organizations helps expand students' understanding of the health administration field. This course is designed for junior-level students with an expectation of a major concentration in health services administration.

**HSA 452. Hospital Organization and Administration.** 3 credits. Offered spring.

This course examines the organization and operation of community hospitals in the U.S. Specific attention is devoted to management's role in internal operations and in external relationships with the community and other stakeholders. Discussion of emerging issues affecting the management of hospitals and hospital systems is provided. *Prerequisites:* HTH 354 and HSA 358 or permission of the instructor.

**HSA 454. Internship in Health Organizations.** 3 credits. Offered spring and summer.

Full-time directed field experience in a health organization. Opportunity provided to work in an appropriate setting. Student furnishes off-campus living and traveling expenses. *Prerequisites:* Permission of the instructor and a 2.5 GPA.

**HSA 455. Long Term Care Organization and Administration.** 3 credits. Offered spring.

This course provides an in-depth examination of the organization and administration of long term care programs: nursing homes, home health services, adult daycare, assisted living and hospice. This course is recommended for students planning careers in long term care. *Prerequisites:* HSA 290, HTH 354 and HSA 358 or permission of the instructor.

**HSA 456. Ambulatory Care Services: Organization and Administration.** 3 credits. Offered fall.

This course provides an in-depth examination of the staffing, organization, budgeting and administration of ambulatory services including medical group practices, community and hospital-based clinics, and ambulatory surgery centers. This course is recommended for students planning administrative careers in this area with a foundation in health services administration. *Prerequisites:* HTH 354, and HSA 358 or permission of the instructor.

**HSA 462. Managed Care.** 3 credits. Offered spring.

The growing influence of managed health care on the organization and delivery of health services in the United States is addressed in this course. Structural and operational characteristics of managed care organizations and plans, including HMOs, PPOs and other plans are explored, as are the implications of managed care plans for the management of hospitals and other health care organizations. *Prerequisite:* HSA 358 or permission of the instructor.

**HSA 463. Quality Management in Health Care.** 3 credits. Offered spring.

This course examines the quality management function required in diverse health care organizations. The student is exposed to definitions and standards of quality in health care, as well as to various tools used to measure, evaluate and improve quality. Emerging issues affecting the management of health care quality are discussed. *Prerequisites:* HTH 354 and HSA 358 or permission of the instructor.

**HSA 464. Funding in Health Care.** 3 credits. Offered spring.

General financial analysis is covered in terms of its application to health care entities. Concepts, issues and tools related to health care funding are covered. *Prerequisites:* COB 204, COB 241 or ACTG 244, FIN 345 and HTH 320.

**HSA 466. Health Politics and Policy.** 3 credits. Offered fall and spring.

This course provides an introduction to the state and federal policy-making processes with a distinct focus on health policy. Emphasis will be on how health

policy impacts health service organizations and the delivery of health care. *Prerequisites: HTH 354 and HSA 365, or permission of the instructor.*

## History

\* Satisfies the Department of History European history requirement.

\*\* Satisfies the Department of History world history requirement.

### HIST 101. World History to 1500. 3 credits.

A survey of important historical developments from prehistoric times to 1500. Emphasis is given to the rise and decline of great world civilizations and their lasting contributions to humanity. May be used for general education credit.

### HIST 102. World History Since 1500. 3 credits.

A survey of important historical developments from 1500 to the present. Emphasis is given to the growth of nationalism, the development of colonialism, and to world events, problems and conflicts of the present century. May be used for general education credit.

### HIST 150. Critical Issues in Recent Global History. 3 credits.

This course examines issues in recent history as a means to introduce, develop and enhance critical thinking skills and to supplement writing, oral communication, library and computing skills objectives for General Education Cluster One. A seminar format allows for careful examination of issues in both oral and written formats. The course emphasizes the development and articulation of well-reasoned arguments in organized and grammatically acceptable prose. May be used for general education credit. May not be used for major credit.

### HIST 201. Europe to 1815. 3 credits.

An examination of Europe from 1350 to 1815 with emphasis on the major themes, figures, ideas, and trends of the period, as well as the principal historical interpretations.

### HIST 202. Europe Since 1815. 3 credits.

An examination of Europe from 1815 to the present with emphasis on the major themes, figures, ideas, and trends of the period, as well as the principal historical interpretations.

### HIST 225. U.S. History. 4 credits.

A survey of U.S. history from the Colonial period to the present, emphasizing the development of American civic life, the involvement of the U.S. in world affairs and the cultural richness of the American people. This course stresses the analysis and interpretation of primary sources. May be used for general education credit.

### HIST 239. Topics in History. 3 credits.

The study of selected topics in history at the introductory level.

### HIST 263. Africa. 3 credits.

Emphasis is placed on the social and cultural aspects, as well as the emerging role the continent plays in contemporary world history.

### HIST 269. Premodern Middle East. 3 credits.

A survey of the Middle East from Late Antiquity through the rise of the Ottoman Empire into the 16th century. Emphasis is placed on the political, social and religious developments that form the historical and cultural bases for the communities that thrived in the region in the past, and still do today.

### HIST 270. Modern Middle East. 3 credits.

The class is organized to address state formation processes in the world region located between the Nile and Indus rivers from the early sixteenth to the late twentieth centuries. The primary foci will be transitions between imperial, colonial and national political expressions in Egypt, Iran, the Ottoman Empire/Turkey and Palestine/Israel. The course will also engage other areas and issues including economic and social policies and practices in the Mughal Empire and modern Afghanistan.

### HIST 271. The Ancient Mediterranean. 3 credits.

A broad theme-based history of the Ancient Mediterranean from the Late Bronze Age to the end of Antiquity (1500 BC – AD 600). It examines the political, social, economic and religious history of the states that governed the area and their cultural interactions. The course is a mixture of lectures and discussions of primary sources. The final paper is a reflection on the themes including both primary and secondary sources.

### HIST 273. East Asia to 1600. 3 credits.

A broad survey of East Asian civilizations from their beginnings to about 1600 with emphasis on their distinctive cultural and intellectual traditions as well as the development of their political, social and economic institutions.

### HIST 274. Modern East Asia. 3 credits.

This course is an introduction to modern historical experiences of East Asia, particularly China, Japan and Korea. In addition to overviews of each of these countries, the course will focus on several topics illustrating both the unity and

diversity of East Asia: perceptions of each other, the philosophical tradition of Confucianism, the role of imperialism and nationalism, revolution, reform and the future of the region in the twenty-first century.

### HIST 291. Travel Studies. 3 credits.

Designed to encourage the student to augment the regular academic program through independent investigation, including organized travel study.

### HIST 300. U.S. Military History. 3 credits.

A survey of the evolution of the American way of war from the Colonial era to the post-Cold War period emphasizing the development of military and naval institutions, U.S. strategic doctrine and the social legacies of the U.S. military establishment.

### HIST 301\*. European Military History. 3 credits.

A survey of European military history (including Russia/Soviet Union) from the Hellenistic period through the 1982 Falklands-Malvinas War. The evolution of strategic doctrine and military institutions, their effect upon European society and their role in European imperialism will be emphasized.

### HIST 302\*\*. Latin American Urban History. 3 credits.

There is no group of people in the world more urban-minded than Latin Americans. Historically, cities here played an all-encompassing role that included administration, the reproduction of capital and responsibility for virtually all cultural activities. This class explores that history, as well as plans for further urban development, cultural activities and architectural design.

### HIST 303. Early America. 3 credits.

This course will examine the history of early America from the colonial to the early national period. Topics will include the clash of African, European, and Native American cultures, the regionalization of the American colonies, the growth of American slavery, and the creation of an American character and politics.

### HIST 304. Native Peoples of the United States. 3 credits.

A survey of the experiences of Native Peoples, including Native Hawaiians and Native Alaskans, from the pre-contact period to the present, with emphasis on traditional lifeways, impact of Anglo Americans, cultural persistence and revivals, activism, and contemporary challenges to Native communities and identities.

### HIST 305\*. History of Science and Christianity. 3 credits.

Over the last 2000 years, there have been recurring controversies over the proper relationships between science and Christianity. This class uses case studies such as Galileo, Darwin and creationism to explore the larger cultural context that gave life to the controversies. In the process, we'll examine changing ideas of what counts as science, how to interpret the Bible, and who gets to decide.

### HIST 306\*. A History of the Body in the West. 3 credits.

This course views the human body as a historical artifact whose physical appearance and social, cultural, and political meanings reflect the historical contexts of specific times and places. The emphasis is on the perspectives of Europeans and their descendants, inside Europe and beyond it.

### HIST 307\*\*. The Trans-Atlantic Slave Trade. 3 credits.

This course explores the origins, processes and outcomes of the infamous trade. By studying participants' lives in Africa, Europe, Latin America and North America, the course helps students understand people's inhumanity to each other and the ways in which slavery and the trade in slaves forever altered the development of the Atlantic world.

### HIST/ITAL 308\*. Contemporary Italian Civilization. 3 credits.

A study of Italian society, economics, politics and the arts from 1814 to the present. Instruction in English. Research papers for Italian majors/minors in the language.

### HIST 309\*. French History Since 1648. 3 credits.

A survey of important historical developments in France from 1648 to the present. It explores how complex historical legacies in French society define and shape the experience of "being French" and how different groups and citizens work with and against each other in a collective effort to define the early modern and modern French experience. Points of focus include economy, society, culture and religion, state, politics, and borders.

### HIST 310. American Business History. 3 credits.

A survey of the role of business in the United States from the Colonial period to the present, with emphasis on the entrepreneurial spirit, business developments, and innovations and the relationship between the federal government and commerce.

### HIST 311\*\*. China to 1600. 3 credits.

A survey of Chinese history from its earliest origins to the fall of the Ming Empire in the 17th century. The course incorporates translated primary materials and modern scholarship to provide a general picture of Chinese state formation, socio-economic changes, and literature and arts during the three

millennia. It will also discuss the teachings and intellectual impacts of Confucianism, Daoism, and Buddhism in East Asia through the ages.

**HIST 312\*\*.** *Japan Since 1600.* 3 credits.

A survey of Japanese history from the end of the Warring States Period to the present. It first introduces Tokugawa society in the 17th and 18th centuries and then examines the Meiji period in detail, focusing on political and cultural changes, the rise of ultra-nationalism, the military expansion before WWII, and the course of the war. The last part of the course will discuss the American occupation, postwar developments, and the last two decades in Japan.

**HIST 315.** *History of Sport.* 3 credits.

An interpretive study of the role of sports in America from the pre-contact period to the present, focusing on the development of professional, university and recreational athletic activities. Themes include gender, race, ethnicity, social class, environment and landscape, international relations, culture, and American idealism.

**HIST 316.** *The Life and Times of James Madison, 1751-1836.* 3 credits.

An overview of the major political, philosophical, social and literary events that helped shape the world of the founders. James Madison's life will provide the framework for the course and emphasis will be given to his important role during this era.

**HIST 320.** *Women in U.S. History.* 3 credits.

A survey of the role of women in the United States from the Colonial period to the present. Attention is given to contributions of the ordinary women, the Women's Rights movements, the impact of women on reform and political movements, and the changing status of women in society.

**HIST 321\*.** *European Women's History.* 3 credits.

A survey European women's history from the Enlightenment to the Modern Era. Attention will focus on women in England, France, Germany, Italy and Spain as well as the former Soviet Union. The course traces the birth of modern feminism in the European context and explores gender expectations, paying particular attention to women's entrance into the public, political world.

**HIST 322.** *The New South.* 3 credits.

An examination of major problems in the history of the American South after Reconstruction, beginning with debates over the nature of the "New South" itself. The course will emphasize cultural and social history; it also explores political and economic developments. *Prerequisite: HIST 225.*

**HIST 323.** *The Old South.* 3 credits.

Economic, cultural and social history of the antebellum South; 1790-1860. The region's political history will serve as a supporting part of the course.

**HIST 326.** *The Automobile in 20th Century America.* 3 credits.

This course uses the automobile as a window into 20th century American life. It examines the influence of automobility on patterns of work and leisure; on struggles over gender, race and ethnicity; on individualism, consumerism and government regulation. It also surveys mass automobility's effects on our physical and natural environments and looks at future prospects of automobility in the information age.

**HIST 327.** *Technology in America.* 3 credits.

A historical survey of the complex and changing relationship between technology and American society from Native American canoes to the Internet. Attention is given to technology's role in relations of power, in the home, on the farm, in the workplace and on the battlefield.

**HIST 330.** *U.S. Diplomatic History.* 3 credits.

A survey of major themes, events and forces shaping the development of American foreign relations throughout our history. Key documents such as the Monroe Doctrine will be examined, as will significant issues including manifest destiny, the United States as a world power, origins of Cold War and Detente.

**HIST/ANTH 331.** *Historical Archaeology.* 3 credits.

The course introduces students to the purposes, subject matter, methodology and historical background of the discipline of historical archaeology. Building on research issues and methodologies of anthropological archaeology and history, the multidisciplinary aspects of this field are introduced through field trips, projects, guest lectures, readings and classroom presentations. *Prerequisite: ANTH 197.*

**HIST 332\*.** *History of 20th Century Spain.* 3 credits.

This course will trace the twentieth-century political and social history of Spain including the Second Republic, the Spanish Civil War, the Franco regime, and the transition to democracy in 1975. The course will pay special attention to Franco's dictatorship, the role of women, the Catholic Church, as well as Spain's relationship to the rest of Europe.

**HIST/SOCI 338.** *U.S. Urban History.* 3 credits.

In this course students explore the history of urban spaces in the United States by investigating American cities using a broad chronological, geographical, and thematic framework. Drawing from an array of primary and secondary sources, students will become familiar with the central themes of urban history, and also have the opportunity to produce their own narratives.

**HIST 339.** *Selected Themes in U.S. History.* 3 credits.

Selected themes are studied in depth. See MyMadison for current classes. Course may be repeated when content changes.

**HIST 340.** *Internship in History.* 3 credits.

Provides students with practical experience in using historical skills in a public or private agency. Periodic student reports and seminars required. This course may be repeated with permission of department head. *Prerequisites: Junior or senior standing, HIST 395 and permission of the department head.*

**HIST 341.** *Selected Themes in World History.* 3 credits.

Selected themes are studied in depth. Course may be repeated when content changes. Only courses with significant content outside of Europe will count toward the world history requirement. See MyMadison and the history department website for information on current classes.

**HIST 350.** *Virginia.* 3 credits.

An interpretive survey of the history of Virginia from its Colonial beginnings to the present time.

**HIST 355.** *African-American History to 1865.* 3 credits.

A survey of the experience and changing status of African-Americans in the United States from 1619 through the Civil War, with attention to the West African background, cultural developments, social and political movements, slavery and the slave trade, dual-consciousness, and emancipation.

**HIST 356.** *African-American History Since 1865.* 3 credits.

A survey of the experience and changing status of African-Americans in the United States from Reconstruction to the present, emphasizing the strengthening of social and cultural institutions; Afro-American leadership; the impact of segregation; the Great Migration; labor, protest and cultural movements; pan-Africanism; the Civil Rights Movement; and contemporary issues.

**HIST 360.** *Research Apprenticeship in History.* 3 credits.

Provides students with advanced research and writing opportunities. Student learning contract must be approved before a student can enroll. Periodic student reports and seminars required. Open to history majors only. *Prerequisite: HIST 395.*

**HIST 361\*\*.** *Class and Ethnicity in Africa.* 3 credits.

An examination of the development of class and ethnicity in African societies. Attention is given to the pre-Colonial and Colonial periods, as well as to the effects of imperialism, development strategies and structural adjustment policies on class and ethnic relations in contemporary Africa.

**HIST/REL 362.** *Introduction to U.S. Religious History.* 3 credits.

The course introduces the religious history of the colonies and the United States, from native traditions through the 20th century. We examine the historical/social impact of groups ranging from Roman Catholic migrants to evangelical Protestants and Scientologists. Special attention is paid to the extraordinary and persistent levels of religious diversity and adherence throughout U.S. history.

**HIST 369\*.** *Greek History, 3000 BC-AD 267.* 3 credits.

Greek history covers the political, military, social, economic and intellectual history of the Greeks from the beginning of the Bronze Age ca 3000 BC until the Roman occupation of Greece. It ends with the sack of Roman Athens by the Heruli in AD 267. The course is a mixture of lectures and discussions of primary sources. Students will read all of the major Greek historians (Herodotus, Thucydides, Xenophon, Polybius).

**HIST 370.** *Byzantine Empire\*\*.* 3 credits.

A survey of the political, economic, military and religious history of the Byzantine Empire, 330-1453.

**HIST 371\*\*.** *India.* 3 credits.

A survey of the history of the Indian subcontinent from antiquity to the present. The course stresses the arrival of Islam, the impact of Western colonization, the struggle for independence, and the problems and achievements of nationhood in the post-Colonial era.

**HIST 372\*\*.** *Afghanistan in Regional and Global Systems.* 3 credits.

The country's Silk Road heritage, early Islamic experience, and frontier status between Safavid Iran and Mughal India introduce modern Afghanistan's origins within British Indian colonialism and global capitalism. Twentieth-century and contemporary Afghanistan are engaged through concepts of

modernity, nationalism, internationalization and local social and cultural resilience and adaptation.

**HIST 373. History of the Ottoman Empire, 1453-1922.** *3 credits.*

This course surveys the history of the Ottoman Empire from its roots in medieval Anatolia through its demise in World War One. We will examine the persons, events, institutions, and ideas associated with imperial state formation, military expansion, cultural elaboration, political reformism, and the evolution of modern identities.

**HIST 375\*\*. History of Modern Southeast Asia.** *3 credits.*

A survey of Southeast Asian history from the 16th century to the present. Particular attention is given to European and American colonization of the region, the impact of the Japanese occupation, and the achievement of independence.

**HIST 377\*\*. History of Korea.** *3 credits.*

A survey of Korean history from its earliest times to the present day. It is designed to develop an understanding in Korea, its historical tradition and the place of Korea in the larger narrative of East Asia and world history.

**HIST 378\*\*. China in the Modern World.** *3 credits.*

This course is an exploration of China's encounters with the modern world and the ways in which China has, and has not, changed as consequence of those encounters. Topics include the impacts of both Western and Japanese imperialisms; participation in international systems; adaptations of Christianity, democracy and communism; and the resulting upheavals in Chinese Society.

**HIST 379\*\*. Family and Gender in East Asia.** *3 credits.*

This is a survey focusing on the ways families have been defined and gender roles assigned in China, Korea, and Japan in pre-modern and modern times. Attention will be given to how the changing nature of family and gender have helped shape the historical evolution of these societies.

**HIST 381\*. Daily Life in Victorian England.** *3 credits.*

A social history of England from 1837 to 1901 examining the way people of all classes lived and worked. Emphasis will be on drawing evidence from primary sources.

**HIST 382\*. Europe in the 20th Century.** *3 credits.*

This course is a survey of European history covering the late-imperial era, the world wars, the Cold War and the dynamics of European integration. Emphasis will be given to political, social, economic and cultural developments. Upon completing the course, students will be able to demonstrate knowledge of major movements, figures and events in twentieth-century European history.

**HIST 383\*. Early England.** *3 credits.*

A survey of English history from the earliest times to the late 17th century. Particular attention is given to the rise of Parliament and the growth of limited monarchy.

**HIST 384\*. England and the Empire-Commonwealth.** *3 credits.*

A survey of English history from the late 17th century to the present. Particular attention is given to the growth of British democracy, the industrial revolution and the rise and fall of the British Empire.

**HIST 385\*. The Russian Empire to 1881.** *3 credits.*

This course covers one thousand years of Russian history, from the foundation of Kievan Rus' in 882 to the assassination of Tsar Alexander II in 1881. By taking empire as its overriding theme and pairing it with issues of religion, civil society, law, and gender, we will examine how the creation and growth of the Russian Empire affect the modern world. The course is structured around topical sessions that show the interweaving of these themes throughout the history of Tsarist Russia.

**HIST 386\*. Russia and the Soviet Union from 1881 to 1991.** *3 credits.*

This course surveys Russian and Soviet history from the late 19th century to the demise of the Soviet Union in 1991. Instead of providing a teleology of revolution and failure of the revolutionary experiment, this course offers an overview of Russian modern history that takes gender, generation, and family as its overriding themes and pairs them with issues of empire – in Tsarist as well as in Soviet Russia.

**HIST 388\*. Germany Since 1871.** *3 credits.*

A survey of German history during the Second Reich, World War I, the Weimar Republic, the Third Reich and the post-World War II periods of Cold War and Detente. Emphasis is given to political, diplomatic and military affairs, although social, economic and cultural developments are included.

**HIST 391. Travel Studies Seminar.** *3 credits.*

Designed to encourage the student to augment the regular academic program through independent investigation including organized travel-study. Prerequisites must be made with a designated faculty member who will

direct the study with preparatory instructions and final requirements. *Prerequisite: Permission of the department head.*

**HIST/ARTH 394. Introduction to Museum Work.** *3 credits.*

A study of the philosophy and practice of museum work including the areas of exhibit design, conservation registration, education and administration. Subject is taught from the perspective of the museum profession and is applicable to diverse disciplines and types of collections. *Prerequisites: HIST 395, instructor's permission required to waive HIST 395 prerequisite for non-history majors.*

**HIST 395. History Seminar.** *3 credits.*

A seminar to introduce history as an academic discipline and acquaint the student with the work of major historians and problems of historical interpretation. Students will be required to complete assignments designed to develop basic skills in historical research and writing. Open to all students, but required of history majors. Fulfills the College of Arts and Letters writing-intensive requirement for the major.

**HIST/ARTH 396. Introduction to Public History.** *3 credits.*

An introduction to the varied and interdisciplinary "field" of public history – such as community/local history, historic preservation, archives, historical archaeology, museum studies, business and policy history, documentary editing and publishing, and documentary films – through readings, class discussions, occasional guest speakers and occasional field trips.

**HIST 399. Special Studies in History.** *3 credits.*

Designed to give capable students in history an opportunity to complete independent study under faculty supervision. *Prerequisite: Permission of the department head.*

**HIST 402. Workshop in Colonial American Life.** *3 credits.*

A comparative study of life in colonial and Revolutionary America. Required field trips may include Jamestown, Colonial Williamsburg, Philadelphia, Charleston and Lancaster County, PA. Published sources, lectures, films and two multi-day field trips are used. Supplemental fee required. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 403. Workshop in Civil War Virginia.** *3 credits.*

This workshop examines the impact of the Civil War upon Virginia and its citizens. It explores the secession crisis, the revolution in firepower that forced changes in battlefield tactics and war aims, and the development of "hard war." A four-day battlefield tour will reinforce ideas discussed in the classroom. Supplemental fee required. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 404\*. Science and Society in Early Modern Europe.** *3 credits.*

Examines the connections between knowledge of the natural world and other aspects of European societies between 1500 and 1700. Topics may include the scientific revolution (Copernicus, Galileo and Newton); medicine, anatomy, and ideas of disease; exploration, commerce and natural history; technology and empire; alchemy, astrology, and the boundaries of science; and comparisons between science in Europe and in other areas of the world. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 405. Travel and Exploration.** *3 credits.*

This class is about travel and exploration in world history, using specific episodes to examine motives, consequences and the experience of travel. In studying long-distance trade, pilgrimages, voyages of exploration and discovery, and even tourism, we will look at the logistics of travel, attempts to map the world, and the difficulties people had in interpreting what they found. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST/ARTH 406. Monticello.** *3 credits.*

A seminar on the architecture and material culture of Thomas Jefferson's Monticello. The course will examine the house's design, artwork, decorative arts, mechanical devices, landscape/garden design and Mulberry Row. Topics will include African-American artisans at the Monticello joinery, Jefferson's Indian Hall, and European and African-American domestic life in the Federal Period. Required field trips. *Prerequisite: Permission of the instructor.*

**HIST 407. Digital History.** *3 credits.*

This course will provide an introduction to digital history. It explores some of the ways in which digital technologies can change how we research, write, document, exhibit, produce, and think about history. Students should not expect to become an expert in any single technology, but will develop a familiarity with a wide range of tools and applications and will have the chance to create their own digital history project.

**HIST/ARTH 408. The Museum: Histories and Controversies.** *3 credits.*

This seminar centers on art museums in the United States. Topics include the historical development of museums, related cultures of display, recent debates on institutional mission and responsibility, and contemporary artists who employ

the museum as medium, subject matter or site. Required field trips. *Prerequisite:* ARTH 206 or permission of the instructor.

**HIST 409\*\*.** Early Modern Atlantic History. 3 credits.

This course focuses on the history of the North and South American Atlantic World from the "Age of Exploration" to the "Age of Democratic Revolutions." It traces European exploration of and expansion into the South and later North Atlantic beginning in the fourteenth century, and concludes with the assertion of sovereignty and independence by European colonies throughout the extended Atlantic littoral.

**HIST 411.** Colonial and Revolutionary North America. 3 credits.

This seminar explores the history of North America from the 16th through the 18th centuries. Thematic emphasis will vary from semester to semester. *Prerequisite:* History major: HIST 395. Non-history majors: Instructor permission to waive HIST 395.

**HIST 413.** The Anglo-American Constitutional Tradition, 1603-1791. 3 credits.

Surveys Anglo-American political and constitutional traditions. Emphasizes the evolution of 17th- and 18th-century British constitutionalism, its transferal to the British North American colonies, and the development of the first national and state constitutions in the United States. *Prerequisites:* HIST 225 and HIST 395, or permission of the instructor.

**HIST 420.** U.S. History, 1763-1800. 3 credits.

An interpretive study of the political, economic, social and cultural history of the United States from the French and Indian War through the Federalist period. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 422.** U.S. History, 1789-1848. 3 credits.

An interpretive study of the political, economic, social, intellectual and cultural history of the United States from the ratification of the Constitution through the Mexican-American War. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 425.** Civil War and Reconstruction. 3 credits.

A study of the background, development, personalities and aftermath of the Civil War. Special attention is given to the coming of the war and different explanations of its causes and to the policies and significance of Reconstruction, with varying interpretations thereof. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 427.** U.S. Environmental History. 3 credits.

An interpretive study of the development of environmental thought in the United States. Emphasis is given to philosophies of nature, land and resource usage and conservation, the environmental movement and organizations, environmental activism and radicalism, landscape restoration, and environmental mitigation and protection. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 428.** American Workers in the Industrial Age, 1877-1948. 3 credits.

This seminar examines what contemporaries called the Labor Problem, from the strikes of 1877 to the accord between GM and the UAW in 1948. It explores the impact of industrialization, race and gender, consumerism, the New Deal and two world wars on the lives of American workers and their unions. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 430.** The Gilded Age: U.S. History, 1877-1901. 3 credits.

An interpretive study of the United States from the conclusion of the Civil War until the assassination of William McKinley with special emphasis on industrialization, urbanization, western and overseas expansion, early reform movements, and politics. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 431.** Reform, World War and Prosperity: U.S. History, 1901-1929. 3 credits.

An interpretive study of U.S. history from the rise of Theodore Roosevelt through the 1920s. Emphasis is placed on the reform movements of the period and the problems and issues generated by the nation's emergence as a world power and an industrial, urban society. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 432.** Depression, War and Cold War: U.S. History, 1929-1961. 3 credits.

An interpretive study of U.S. history from the onset of the Great Depression in 1929 through the inauguration of John Kennedy in 1961. Emphasis is given to the New Deal, World War II and the early years of the Cold War. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 433.** Reform, Upheaval and Reaction: U.S. History Since 1961-1980. 3 credits.

An interpretive study of U.S. history from the inauguration of John Kennedy in 1961 through the election of Ronald Reagan. Emphasis is given to the Kennedy-Johnson administrations, Vietnam, the counterculture and student movement, and Watergate and its aftermath. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 434.** Recent America. 3 credits.

An interpretive study of U.S. History from the Watergate era through the present. Emphasis is given to cultural, social, political, environmental, economic, educational and ethical issues, as well as considerations of indigenous peoples, foreign policy, activism and American idealism. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST/ANTH 436\*\*.** Afro-Latin America. 3 credits.

Latin America and the Caribbean were the first and largest parts of the Western Hemisphere to be populated by Africans. Afro-Latin America examines cultural formations Africans brought to these regions. Beginning with an overview of the slave trade, it examines the histories of Africans and African-descent people throughout Latin America, as well as contemporary Afro-Latin American culture(s). *Prerequisites:* One course in either Latin American or Africana studies (any discipline); upper-division status or permission of the instructor.

**HIST 437\*\*.** Latin America and Latin Americans through Film: Focus on the Twentieth Century. 3 credits.

This course will provide students with the tools they need to be skilled visual readers as well as to link national and international representations of Latin America to their appropriate historical, social, cultural and political contexts. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 438.** Workshop in Public and Local History. 3 credits.

Selected historical topics relating to the Shenandoah Valley and surrounding region are studied in depth. Students will undertake primary research and collaborate on final project. See MyMadison for current classes. *Prerequisite:* HIST 225.

**HIST 439.** Selected Topics in American History. 3 credits.

Selected topics are studied in depth. See MyMadison for current topic. Course may be repeated for credit when content changes. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 440.** The History Museum. 3 credits.

An exploration of the history, evolution, and function of history museums. Readings and discussions cover the history and genealogy of the modern museum; exhibits and the influence of other forms of display such as world's fairs and department stores; ethics, mission, and administration; collections management and conservation; education and interpretation; emerging technologies; historical memory and controversy in museums; the role of the community; and museums on a global stage. *Prerequisite:* HIST 395. Instructor's permission required to waive HIST 395 prerequisite for non-history majors.

**HIST/SCOM 441.** Oral History. 3 credits.

This course will explore the theory and practice of oral history. Through a series of readings, students will consider the many promises and challenges of the discipline, including issues related to memory, objectivity, ethics, the law, and technology. Students will also engage in an experiential learning exercise in which they collaborate to produce an oral history project. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 443.** Modern American Technology and Culture. 3 credits.

This seminar examines the sociotechnical history of twentieth century American. It employs several analytical frameworks to examine the complex relationship between social and technological change, casting particular attention on the mass production ethos, the social meanings of everyday household technologies, the nuclear age, the space age, countercultural technology and the high tech age. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 444\*\*.** Revolution and Social Change in Latin America. 3 credits.

This seminar will explore why revolutions were a major feature of the Latin American landscape throughout the modern era and how they contributed to changes in society. In a typical semester the course will explore the lives of leaders such as Che and Emiliano Zapata and investigate the causes and consequences of revolutionary actions in Cuba, Mexico and Nicaragua. *Prerequisite:* HIST 395 or permission of the instructor.

**HIST 445\*\*.** A Cultural History of Latin America, the Caribbean, and the United States. 3 credits.

An examination of the complex history shared between Latin America and the United States in the nineteenth and twentieth centuries. This class examines media representations, fiction, and diplomatic correspondence to understand the complex negotiations and exchanges that take place in the Americas. *Prerequisite:* HIST 395. Instructor's permission required to waive HIST 395 prerequisite for non-history majors.

**HIST 447\*\*.** South America. 3 credits.

An examination of nineteenth and twentieth-century South America by emphasizing recent historiographies of the region. The class draws from social

and cultural history to explore themes such as gender, race and ethnicity, nation-building, and historical memory. *Prerequisite: HIST 395. Instructor's permission required to waive HIST 395 prerequisite for non-history majors.*

**HIST 448\*\*.** *Gender in Latin America and the Iberian World.* 3 credits.

This course is designed to introduce students to critical issues, theories and methods of gender history through the study of the history of Latin America and the broader Iberian world. Students will study select peoples and cultures of Latin America and the Iberian Peninsula exploring how they lived and understood gender and sexuality during the pre-colonial, colonial and/or modern eras. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 449\*.** *Women and Fascism.* 3 credits.

This course offers a comparative understanding of fascism and women with a focus on Europe, including Nazi Germany, Fascist Italy and Francoist Spain. We will also discuss fascist movements and right-wing women in other European countries and in Latin America. The course will uncover the origins of fascism and the rise of the fascist party and the women's branch. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 450.** *Studies in Military History.* 3 credits.

A seminar addressing topics in U.S. or European military and naval history such as military operations, strategic theory, institutional evolution, the nature of modern war, technology and the warrior ethos, military-industrial-academic relations, and military ethics and the laws of war. *Prerequisite: HIST 300 or HIST 301 depending on seminar topic offered.*

**HIST 453\*\*.** *Patterns of Global History.* 3 credits.

This course introduces students to the literature, concepts, themes and methodology of global history, a subfield of history that seeks to compare experiences across regional, area, cultural and temporal boundaries, to look at cross-cultural interactions and to examine large-scale patterns that have shaped history on a global scale. *Prerequisites: HIST 101, HIST 102 and HIST 395.*

**HIST 455\*\*.** *World Political and Social Thought to Early Modern Times.* 3 credits.

A study of the most significant political and social ideas from around the world. Emphasis will be both on the classics and popular ideas from Western Asia, China, Greece, India, Rome, Japan and the developing states of Europe from ancient times through the 18th century. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 456\*\*.** *The Global Economy and Nationalism.* 3 credits.

An examination of the global economy's growth since the 14th century. The course investigates the emergence of capitalism, its relationship to modern nationalism, and the role that the concepts of development has played in the contemporary organization of nation-states from the perspective of world systems/dependency theory approaches. *Prerequisites: HIST 102 and HIST 395 or permission of the instructor.*

**HIST/POSC 457\*\*.** *Comparative Empires.* 3 credits.

Comparative empires is an examination of imperialism from 1450 to the present. Focusing on no less than four empires, the course will apply a variety of theoretical approaches in a series of case studies with at least one empire from the period of exploration and one from 1919 to the present. Students will employ approaches from history, political science, economics and geography as they search for a deeper understanding of each case study and the broader concept of empire. *Prerequisite: HIST 395 or permission of the instructor. Corequisite: MSSE 470H.*

**HIST 458\*.** *Modern European Intellectual History.* 3 credits.

This upper-level seminar considers major trends in philosophical, social and aesthetic thought in nineteenth- and twentieth-century Europe. Instead of merely surveying a series of ideas and thinkers, the course will trace the development of ideas across times and cultures by undertaking careful readings of key texts. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 460\*\*.** *Modern Japan.* 3 credits.

The development of Japan from around the mid-19th century to the present. Attention is given to the collapse of isolation, the end of the Shogunate, the creation of a modern state, the years of party government, the rise of militarism, the Pacific war, the occupation and the new Japan. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 461.** *Marxism.* 3 credits.

A study of the most significant ideas concerning politics, society, economics and philosophy, which shaped Communism and Marxist varieties of Socialism.

**HIST 462\*.** *The Rise and Fall of Nazi Germany, 1918-1945.* 3 credits.

An advanced study of the period of Nazi domination in Germany covering the Weimar Republic, the rise of the NSDAP, the Third Reich and World War II.

The nature of totalitarianism, the character of Adolph Hitler and the general Weltanschauung of Germany under the Third Reich are emphasized. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 463\*.** *Tudor-Stuart England.* 3 credits.

A study of the economic, intellectual, political and religious development of the English people from 1485 to 1714, with special attention to the constitutional struggles of the 17th century. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 464\*.** *Renaissance and Reformation.* 3 credits.

A study of High Medieval civilization as an introduction to the history of Modern Europe. Attention is given to the Italian and Northern Renaissance, fragmentation of Western Christendom, intellectual impact of Luther and Calvin on Western thought and structure of Tudor despotism in England. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 466\*.** *The Family, 1400-1800.* 3 credits.

An examination of the bibliography, methods and substance of family history in Europe and America. Emphasis will be on sources, structure, patterns of change and continuity and stages of family life to the Industrial Revolution. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 467\*.** *The Roman Republic.* 3 credits.

Covers the political, military, social, economic and intellectual history of the Roman Republic from the traditional date of its foundation to Octavian's victory over M. Antonius and the establishment of the Empire. The course is a mixture of lectures and discussions of primary sources. Students will read selections from important authors such as Livy, Sallust, Caesar and Cicero in addition to scholarly monographs. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 468\*.** *The Roman Empire.* 3 credits.

Covers the political, military, social, economic and intellectual history of the Roman Empire from its establishment ca 30 BC to the final division of the Empire into eastern and western halves in AD 395 at the death of Theodosius I. The course is a mixture of lectures and discussions of primary sources. Students will read selections from important authors such as Tacitus, Pliny the Younger, Cassius Dio and Ammianus Marcellinus in addition to scholarly monographs. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 469.** *A History of International Development in the Twentieth Century.* 3 credits.

This seminar considers major trends in the history of international development since World War II, focusing on American development theories, institutions, and programs but also considering case studies of aid programs worldwide. The course will trace the history of international development by undertaking careful readings and discussions of primary and secondary texts from a variety of disciplines, including history, economics, sociology, anthropology, and political science. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 470\*\*.** *Modern Africa.* 3 credits.

Africa in the 20th century, with special emphasis on Senegal, Ivory Coast, Gold Coast (Ghana), Nigeria and Zaire. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 473\*\*.** *Early Modern Islamic Empires.* 3 credits.

This seminar surveys and compares Islamic imperial formations from the 14th Century through World War I, focusing on the Ottoman, Safavid, and Mughal empires that flourished in the global age of early modernity. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 474\*.** *Stalinism in Theory, Practice and Memory.* 3 credits.

This course provides an introduction to Stalinism in the Soviet Union and Eastern Europe. It addresses socialist modernization from many angles – the corridors of the Kremlin, the peasant collective farms of Ukraine and Romania, the shop-floors in Moscow, and the streets of Tashkent. The course consists of three units: theories, practices and memories of Stalinism. Each unit explores various political, economic, social and cultural issues related to the Stalinist modernization drive. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 475\*.** *Modern Russia.* 3 credits.

A study of Russia from the 1917 Revolution to the present. Readings and discussion will emphasize significant political, economic, social and cultural developments. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 476.** *History of Disability in Postwar Europe, 1945-1991.* 3 credits

This course is an introduction to the history of disability in Europe from 1945 to the present. After WWII, European countries went through a phase of postwar reconstruction that required rebuilding economies, societies, and entire cities as well as individual bodies and psyches. In this course, we will

learn how governments with different political orientations treated their disabled citizens, conceptualized their rights, and devised specific social policies to protect them. *Prerequisites: HIST 395 or permission of the instructor.*

**HIST 477\*. Medieval Europe. 3 credits.**

Attention is focused on Europe in the Middle Ages, with a concentration on social and intellectual aspects and the development of parliamentary institutions. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 478.\* Eastern Europe. 3 credits.**

A study of the lands between Germany and Russia, from the Baltic to the Balkans. Emphasis is on the Hapsburg Empire and its successor states, the origins of the World Wars, the post-World War II communist governments and the cultural and intellectual contributions of the Eastern European people. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 482\*. French History Seminar. 3 credits.**

Broad introduction to a particular aspect of early modern, revolutionary or modern French history that is characterized by extensive historical debate. See instructor for thematic focus. Students develop knowledge of historical content and of the historiography/methodological approaches, conduct independent research and present findings in writing and in formal research colloquia. Students may repeat seminar for credit if topics differ. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 483\*. Baroque and Revolutionary Europe, 1648-1815. 3 credits.**

A study of the unfolding of European civilization from the Baroque through the Napoleonic era. Attention is given to the Old Regime and its institutions, the causes of popular revolts, the Enlightenment, the beginnings of industrialism and urbanism, and the impact of the French Revolution on Europe. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 484\*. Nineteenth-Century European Civilization, 1815-1914. 3 credits.**

An interpretive study of European history from the Congress of Vienna to the outbreak of World War I. Particular attention is given to the intellectual climate of the period, with emphasis on liberalism, nationalism, socialism and nihilism. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 485\*\*. Colonialism in the Middle East and South Asia. 3 credits.**

This course examines the cultural, intellectual and scientific dimensions of colonialism. Thematic foci include systems of imperial representation, particularly Orientalism, and linguistic, cartographic, archaeological and other social scientific transformations under colonial regimes of knowledge and power. Colonial knowledge production in nineteenth-century British India and Egypt, twentieth-century Palestine and Israel, and twenty first-century US and Afghanistan will be investigated.

**HIST 486\*. Europe Since 1914. 3 credits.**

An interpretive study of European history from World War I to the post-Cold War era, with special emphasis on the revolutions of 1917-1919, the rise of totalitarianism, the origins of World War II, the Cold War and the continuing crisis of values. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 487\*\*. World War II. 3 credits.**

An examination of the origins, conduct and immediate aftermath of World War II in Europe and Asia. Attention is given to Japan's Pacific War, Hitler's war in Europe and the ultimate victory of the Allies. The major military campaigns are discussed as are collaborations, resistance and the War Crimes Trials. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 488\*\*. The Holocaust in Global Context. 3 credits.**

Introduces students to the most significant accomplishments and debates of recent Holocaust scholarship, emphasizing how historical memory of the Holocaust has been created and has evolved over time. Analyzes the historical causes and development of the Holocaust, as well as its cultural, political and scholarly resonance in the post-1945 world. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 489\*\*. Selected Topics in World History. 3 credits.**

Selected topics are studied in depth. Course may be repeated when content changes. Only courses with significant content outside of Europe will count toward the world history requirement. See MyMadison and the history department website for information on current classes. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 490. Travel Studies Seminar. 3 credits.**

Designed to encourage the student to augment the regular academic program through independent investigation, including organized travel study. Prearrangements must be made with a designated faculty member who will

direct the study. Emphasis is placed on formal out-of-class writing. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 491. Editing Historical Documents. 3 credits.**

A seminar in the techniques of analyzing manuscript collections in order to create an edition of historical documents. Study will address the theory and practice of historical documentary editions, including collecting, selecting, transcribing, annotating, proofing, illustrating, indexing and publishing. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST/ANTH/ARTH 492. Material Culture. 3 credits.**

A broad introduction to the multidisciplinary "field" of material culture studies through readings, written assignments, in-class exercises and field trips. The course introduces ways of looking at and learning from objects and examines how scholars from several disciplines have used material culture in their work. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST/ARTH 493. Historic Preservation. 3 credits.**

An introduction to the philosophy and techniques of historic preservation, guidelines for restoration, state and national register forms and procedures, historic architecture, structural analysis, restoration techniques, as well as the business aspects of historic preservation projects. Field trips are a major component of the course. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST 495. Introduction to Archives and Manuscripts. 3 credits.**

An introduction to archives administration and the principles and practices of archival arrangement and description. Through targeted readings and leadership roles in discussion, as well as field trips and projects, students will explore topics in appraisal, acquisition, preservation, and intellectual and physical access, as well as contemporary ethical, legal and technological issues. *Prerequisite: HIST 395 or permission of the instructor.*

**HIST/ANTH 496. Research Thesis. 3 credits.**

Students will gather, analyze and interpret archaeological/historical data over two semesters. Students will work on a project that demonstrates theory, research design, data gathering and analysis, culminating in a written thesis. The course meets the capstone requirement for the historical archaeology minor but is also available to students in history and anthropology. *Prerequisite: Junior or senior standing.*

**HIST 498. Marshall Scholars Seminar. 3 credits.**

A research intensive seminar based on the manuscript collections and other primary sources of the Marshall Library. Students may choose any subject involving 20th-century diplomatic and military history and political affairs from 1900 to 1960 – the approximate dates of George C. Marshall's public service. *Prerequisites: HIST 395 and acceptance into the course prior to the beginning of the semester in which this course is taken.*

**HIST 499. Honors. 6 credits.**

Year course. *Prerequisite: HIST 395.*

## Honors

**HON 100. Honors First Year Seminar. 1 credit.**

As an introductory experience in the Honors College, students will be oriented to Honors activities and goals, high impact university learning practices, seminar requirements and areas of emphasis sequences, and leadership, service, and research opportunities. Students will examine their personal and educational goals and participate in ethical reflection that expresses itself in scholar-citizenship and community engagement.

**HON 200. Special Topics in Honors. 1-3 credits.**

Unique, interdisciplinary courses designed specifically for the Honors College. These courses explore a range of complex topics that deal with contemporary issues in society, multicultural and comparative studies, and advanced applications in business and the natural and social sciences. Seminars are designed to be flexible small classes that may reflect unique, sometimes experimental, styles of teaching. *Prerequisite: Enrollment in Track I or Track II of the Honors college.*

**HON 300. Advanced Special Topics in Honors. 1-3 credits.**

Unique, interdisciplinary courses designed specifically for the Honors College. These courses explore a range of complex topics that deal with contemporary issues in society, multicultural and comparative studies, and advanced applications in business and the natural and social sciences. Seminars are designed to be flexible small classes that may reflect unique, sometimes experimental, styles of teaching. HON 300 seminars are not recommended for first year students. *Prerequisite: Enrollment in Track I or Track II of the Honors College.*

**HON 321. Leadership I. 3 credits.**

This Honors Seminar is the first course within the Leadership Area of Emphasis. Students will be introduced to the meaning, study and practice of leadership through the examination and evaluation of leadership styles and behavior. Students will analyze the way in which leadership principles and practices have been and can be applied to their lives. Through this study, students will develop their own personal leadership potential.

**HON 322. Leadership II. 3 credits.**

This Honors Seminar offers a variety of individualized and/or small group experiential learning opportunities in association with the Leadership Area of Emphasis. *Prerequisite:* HON 321.

**HON 323. Leadership III. 1-3 credits.**

This practicum course offers an intense independent study opportunity for students to work one-on-one or in small groups with faculty mentors on a project of their design. The specifics of these offerings will be designed by faculty mentors and the Area of Emphasis Honors student(s). Objectives, goals and deliverables should be an extension and follow-up to activities associated with an experiential Areas of Emphasis course. *Prerequisites:* HON 321 and HON 322.

**HON 331. Global Studies I. 3 credits.**

This Honors Seminar is the first course within the Global Studies Area of Emphasis. We will examine how people study and perceive similarities, differences and interdependencies among human societies through the exploration of social sciences, arts, humanities, health, education, environmental and developmental studies. Course components will promote global citizenship through discussion, the introduction of new concepts and critical thinking related to current issues and case studies.

**HON 332. Global Studies II. 3 credits.**

This Honors Seminar offers a variety of individualized and/or small group experiential learning opportunities in association with the Global Studies Area of Emphasis. *Prerequisite:* HON 331.

**HON 333. Global Studies III. 1-3 credits.**

This practicum course offers an intense independent study opportunity for students to work one-on-one or in small groups with faculty mentors on a project of their design. The specifics of these offerings will be designed by faculty mentors and the Area of Emphasis Honors student(s). Objectives, goals and deliverables should be an extension and follow-up to activities associated with an experiential Areas of Emphasis course. *Prerequisites:* HON 331 and 332.

**HON 341. Scientific Research I. 3 credits.**

This Honors Seminar is the first in the Research Area of Emphasis series. The course is designed as an introduction to the nature of scientific inquiry and what it means to be a research scientist and effective communicator. Course objectives will be met through the collective investigation of a "big" problem and the professional communication of the resulting findings. In doing so, students will gain scientific literacy skills to support future research efforts.

**HON 342. Scientific Research II. 3 credits.**

This Honors Seminar offers a variety of individualized and/or small group experiential learning opportunities in association with the Research Area of Emphasis. *Prerequisite:* HON 341.

**HON 343. Scientific Research III. 1-3 credits.**

Practicum courses offer an intense independent study opportunity for students to work one-on-one, or in small groups, with faculty mentors on a project of their design. The specifics of these offerings will be designed by faculty mentors and the Area of Emphasis Honors student(s). Objectives, goals and deliverables should be an extension and follow-up to activities associated with an experiential Areas of Emphasis course. *Prerequisites:* HON 341 and HON 342.

**HON 351. Service I. 3 credits.**

This Honors Seminar is the first course within the Service Area of Emphasis. Engaged citizens make differences in the quality of life in local, national and global communities. Upon studying a wide spectrum of contemporary issues, engaged citizens take action. This seminar provides opportunities for students to combine their intellectual pursuits with civic engagement and discourse, thereby empowering them to become engaged participants in tomorrow's global society.

**HON 352. Service II. 3 credits.**

This Honors Seminar offers a variety of individualized and/or small group experiential learning opportunities in association with the Service Area of Emphasis. *Prerequisite:* HON 351.

**HON 353. Service III. 1-3 credits.**

This practicum course offers an intense independent study opportunity for students to work one-on-one, or in small groups, with faculty mentors on a project of their design. The specifics of these offerings will be designed by faculty mentors and the Area of Emphasis Honors student(s). Objectives, goals and

deliverables should be an extension and follow-up to activities associated with an experiential Areas of Emphasis course. *Prerequisites:* HON 351 and HON 352.

**HON 361. Creativity I. 3 credits.**

The course explores basic concepts of creativity across the disciplines and cultures. Course content includes the study and analysis of creative expression, the application of theories and conceptual frameworks, and the various modes of creative cognition.

**HON 362. Creativity II. 3 credits.**

This Honors Seminar offers a variety of individualized and/or small group experiential learning opportunities in association with the Creativity Area of Emphasis. *Prerequisite:* HON 361.

**HON 363. Creativity III. 1-3 credits.**

This practicum course offers an intense independent study opportunity for students to work one-on-one or in small groups with faculty mentors on a project of their design. The specifics of these offerings will be designed by faculty mentors and the Area of Emphasis Honors student(s). Objectives, goals and deliverables should be an extension and follow-up to activities associated with an experiential Areas of Emphasis course. *Prerequisites:* HON 361 and HON 362.

**HON 450. Honors Independent Study. 0 credits.**

This course provides an opportunity to support summer immersion experiences for Honors students. *Prerequisite:* Permission of the Honors Program Dean.

**HON 499 A, B, C. Honors Senior Project. 1, 3 or 2 credits.**

This is a three semester course, offered as parts A, B and C for one, three and two credits per semester, respectively. Enrollment is restricted to those honors students (Track I, II or III) whose senior projects are not discipline specific. This could include certain collaborative projects or experientially-based projects. *Prerequisite:* Permission of the Honors Program Dean.

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## Hospitality Management

**HM/SRM 201. Foundations of Hospitality, Sport and Recreation Management. 3 credits.**

An introduction to the basis for the professions that make up the School of Hospitality, Sport and Recreation Management. A focus on these professions in governmental, voluntary, private and commercial settings is incorporated. Both the economical significance and the professional preparation for success in the industry is both introduced and practiced. *Prerequisite:* HM or SRM major or permission of director.

**HM/SRM 202. Foundations of Leadership in Hospitality, Sport and Recreation Management. 3 credits.**

An introduction to leadership in the Hospitality, Sport and Recreation Management (HSRM) industry. The primary focus will be leadership theory, skill application with a focus on personal awareness. *Prerequisite:* HM or SRM major or permission of director.

**HM/SRM 203. Foundations of Ethics and Law in Hospitality, Sport and Recreation Management. 3 credits.**

An introduction to ethics and law within the sport, hospitality and recreation industry. The ethical portion introduces students to select theories of ethics, ethical issues and an ethical decision making model; and the legal portion introduces students to basic legal terminology and concepts while concentrating on negligence and employment issues. *Prerequisite:* HM or SRM major or permission of director.

**HM 211. Overview of Hospitality and Tourism Management. 3 credits.**

Exposes students to the areas of lodging, food and beverage, tourism and entertainment management, special events and meeting planning, and club and resort management. Emphasis is on hospitality industry scope, organization and economic impact; includes familiarization with industry terminology and individual and business contributors to the field of hospitality and tourism management. *Prerequisite:* HM major or permission of director.

**HM 212. Hospitality Prowess. 3 credits.**

An applied hospitality course consisting of experiential exercises followed by class discussion along with actual work experience as an employee within the hospitality field. Role playing and cases are used as learning activities where the instructor acts as a facilitator to learning. Debriefing is used extensively as a way of creating essential theory. Students must successfully complete ServSafe Food Protection Manager Certification. Lab Fee for ServSafe. *Prerequisite:* HM major or permission of director.

**HM 298. Special Studies in Hospitality Management. 3 credits.**

A special studies course designed to explore areas of current topical concern in the lodging, food and beverage, travel and tourism, and entertainment industries. Course content will vary. *Prerequisite:* HM major or permission of director.

**HM 310. Practical Work Experience.** 0 credit.

Required 600 hours of approved hospitality and tourism work experience. Credit/no credit only. All work sites must be approved. *Prerequisites:* Minimum of 45 credit hours complete, HM 201, HM 202, HM 203, HM 211 and HM 212. *Corequisite:* HM 312.

**HM 311. Hotel Operations and Hospitality Technology.** 3 credits.

An in-depth look at a full service hotel through the eyes of a general manager. The course will focus on operations, engineering, housekeeping, uniformed services, front office, reservations and revenue management. Different hospitality technology platforms and software programs will be used to expose students to hospitality technology. *Prerequisites:* Minimum of 45 credit hours complete, HM 201, HM 202, HM 203, HM 211 and HM 212.

**HM 312. Culinary Arts and Menu Management.** 3 credits.

An application of basic food preparation and menu development. Focus is on preparing students to understand gastronomy and communicate with culinary professionals. This course includes development of effective menus, plate presentation, preparation methods, flavor development and food service trends. Lab fee applies. Uniform required. *Prerequisites:* Minimum of 45 credit hours complete, HM 201, HM 202, HM 203, HM 211 and HM 212, and *ServSafe certified or equivalent or permission of director.* *Corequisite:* HM 310.

**HM 316. Country Club Management.** 3 credits.

An application of business concepts to the private equity club and full service resort industry. Industry cases are used to facilitate discussion of similarities and differences among private equity clubs, full service resorts and other hospitality business in the areas of culture, asset management and operations. *Prerequisites:* Minimum of 45 credit hours complete, HM 201, HM 202, HM 203, HM 211 and HM 212.

**HM 317. Introduction to Event Management.** 3 credits.

Course designed to explore conferences, conventions, expositions, meetings and special events as they relate to the responsibilities of a planner, selection criteria for host venues, legal and ethical issues, negotiating process, program design, budgeting, contracts, marketing, logistics and evaluation. Practical hands-on experience through projects may occur. *Prerequisite:* HM 310 and HM 312.

**HM 351. Cost Control and Budgeting.** 3 credits.

Introduction to cost control, budgeting and financial analysis as it relates to the hospitality industry. Students work as a team to create a detailed business plan. *Prerequisites:* Minimum of 45 credit hours complete, HM 201, HM 202, HM 203, HM 211 and HM 212.

**HM 361. Italian Culture and Wine.** 3 credits.

An introduction to the fundamentals of wine making, wine tasting and glossary of terms provide a framework for visual, olfactory and gustative analysis. The historical value of wine, together with its cultural, economic and social meaning in Italy, are explored. Course taught in Florence, Italy. Lab fee applies. *Prerequisite:* Student must be enrolled in JMU in Florence Program.

**HM 362. Italian Gastronomy.** 3 credits.

This course is designed to teach students the applied approach to match wine and food from different parts of the world using flavors, textures and components present in food and wine in complementing strategies. Emphasis will be placed on menu planning, cooking methods and tasting wines with food in a formal dining room. Course offered in Florence, Italy. Lab fee applies. *Prerequisite:* Student must be enrolled in JMU in Florence Program.

**HM 363. Italian Culinary Arts.** 3 credits.

An application of traditional and innovative Italian and European dishes are contrasted for flavors, colors and nutritive values giving participants the opportunity to see and taste the evolution of Italian cuisine and the ability to practice techniques for recipe development. Course taught in Florence, Italy. *Prerequisite:* Student must be enrolled in JMU in Florence Program.

**HM 402. Supervisory Hospitality Internship.** 3 credits.

Required 400 hours of approved hospitality supervisory experience. CR/NC only. All work sites must be pre-approved. *Prerequisite:* HM 310, HM 312 and a minimum of 72 credit hours earned.

**HM 411. Hospitality Law.** 3 credits.

The course focuses on the application of the law to the hospitality industry including rights and obligations of guests and lodging, food service, club, event management and association operators. The identification of potential legal problems and formulation of preventive measures to limit/prevent liability are emphasized. *Prerequisites:* HM 402 or permission of director.

**HM 414. Beverage Management and Marketing.** 3 credits.

The course is designed to enhance knowledge in the identification and evaluation of beverages typically served in hospitality establishments. Special attention is

given to alcoholic and non-alcoholic beverages with regard to price/quality relationships; channels of distribution and marketing; trends and current issues faced by the industry; and service ethics. *Prerequisite:* Must be 21 years of age or older and declared HM major, HM 402 or permission of director.

**HM 415. Entertainment Management.** 3 credits.

A senior capstone course designed to expose students to strategic issues concerning the entertainment industry. Course content will vary. Lab fee applies. *Prerequisite:* HM 402 or permission of director.

**HM 417. Advanced Event Management.** 3 credits.

This course examines event planning and management within a project management framework. The course is designed to provide hands-on experience in event planning. Students will work to plan and execute an event from start to finish with instructor oversight. Students will demonstrate, by executing an event, the core competencies required of a successful event manager. *Prerequisite:* HM 317, HM 402 and permission of instructor or director.

**HM 419. Napa and Sonoma Wine and Culture.** 3 credits.

Napa and Sonoma are the premier wine growing regions in the United States. The wines influence wines across the US and around the world. The ability to impressively learn about the wine, food, and culture that influence the region can only be fully accomplished by visiting. Students are able to visit wineries and speak with owners, visit growers and speak with the farmers, visit nurseries and discuss varietals. *Prerequisite:* HM major, 21 years old first day of class and permission of director.

**HM 421. Hospitality Ethics.** 3 credits.

Ethical issues and actions that have occurred, or are currently occurring, in the hospitality industry and examine them from multiple perspectives. Examining recent scandals, real-world scenarios, news stories, and common ethical dilemmas will enable a student to recognize an ethical dilemma, understand the components of the dilemma, and make an ethical decision. *Prerequisite:* HM 402 or permission of director.

**HM 422. Hospitality Human Resources Management.** 3 credits.

Identification and exploration of the information needs of the Hospitality manager in making policy and personnel decisions. Different philosophies and processes for locating, attracting, hiring and training a qualified staff are examined. Emphasis is placed on the work environment within the service industry. Employment law will be emphasized as a part of the course. *Prerequisite:* HM 402 or permission of director.

**HM 440. Hospitality Leadership.** 3 credits.

Management teams are required to produce an enjoyable evening composed of quality food and entertainment while staying within budget. Students complete a financial and operational analysis upon completion of their themed event. Senior assessment may also occur. *Prerequisite:* HM 402 or permission of director.

**HM 441. Hospitality Financial Management.** 3 credits.

An examination of common financial statements used by hospitality managers to make decisions regarding budgets and investment. Corporate financial models within the hospitality industry are explored, such as franchising, ownership and REITs. Appropriate software is used in the class. *Prerequisite:* HM 402 or permission of director.

**HM 442. Hospitality Seminar.** 3 credits.

A senior capstone course designed to assist in transitioning from being a university student to holding a leadership role within the hospitality industry. The interactive course draws upon the umbrella curricular goals of the hospitality management program in communication, ethics, finance and leadership. Senior assessment may also occur. *Prerequisites:* HM 311, HM 316, HM 317, HM 351 and HM 402.

**HM 490. Special Studies in Hospitality and Tourism Management.** 3 credits.

Designed to give capable students in hospitality and tourism management an opportunity to complete independent study under faculty supervision. *Prerequisite:* Permission of director.

**HM 498. Special Topics in Hospitality and Tourism Management.** 3 credits.

This course is designed to allow explorations of areas of current topical concern, or to exploit special situations. Course content will vary. For current course content, consult the adviser. *Prerequisite:* Permission of director.

**HM 499. Honors.** 6 credits.

Year course. See catalog section "Graduation with Honors." *Prerequisite:* Permission of the instructor or director.

## Human Resource Development

### HRD 100. Human Resource Development Leadership Laboratory. 2 credits.

Hands-on practicum of leadership strategies and techniques designed to give each student a better appreciation for the dynamics of leadership in intimate, physically challenging and stressful environments, both indoors and out. Students operate in teams which are formed and reorganized on a continuous basis, surrounded by peers at several levels of leadership experience and training. Collaborative learning is enhanced when students apply what they learn in class by describing relevant lessons learned through experiences outside the classroom. The focus of this course is to provide students with the opportunity to lead and follow in an observed setting and receive constant feedback and mentoring on their demonstrated leadership skills. Students learn through leading as well as through a critical reflection, inquiry, dialogue and group interaction. Everyone is responsible for contributing to the learning process.

### HRD 101. Introduction to Leadership. 1 credit.

An introduction to: various leadership styles and their effect on organizations; insights into the leader's roles and responsibilities within the context of the organization; character and values based leadership; basic leadership actions; the importance of self-improvement in the areas of time management, health and fitness, goal setting, academic accomplishment and communication; group dynamics; and the development of interpersonal skills. *Corequisite: HRD 100.*

### HRD 145. Leadership in a Diverse World. 3 credits.

This leadership course, focusing on diversity, examines leading, leadership and change while encouraging practical application. Students conduct research on leadership in a diverse world, explore change leadership from multiple perspectives and examine leadership in everyday settings, particularly daily leader and follower interaction. Self-assessment of diversity and leadership assumptions, models, context and themes are addressed.

### HRD 201. Leadership Styles Theory and Application. 2 credits.

Explores the dimensions of creative and innovative leadership strategies and styles by examining team dynamics and two historical leadership theories that form the basis of the leadership framework (trait and behavior theories). Students practice aspects of personal motivation and team building in the context of planning, executing and assessing team exercises and participating in leadership skills labs. Focus is on continued development of the knowledge of leadership values and attributes through an understanding of institutional structures, duties and responsibilities of organizational/institutional leaders, and leadership in small organizations. Case studies provide tangible context for learning leadership skills, values, actions and attributes as they apply to a contemporary setting. *Prerequisites: HRD 100, HRD 101. Corequisite: HRD 202.*

### HRD 202. Developing Leader Skills. 2 credits.

Examines the challenges of leading teams in a complex contemporary operating environment. This course highlights dimensions of leadership actions as well as developing an understanding of the process to develop plans and orders for others to execute. Continued study of the theoretical basis of the leadership framework explores the dynamics of adaptive leadership in the context of historical settings.

### HRD 240. Introduction to Human Resource Development. 3 credits.

An introduction to the role and scope of human resource development with particular emphasis on required competencies for HRD professionals. Critical moral and ethical issues are introduced. *Prerequisite: Must be declared HRD or educational media minor.*

### HRD 245. Leadership in Organizational Settings. 3 credits.

An examination of the principles of leadership and their application to group settings. Emphasis will be placed on the critical appraisal of the facets of leadership through the use of cases and readings. *Prerequisite: Must be declared HRD or educational media minor.*

### HRD 380. Performance and Task Analysis in Human Resource Development. 3 credits.

Provides the basic skill level for students in the area of performance analysis and subsequent assessment. Particular emphasis is placed on actual analysis and assessment situations with application to program and curricular design. *Prerequisites: Human resource development minor and HRD 240.*

### HRD 400. Human Resource Development Internship. 3 credits.

A structured internship experience designed to provide students with the opportunity to contribute within an actual work setting the role and scope of human resource development efforts. Minimum 400-hour experience approved by the program coordinator. Credit may not be earned for both HRD 400 and LTLE 401. *Prerequisite: Adviser permission required.*

### HRD 480. Learning in Adulthood. 3 credits.

A study of the learning processes of the adult learner with an emphasis on adaptations of the instructional process to accommodate the differences inherent in the adult learning environment. Practical applications to actual adult learning situations are included.

### HRD 485. Development of Materials and Programs. 3 credits.

This course is designed to provide students with the basic skills necessary to design and develop performance-based training programs and courses. Emphasis will be placed on the actual design and development of training materials. *Prerequisites: HRD 240, HRD 245, HRD 370 and HRD 380.*

## Humanitarian Affairs

### HUMN 201. Introduction to Humanitarian Affairs. 3 credits.

A geographical overview of poverty, armed conflict, hunger, disease, and natural disasters and how they can lead to humanitarian crises. It includes a study of human rights along with a look at international efforts to address, and international organizations that deal with, humanitarian crises.

### HUMN/GEOG 301. Introduction to Natural Disasters Response. 3 credits.

This course is designed to give students an overview of the various types of natural disasters; a look at the world regions that are most vulnerable to each type of disaster; and, a preview of disaster planning, management, relief and response as related to natural disasters.

### HUMN 302. Legal Issues in Humanitarian Affairs. 3 credits.

This course prepares students interested in humanitarian response with basic information on the legal issues of humanitarian law. It covers principles of domestic and international law relevant to the practice of humanitarian response, including international humanitarian law, the law of armed conflict, international human rights law, international criminal law and other legal topics relevant to humanitarian affairs practitioners. *Corequisite: Junior status.*

### HUMN 350. Special Topics in Humanitarian Affairs. 1-3 credits.

Focused, in-depth study of specific areas or subjects related to Humanitarian Affairs. Topics will provide background and skills important for humanitarian work. Can be repeated as course content changes. *Prerequisite: Permission of the minor coordinator.*

### HUMN/GEOG 360. GIS for Humanitarian Assistance. 3 credits.

In responding to humanitarian crises, governments and aid organizations must deploy aid workers, deliver essential services, set up temporary settlements, and distribute items such as water and food that are needed for survival. Spatial analysis and maps are critical to the success of these efforts. In this course, students learn the basics of Geographic Information Systems (GIS) for humanitarian assistance and learn how relief organizations use GIS in their work. *Prerequisite: GEOG 215.*

### HUMN 490. Humanitarian Affairs Field Experience. 3 credits.

The HUMN 490 course offers students an opportunity to gain experience and practical skills, preferably in an "international setting," either in the U.S. or abroad, and to apply knowledge and skills acquired through the Humanitarian Affairs program. This course must be completed in a setting approved by the student's adviser and the humanitarian affairs minor committee. *Prerequisites: HUMN 201 and junior status.*

## Inclusive Early Childhood Education

### IECE 300. Issues and Trends in Inclusive Early Childhood Education. 3 credits.

This course is designed to introduce students to the issues and trends in the education of all infants, toddlers and young children. It will provide the historical, philosophical, social and legal background for current practices in the field and will engage students in synthesizing and analyzing this information along with research as it pertains to professional practice. *Prerequisites: EXED 200, EDUC 300 and admission to teacher education pre-professional licensure program. Corequisites: IECE 301 and IECE 303.*

### IECE 301. Initial Field Experience in Inclusive Early Childhood Education. 1 credit.

This practicum supports IECE 300. Students will further their understanding of the issues and trends impacting young children and their families in our community and evaluate their own perspectives and skills as they pertain to working with young children and families from diverse backgrounds, with diverse abilities and in diverse settings. *Prerequisite: Admission to teacher education pre-professional licensure program. Corequisites: IECE 300 and IECE 303.*

### IECE 303. Development of Young Children Birth Through Age 8. 3 credits.

This course provides students with an understanding of the development of infants, toddlers, and young children with and without exceptionalities. Skills

for observing, recording and interpreting the behavior of the young child as a basis for adult intervention and guidance are developed. *Corequisites: IECE 300 and IECE 301.*

**IECE 321. Intermediate Field Experience in Inclusive Early Childhood Education.** *2 credits.*

This first intermediate field experience provides candidates opportunities to use their knowledge of child development to observe and assess children and then to plan meaningful learning environments and experiences for those children. *Corequisites: IECE 322 and IECE 324.*

**IECE 322. Teaching Young Children.** *3 credits.*

This course explores, analyzes, and evaluates curriculum and methodology related to the design and management of a nurturing, supportive, and challenging inclusive learning environment for children ages birth - 8 years. Emphasis is on the physical environment, design and selection of curricular components, the role of play in the curriculum, skills for professional intervention and interaction, and use of technology to facilitate young children's learning. *Corequisites: IECE 321 and IECE 324.*

**IECE 324. Assessment of the Young Child.** *3 credits.*

This course provides students with an understanding of the assessment of young children's development, ages birth to eight years, with and without exceptionalities. Students will be introduced to and apply informal and formal assessment to be used in decision making and educational planning and delivery.

**IECE 423. Intermediate Field Experience in IECE II.** *2 credits.*

This second intermediate field experience provides candidates opportunities to use their knowledge of child development and assessment to create learning environments and experiences for children. Candidates will learn more about the adult's role in supporting children and managing behavior.

**IECE 450. Contemporary Family Issues in Inclusive Education.** *3 credits.*

This course will examine how students' own cultural values shape their interactions with children and families as well as provide concrete, practical strategies for effective and culturally competent interactions with children and families. *Prerequisite: A "C" or better in IECE 324.*

**IECE 460. Instructional Practices in Numeracy.** *3 credits.*

This course provides students with the knowledge, skills, and understandings necessary to design and implement effective mathematics programs for young children, birth to age eight, with and without exceptionalities. Focus is on appropriate mathematical content, teaching strategies, and manipulative materials from a developmental perspective with special emphasis on adaptations designed to meet the needs of all children. *Prerequisites: IECE 420, IECE 421, IECE 422 and IECE 423. Corequisites: IECE 461, IECE 462, IECE 464 and IECE 466.*

**IECE 461. Advanced Field Experience in IECE.** *2 credits.*

The first advanced field experience provides candidates opportunities to use their knowledge of child development to plan meaningful learning experiences. Candidates will learn how the adult's role in supporting children to construct understandings about the natural and social sciences and to use mathematical thinking.

**IECE 462. Instructional Practices in Natural Sciences for Young Children.** *3 credits.*

This course provides students with the knowledge, skills and understandings to design and implement effective natural science programs for all young children, birth to age eight. Focus is on appropriate science content, teaching strategies and materials from a developmental perspective with a special emphasis on adaptations designed to meet the needs of children with disabilities. *Prerequisites: IECE 420, IECE 421, IECE 422 and IECE 423. Corequisites: IECE 460, IECE 461, IECE 464 and IECE 466.*

**IECE 464. Instructional Practices in Social Studies for Young Children.** *3 credits.*

This course provides students with the knowledge, skills and understandings to design and implement effective social studies programs for all young children, birth to age eight. Focus is on appropriate social studies content, teaching strategies, and materials from a developmental perspective designed to meet the needs of all young children. Students will use technology to support access to the learning environment and curriculum. *Prerequisites: IECE 420, IECE 421, IECE 422 and IECE 423. Corequisites: IECE 460, IECE 461, IECE 462, and IECE 466.*

**IECE 466. Managing Classrooms and Guiding Behavior.** *3 credits.*

This seminar examines research and professional literature on effective strategies for guiding young children's behavior and managing groups. IECE 466 uses experiences in IECE 461 as a foundation for reflection, dialogue and development of a personal philosophy of classroom

management. *Prerequisites: IECE 420, IECE 421, IECE 422 and IECE 423. Corequisites: IECE 460, IECE 461, IECE 462 and IECE 464.*

## Independent Scholars

**IND 200. Interdisciplinary Scholarship: Introduction to the Independent Scholars Major At JMU.** *3 credits.*

IND 200 is designed to introduce students to the Independent Scholars major, and to the concepts of interdisciplinary study. Students will explore interdisciplinary research in a range of contemporary areas of study, including scientific, environmental, political, social, and cultural perspectives. Students will also gain familiarity with the possibilities for individualized study at JMU. Successful completion of the course will involve the development of proposals for individualized curricula.

**IND 300. Independent Scholars Workshop.** *1 credit.*

IND 300 is a one-credit workshop course designed to provide students in the Independent Scholars major (ISM) with academic competencies and skills linked to major learning objectives across their curriculum, including independent research methods, preparing presentations, data visualization, working with teams, and enhancing intellectual creativity. *Prerequisite: IND 200.*

**IND 499. Independent Scholars Senior Project.** *1-6 credits.*

This is a three-semester course sequence involving independent research based on the student-designed curriculum, to be completed by all independent scholars majors. The course is offered as parts A, B and C for one, three, and two credits per semester, respectively. *Prerequisite: permission of the independent scholars directors.*

## Individualized Study

**IS 200. Individualized Studies Major Program Development.** *3 credits.*

An introductory course designed to prepare students for transition into higher education programs. Specific content includes focusing on a concentration, selecting an academic adviser, creating an individualized program, technology in higher education, accessing career resources, career decision making skills, self-awareness, life planning, identifying college level experiential learning, documenting experiential learning, determining a credit request and organizing a portfolio for assessment. *Prerequisites: Individualized studies majors and individualized studies special students only.*

**IS 203. Portfolio Development Workshop.** *1 credit.*

A short orientation course designed to prepare students for transition into higher learning education programs. Specific content includes identifying college-level experiential learning, documenting experiential learning, determining a credit request and organizing a portfolio for assessment. *Prerequisites: Individualized studies majors and individualized studies special students only.*

**IS 250. Service Learning.** *1-6 credits, repeatable to 6 credits.*

Leadership, citizenship and professional competencies may be acquired through community service experiences. Documented service learning competence will be assessed by the Community Service-Learning and credit awarded as appropriate. *Prerequisite: IS 200.*

**IS 270. Selected Topics.** *1-6 credits, repeatable.*

In-depth study of selected topics with current importance and interest to lower division students that are not otherwise covered in the regular course offerings of academic units. Course content will vary. *Prerequisite: Approval of the "Course Agreement Form" by the Individualized Study department head.*

**IS 290. Special Studies.** *1-6 credits, repeatable.*

Designed to give students an opportunity to do lower-division independent study in selected interdisciplinary areas under the supervision of a faculty member in the appropriate academic unit. *Prerequisite: Approval of the "Course Agreement Form" by the Individualized Study department head.*

**IS 300. Sponsored Learning.** *1-6 credits, repeatable.*

A structured learning activity related to a student's area of study and sponsored by an employer, volunteer agency or other appropriate organization. *Prerequisite: Approval of the "Course Agreement Form" by the Individualized Study department head.*

**IS 480. Cooperative Studies.** *1-6 credits, repeatable.*

Two or more upper-level students may elect to study cooperatively in a selected area of current importance and interest under the supervision of a faculty member in the appropriate academic unit. *Prerequisite: Approval of the "Course Agreement Form" by the Individualized Study department head.*

**IS 490. Special Studies.** *1-6 credits, repeatable.*

Designed to give students an opportunity to do upper-division independent study in selected interdisciplinary areas under the supervision of a faculty member in the appropriate academic unit.

**IS 498. Bachelor of Individualized Study Project.** *3-6 credits.*

An in-depth study of an interdisciplinary topic directly related to the student's areas of concentration. A final oral report is required. *Prerequisite:* Approval of the "Course Agreement Form" by the Individualized Study department head.

**IS 499. Honors.** *6 credits.*

Multiple-semester course. *Prerequisite:* Approval of the "Course Agreement Form" by the Individualized Study Department head.

## Industrial Design

All INDU courses are restricted to declared art, art history, graphic design, and architectural design majors during the fall and spring semesters. During May and summer sessions, INDU courses are open to all students who meet the additional stated course prerequisites. Non-majors wishing to enroll in an INDU course during the fall and spring semesters may request permission of the instructor.

**INDU 200. Introduction to Design.** *6 credits.*

This studio focuses on the design process through the creation of objects and interior spaces. Projects involve investigations into syntax and design language, program interpretation, materiality, ritual, use and the constructed order of built space. Emphasis is placed on experimentation, risk and play. Design projects will incorporate constructed drawings, sketching, diagramming, model-building and writing.

**INDU 202. Industrial Design Studio.** *6 credits.*

Industrial design studio builds on the fundamentals of INDU 200. Projects will address design thinking, research methods, user analysis, project definition and iterative process. Course work will further explore design sketching and drawing techniques, prototyping, collaboration, concept development and aesthetics. *Prerequisite:* INDU 200.

**INDU 208. Portfolio Review.** *0 credits.*

Portfolio review required to enroll in industrial design courses at upper division standing. May be repeated once for pass/fail standing. *Prerequisite:* INDU 200. *Prerequisite or corequisite:* INDU 202.

**INDU/ARCD 220. CAD: 3D Modeling.** *3 credits.*

This course will introduce students to principles used in 3D Cad and BIM modeling. Technologies to draw three dimensionally on the computer will be considered as a discipline within itself, and students will be instructed to use the machine for design exploration. Various software packages will be utilized during the semester.

**INDU 300. Product Design.** *6 credits.*

This course expands on foundations from INDU 200 and INDU 202 and emphasizes a research-driven design process as it applies to the design of objects, including commercial products, packaging design, furniture and more. Students will use quantitative and qualitative research methods and analyze market segments and/or users. *Prerequisite:* INDU 208.

**INDU 302. Transportation Studio.** *6 credits.*

Transportation studio emphasizes product and system design, stakeholder engagement, prototyping, and professional presentation as they relate to transportation design. Projects range from the micro to the macro scale (e.g. personal transportation to city and regional planning). The course stresses ergonomics and human factors, prototyping and research methods. *Prerequisite:* INDU 208.

**INDU 380. Materials and Processes.** *6 credits.*

Combination studio and lecture course introducing students to historic, contemporary and emerging materials and manufacturing processes used in the creation of mass manufactured goods. *Prerequisites:* INDU 208, senior standing and permission of the instructor.

**INDU 390. Independent Studies in Industrial Design.** *1-3 credits. Offering varies.*

Independent activity at the intermediate level, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with the consent of the instructor.

**INDU 392. Topics in Industrial Design.** *3 credits.*

Study of selected topics in art, art history, graphic design, interior design, or industrial design at the intermediate level. May be repeated when course content changes. See MyMadison for current topics.

**INDU 400. Systems and Services.** *6 credits.*

This studio course uses a systems based approach to problem solving. Students will design and test concepts and solutions that focus on interaction and experience. The course emphasizes problem framing, system and service prototyping, graphic design and illustration, user interaction/user experience and end-user engagement. *Prerequisite:* INDU 208.

**INDU 402. Social Innovation and Social Entrepreneurship.** *6 credits.*

This advanced studio explores design problems and solutions ranging from sanitation and poverty to environmental degradation and access to basic human services. Students will work individually and on teams to target specific areas of need and develop proposals to create products, systems and services to address those needs while generating revenue. *Prerequisite:* INDU 208.

**INDU 406. Senior Thesis Studio.** *6 credits.*

Industrial design students with senior standing submit a proposal focused on developing a semester-long studio project. *Prerequisite:* INDU 208, senior standing and permission of the instructor.

**INDU 490. Independent Studies Industrial Design.** *1-3 credits, repeatable. Offering varies.*

Independent activity, such as research or studio practice, under faculty supervision. Projected studies in any area of the school's offering must be arranged with the instructors who will direct them. Offered only with consent of the instructor.

**INDU 491. Studio Assistant.** *1-3 credits, repeatable. Offering varies.*

An on-campus program monitored on an individual basis designed to provide practical studio experience in the visual arts. Students will learn safe studio practices and management skills, including material use, inventory control and the proper operation of equipment found within various individual classroom studios. *Prerequisite:* Permission of the instructor.

**INDU 492. Topics in Industrial Design.** *3 credits. Offering varies.*

Study of selected topics in art, art history, graphic design, interior design or industrial design at the advanced level. May be repeated when course content changes. See MyMadison for current topics. *Prerequisite:* INDU 208.

**INDU 496. Internship in Industrial Design.** *1-8 credits.*

An off-campus program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. *Prerequisite:* Permission of the instructor.

## College of Integrated Science and Engineering

**CISE 481. Robotics Project Summary.** *1 credit.*

Students will reflect upon their experience gained in a prerequisite supervised robotics project course, a robotics internship, a robotics research project or an equivalent experience. Results will be disseminated to the academic community via a presentation, a report and/or other means. *Prerequisite:* Permission of the instructor.

## Integrated Science and Technology

**ISAT 100. Environmental and Energy Sustainability.** *3 credits.*

This course explores scientific and technical issues important to environmental and energy sustainability. Students study fundamental chemistry and physics and then apply this knowledge to better understand air quality, water quality, and conventional and alternative energy processes. The class also explores the societal impacts of our energy choices and the potential impact we as individuals can have through personal initiative. May be used for general education credit.

**ISAT 101. ISAT Freshman Seminar.** *1 credit.*

This seminar course will introduce the ISAT curriculum and career options to freshmen students and will describe how various elements of the curriculum and available ISAT elective sequences in each technology sector relate to the goals and objectives of the program. *Prerequisite:* Freshman standing at JMU.

**ISAT 112. Environmental Issues in Science and Technology (2, 2).** *4 credits.*

This course integrates the study of biology, chemistry and statistics within the context of environmental issues that include ozone depletion, acid rain, global warming, waste management and biodiversity. May be used for general education credit.

**ISAT 113. Biotechnology Issues in Science and Technology (2, 2).** *4 credits.*

This course introduces current topics in the life science technologies through lecture and laboratory exercises. Topics include advances in genetic engineering, the hierarchy of life and the rise of infectious diseases. May be used for general education credit.

**ISAT 113H. Biotechnology Issues in Science and Technology: Honors (2, 2). 4 credits.**

This course introduces current topics in the life science technologies through lecture and laboratory exercises. Topics include advances in genetic engineering, the hierarchy of life and the rise of infectious diseases. May be used for general education credit.

**ISAT 131. Technology, Science and Society (1, 2). 3 credits.**

This course introduces the social aspects of technology and science. It covers social science methods and related philosophical and ethical analyses. Students learn how the practice of science relates to the human-built world and why critical evaluations of science and technology policies are important.

**ISAT 150. Algebra Essentials. 1 credit.**

This course provides review and practice in algebra concepts that are needed to successfully complete ISAT 151. Various mathematical models, including trigonometric, are also reviewed. The course is designed for students who possess a basic understanding of algebra but are not proficient in its application. *Prerequisite: Permission of the instructor. Corequisites: ISAT 151 and permission of the instructor.*

**ISAT 151. Topics in Applied Calculus in ISAT. 4 credits.**

This course introduces the concepts of differential and integral calculus and ordinary differential equations to model real-world applications in science, business, technology and economics. This course includes a computer laboratory component emphasizing modeling and numerical methods. Course assumes familiarity with algebra and trigonometry. May be used for general education credit.

**ISAT 151L. Analytical Methods I: Applied Calculus Laboratory. 1 credit.**

This course is the computer laboratory portion of ISAT 151. Topics in Applied Calculus in ISAT. It is intended for students who already have AP credit or calculus lecture credit. Students will use numerical methods to solve mathematical modeling and calculus problems with Microsoft Excel. Students will study linear, polynomial, exponential, logarithmic, S-curve and trigonometric models in business and the physical and natural sciences. *Prerequisite: Permission of the instructor or academic unit head required.*

**ISAT 152. Topics in Applied Physics in Integrated Science and Technology. 4 credits.**

This course introduces topics in general physics including one- and two-dimensional motion, mechanics, energy, waves, electricity, magnetism, optics, lasers, and early quantum theory. Vectors, algebra, and differential and integral calculus, are used to model physical system behavior. Laboratory experiments and computer exercises enhance understanding of the concepts. *Prerequisite: ISAT 151 or permission of the instructor.*

**ISAT 160. Problem Solving Applications in Science and Technology. 3 credits.**

This course examines issues in modern science and technology as a means to introduce, develop and enhance critical thinking and problem solving skills. Current scientific and technological research and applications will be introduced to reinforce problem solving, instruction in systems thinking and critical inquiry. The course provides opportunities for using both oral and written communication in a variety of learning activities. May be used for general education credit.

**ISAT 165/BIO 203. Viral Discovery. 1 credit.**

This course is an exploratory laboratory experience, designed for incoming freshmen. In the course, the students will learn about the life cycle and ecology of viruses infecting bacteria. Soil samples will be collected, and techniques for isolation and purification of the viruses will be performed by the students. Isolated viruses will be visualized using electron microscopy. The genomic material will be isolated and prepared for nucleic acid sequencing.

**ISAT 166/BIO 204. Viral Genome and Bioinformatics. 2 credits.**

This is a computer-based laboratory experience, designed for those students completing the Viral Discovery course. Students will learn how to identify genes in a viral genome, compare the predicted proteins with known proteins in databases, describe the contents of the genome, and notate all the relevant information for publication. Students will also research the ecology of soil and the role played by bacteriophages in ecology and evolution. *Prerequisite: ISAT 165 or BIO 203.*

**ISAT 180. Topics in Integrated Science and Technology. 1-4 credits.**

Special topics in integrated science and technology which are of interest to the entry-level student. May be repeated for credit when course content changes. Students should consult the instructor prior to enrolling for the course. *Prerequisite: Permission of the instructor.*

**ISAT 181. Student Research Report. 1-6 credits, variable.**

Research project on a science and technology topic of interest, as arranged with a faculty research adviser. Projects will include an assessment of the non-technical issues that surround the technical problem.

**ISAT 203. Viral Discovery. 2 credits.**

An exploratory laboratory experience, designed for incoming freshmen. Students will learn about the life cycle and ecology of viruses infecting bacteria. Soil samples will be collected, and techniques for isolation and purification of the viruses will be performed by the students. Isolated viruses will be visualized using electron microscopy. The genomic material will be isolated and prepared for nucleic acid sequencing.

**ISAT 204. Viral Genome and Bioinformatics. 2 credits.**

A computer-based laboratory experience, designed for students completing the Viral Discovery course. Students will learn to identify genes in a viral genome, compare the predicted proteins with known proteins in databases, describe the contents of the genome and notate all the relevant information for publication. Students will also research the role of bacteriophages in ecology and evolution. *Prerequisite: ISAT 203 or BIO 203.*

**ISAT 211. Modern Production Issues in Science & Technology (2, 2). 3 credits.**

This course introduces the structure and function of a manufacturing enterprise and product design and process selection with emphasis on computer-based automation and integration technologies. Total Quality Management (TQM), statistical process control, principles of engineering drawings, and engineering economy will also be covered. *Prerequisite: ISAT 151 or consent of instructor.*

**ISAT 212. Energy Issues in Science and Technology (2, 2). 3 credits.**

Introduction to scientific and economic concepts relevant to energy. Concepts are taught within the context of three or four themes, e.g., residential energy efficiency, renewable energy sources, "make-or-buy" fossil energy application and space power systems. Themes may change from year to year reflecting contemporary issues and opportunities to link with industry and government agencies. *Prerequisite: ISAT 152 or consent of instructor.*

**ISAT 215. Issues in Telecommunications, Network and Security. 3 credits.**

This course introduces Telecom, Networking & Security concepts. Students learn how networked applications and services are designed, implemented and secured using wireless and wireline networks, network services and protocols. Examples of topics are Virtualization, Internet, Intrusion Detection & Prevention, Wireless Ethical Hacking, and Web Apps & Services. The course includes a lab component focusing on hands-on integration and troubleshooting of networked apps, network security methods and services. *Prerequisite: Sophomore standing or permission of the instructor.*

**ISAT 231. Political Economy of Technology and Science. 3 credits.**

Solutions to human problems are mediated by economic and political institutions, which in turn help to shape technology and science. The course covers basic political and economic concepts, institutions and processes as they relate to American and international science and technology.

**ISAT 251. Topics in Applied Statistics in ISAT. 3 credits.**

This course introduces statistical thinking - the discipline and methods for collecting, analyzing and interpreting data for making decisions, doing science and understanding our world. Topics covered include an introduction to data analysis methods, probability and chance, statistical reasoning and inference, and experimental design. The course includes a laboratory component emphasizing hands-on analysis of data taken from a variety of applications in ISAT. May be used for general education credit. *Prerequisite: Sophomore standing or permission of the instructor.*

**ISAT 252. Programming and Problem Solving (2, 2). 3 credits.**

Introduction to computational thinking and formal logic. Students create software to solve problems in applied science, business, and engineering taking social context into account. Programming paradigms include procedural, object-oriented, event-driven, and declarative. Emphasis is placed on effective analysis, planning, documentation, communication, and teamwork in professional software development settings. *Prerequisite: Sophomore standing or permission of the instructor.*

**ISAT 252K. Programming and Problem Solving: Knowledge Based Systems. 1 credit.**

Introduction to computational thinking and formal logic. Students create software to solve problems in applied science, business, and engineering taking social context into account. The declarative programming paradigm is covered. Emphasis is placed on effective analysis, planning, documentation, communication, and teamwork in professional software development settings.

**ISAT 253. Instrumentation and Measurement in ISAT (2, 2). 3 credits.**

Fundamental nature of measurement in the practice of science, how and why measurements are taken and representative instrumentation. Data collection in science (measuring physical properties and biometrics), statistical tools for analyzing data and visualization of data. *Prerequisite: ISAT 152 and ISAT 251.*

**ISAT 280. Projects in Integrated Science and Technology. 1-4 credits.**

Projects or special topics in integrated science and technology, which are of interest to the lower division student. May be repeated for credit when course content changes. Projects or topics selected may dictate prerequisites. Students should consult the instructor prior to enrolling for the course. *Prerequisite: Permission of the instructor.*

**ISAT 301. Instrumentation and Measurement in Energy (0, 2). 1 credit.**

Instrumentation is used to acquire data from representative systems that include mechanical, thermal, solar, chemical and nuclear energy. Students analyze the data to enhance understanding of these forms of energy. Energy transport processes are also characterized. Computer-based data acquisition is emphasized. *Prerequisites: ISAT 212 and ISAT 253 or permission of the instructor.*

**ISAT 302. Instrumentation and Measurement of the Environment (0, 2). 1 credit.**

Traditional and contemporary analytical laboratory and field techniques used in environmental quality monitoring are surveyed. Emphasis is placed on understanding the physical, chemical and biological basis of these techniques. Hands-on laboratory and field work will be emphasized, in addition to quality control/assurance of environmental data.

**ISAT 303. Instrumentation and Measurement in Engineering and Manufacturing (0, 2). 1 credit.**

Instrumentation is used to acquire data from representative systems that are relevant to modern manufacturing processes. Process control instrumentation is also studied. Topics include shop floor data collection, electronic sensors and actuators, pneumatics and hydraulics. Computer-based data acquisition is emphasized. *Prerequisites: ISAT 211 and ISAT 253 or permission of the instructor.*

**ISAT 305. Instrumentation and Measurement in Biotechnology (0, 2). 1 credit.**

This course provides a hands-on experience of the techniques and instrumentation used in the modern biotechnology laboratory. Topics include aseptic techniques for establishing microbial cultures, detection and analysis of recombinant DNA molecules, protein purification, SDS gel electrophoresis and the use of PCR technology for genetic analysis.

**ISAT 306. Instrumentation and Measurements in Data Communications and Networking. 1 credit.**

This is an introductory course on hands-on performance measurements of data, computer and telecommunications channel transmission techniques. The course includes a set of lab experiments focusing on the physical and data link layers of data communications and telecommunications networks. *Prerequisites: CIS/CS 320 and ISAT 152 or PHYS 250 or permission of instructor.*

**ISAT 310. Energy Fundamentals I. 3 credits.**

This course covers the integration of fundamental concepts from physics, chemistry, mathematics and engineering within the context of energy applications. Principles governing energy transformations, transport and conversion, including laws of thermodynamics, chemical and nuclear reactions and thermal science. *Prerequisite: ISAT 212 or consent of instructor.*

**ISAT 311. Role of Energy in Modern Society. 3 credits.**

This course covers the role of energy in the U.S. and world economies. Geology of energy-valued natural resources: size, quality and economics of domestic and world resource base. Models for energy use by different sectors. The role of energy in global climate change; other energy-related environmental concerns; and the implications for national and international security will be studied. *Prerequisite: ISAT 212 or consent of instructor.*

**ISAT 320. Fundamentals of Environmental Science and Technology I. 4 credits.**

This course provides the student with a basic understanding of environmental pollution, processes and control technologies. The course begins with a review and extension of the basic sciences supporting environmental science. Water and wastewater quality, management and treatment are then addressed, culminating in independent team projects in this area. *Prerequisite: ISAT 112 or permission of the instructor.*

**ISAT 321. Fundamentals of Environmental Science and Technology II. 3 credits.**

This course continues to build on the student's basic understanding of environmental pollution, processes and control technologies. The course considers solid and hazardous waste and its management, discusses the

principles of environmental risk assessment, and addresses air quality analysis and management, culminating in independent team projects in this area. *Prerequisite: ISAT 112 or permission of the instructor.*

**ISAT 330. Manufacturing Systems: Techniques and Technologies. 3 credits.**

The course will introduce students to the various manufacturing systems within a manufacturing organization. The systems studied will be selected from the following areas: (a) manufacturing/production management batch and continuous (b) resources utilization, (c) material management, and (d) scheduling and inventory control. *Prerequisites: ISAT 112 and ISAT 211 or permission of the instructor.*

**ISAT 331. Automation in Manufacturing. 3 credits.**

This course offers an in-depth treatment of the structure and function of computer integrated manufacturing processes; integration and automation in design and manufacturing; product and process design, computer-aided design and computer-aided manufacturing, process planning, robotics and flexible manufacturing systems; production planning and product data management. *Prerequisites: ISAT 151 and ISAT 211 or permission of the instructor.*

**ISAT 340. Software Development. 3 credits.**

This course is an introduction to the processes, methods and techniques of efficient and effective software application development. Students will create or enhance software systems in a sophisticated development environment. *Prerequisite: ISAT 252.*

**ISAT 341. Modeling and Simulation. 3 credits.**

The development and use of models to understand, analyze and improve systems in several areas of science and technology. Students will use computer simulation in a variety of modeling projects. *Prerequisites: Junior standing and ISAT 340 or CS 139 or permission of the instructor.*

**ISAT/CS 344. Intelligent Systems. 3 credits.**

In-depth introduction to current and future intelligent systems, including expert systems, neural networks, hybrid intelligent systems and other intelligent system technologies and their development, uses and limitations. *Prerequisites: CS 239, CS 159 or ISAT 340.*

**ISAT 345. The Software Industry. 3 credits.**

Study of means for the development and maintenance of high quality software products delivered on time and within budget. Topics include requirements analysis and specification, software design, implementation, testing, maintenance, project management, ethics and the responsibilities of software engineering professionals. *Prerequisites: CS 139, CS 149, or ISAT 340 with sophomore standing in the ISAT major.*

**ISAT 348. The Multimedia Industry. 3 credits.**

Students are introduced to a variety of tools for viewing multimedia and to the issues in designing effective human-computer interactions. This includes an introduction to the many forms of media that occur in computing systems (text, graphics, images, sound, animation) and to the characteristics of well-produced media. *Prerequisite: CS 139, ISAT 340 or permission of the instructor.*

**ISAT 350. Biotechnology for the New Millennium I. 3 credits.**

This course covers the scientific foundations and historical development of biotechnology. Specific topics include living system nanotechnology; cell structure and function; origins of genetic engineering; and recombinant DNA technology. *Prerequisite: ISAT 113 or equivalent.*

**ISAT 351. Biotechnology for the New Millennium II. 3 credits.**

This course is a continuation of ISAT 350 and describes applications of biotechnology in agriculture, industry and medical science as well as associated social, ethical and philosophical issues. Topics include study of an emerging infectious disease; energy transduction in living systems; and novel applications of biotechnology. *Prerequisite: ISAT 350.*

**ISAT 360. Introduction to Networking and Security. 3 credits.**

This course focuses on the underlying principles of networking and how these principles are utilized to provide efficient and secure networks in support of voice, data, video and mobility services and applications. Emphasis is also placed on understanding the network standards and protocols, network architectures, network security, network analysis/trouble shooting and network management issues and resolution/mitigation strategies. The course has a technology (hands-on) focus. *Prerequisite: ISAT 252 or CS 139 or CS 149 or permission of the instructor. Corequisite for CIS majors: CIS 304.*

**ISAT 361. Fundamentals of Data Communications and Networking II. 3 credits.**

The course is an introduction to data communications, telecommunications and networking. The focus is on the physical and data link layers. At the physical layer, it includes network models, data and signal rates, digital and analog transmission

(modulations), bandwidth utilization (multiplexing), switching (circuit, packet). At the data link layer, it includes error detection and correction, multiple access methods, LANs (wired, wireless, connecting), WANs (SONET, ATM, cellular, satellite). *Prerequisites: ISAT 360 or permission of the instructor.*

**ISAT 401. Advanced Computer-Based Instrumentation I.** 3 credits.

This is largely a laboratory course in which students build and program their own instruments. Topics include programming techniques for real-time instrumentation programming; buffered analog and digital input and output; timing considerations; passive analog filters and active analog filters; digital-filtering techniques; and real-time programming issues. *Prerequisites: ISAT 252 and ISAT 253 or permission of the instructor.*

**ISAT 402. Advanced Computer-Based Instrumentation II.** 3 credits.

Students design and build their own instruments. Topics include representative sensor techniques as applied to physical, chemical and biological systems as well as basic and advanced circuits for signal manipulation: buffers, amplifiers and active and passive filters. An instrument design project is the capstone of the course. *Prerequisites: ISAT 252 and ISAT 253 or permission of the instructor.*

**ISAT 406. Transmission Electron Microscopy.** 3 credits.

This practical laboratory course provides hands-on experience in the preparation and examination of biological specimens with the transmission electron microscope. Techniques to be mastered include support film preparation for negative staining of bacteria and viruses, fixation, embedding, and thin sectioning of tissues, electron optical alignment and microscope operation. *Prerequisite: ISAT 253 or permission of the instructor.*

**ISAT 410. Sustainable Energy Development.** 3 credits.

This course is concerned with science and the applications of solar and other renewable technologies, e.g., solar thermal electric, photovoltaics, wind power, biomass-derived alcohols, solar hydrogen and ocean thermal energy conversion Energy storage systems and materials, combined renewable-conventional systems for peaking and load management and alternative energy sources for transportation will be studied. *Prerequisite: ISAT 310 or permission of the instructor.*

**ISAT 411. Energy Economics and Policy.** 3 credits.

This course is concerned with methods for analyzing the economics, environmental and societal benefits of energy technologies. Topics include optimization techniques, utility planning and finance, cost-benefit techniques, discounting for time and risk, econometric models and input-output analysis. The role of government in determining energy costs supply and markets will be considered. *Prerequisite: ISAT 311 or permission of the instructor.*

**ISAT 412. Dynamic Control of Energy Systems.** 3 credits.

This course considers methods for developing dynamic models of energy processes and technologies to achieve improved process control and increased efficiency with applications of differential equations and discrete math equations. Dynamic models are used to evaluate load management strategies and to develop computer control algorithms for building energy systems. *Prerequisite: ISAT 310 or consent of instructor.*

**ISAT 413. Options for Energy Efficiency.** 3 credits.

This course makes detailed examination of new technologies to increase the efficiency of energy conversion, transportation systems and end-use technologies. Examples include MHD, combined-cycle systems, advanced nuclear reactors, intelligent transportation systems, high-efficiency lighting, energy management and utilization of low-temperature heat. Consideration is made of the socioeconomic and governmental barriers to energy efficiency. *Prerequisites: ISAT 310 and ISAT 311 or consent of instructor.*

**ISAT 414. Energy Fundamentals II.** 3 credits.

Introduction to the sciences of fluid mechanics and heat transfer and the physical laws governing the mechanical behavior of liquids and gasses. Conservation of mass, energy and momentum. Discussion of heat transfer by one-dimensional conduction, convection and radiation. Fluid statics, internal and external fluid flow. Pipe networks and heat exchanger analysis. *Prerequisite: ISAT 310 or permission of the instructor.*

**ISAT 416. International Energy Studies.** 3 credits.

Study-abroad course examining international energy problems and providing team-oriented project experiences. Addresses energy issues associated with economic and social development. Project participation, tours and meetings with local experts illustrate energy-related problems that are compared with those in the United States. *Prerequisites: ISAT 212 and ISAT 253.*

**ISAT 420. Environmental Analysis and Modeling.** 3 credits.

This course explores applications of mathematical techniques and computer models to the environmental field. The course introduces the principles

underlying environmental analysis and modeling, including limitations and pitfalls. Several environmental models and analytical systems are then discussed and applied, using a variety of computational platforms. *Prerequisite: ISAT 321 or permission of the instructor.*

**ISAT 421. Environmental Policy and Regulation.** 3 credits.

This course will familiarize students with basic environmental laws and regulations. The course discusses the purpose of environmental policy, the role of environmental economics in policy decisions and the policy instruments available to environmental regulators. Current federal and state statutes affecting waste disposal, air quality and water quality are discussed. *Corequisite: ISAT 321 or permission of the instructor.*

**ISAT 422. Industrial Environmental Management.** 3 credits.

This course addresses environmental issues faced by industry, including such topics as waste management, chemical inventories, pollution prevention and discharge permitting. Industrial ecology is introduced as an approach to the development of a sustainable industrial society, including treatment of life cycle analysis, design for environment, environmentally conscious manufacturing and ISO14000.

**ISAT 423. Environmental Remediation.** 3 credits.

This course will examine chemical, physical, economic and regulatory aspects of the remediation of contaminated soil and groundwater. Topics include chemical properties of major contaminants, environmental site assessment, remediation design, and current and emerging remediation technologies and their limitations in soil and groundwater restoration. *Prerequisites: ISAT 320 and ISAT 321 or permission of the instructor.*

**ISAT 424. Natural Resource Management.** 3 credits.

This course focuses on how resource management decisions affect the human and natural communities involved. Topics include definition and importance of natural resources, resource management styles and policies, and planning for resource conservation. Conservation biology is introduced as a tool for developing sustainable resource use policies. Mandatory weekend field trip. *Prerequisites: ISAT 320 and ISAT 321 or permission of the instructor.*

**ISAT 425. Environmental Hydrology.** 3 credits.

This course integrates the study of surface water and ground water hydrology and examines current technologies used to assess the behavior and quality of water in the environment. Topics include monitoring and management at the watershed level, the influence of wetlands on water quality, and the impact of current regulations. *Prerequisite: ISAT 320 or permission of the instructor.*

**ISAT 426. Environmental Information Systems.** 3 credits.

This course provides students with practical experience applying advanced environmental informational systems technologies to environmental problems. Students will employ such technologies as decision support systems, geographic information systems, expert systems, relational databases, multimedia systems, and modeling and simulation. This course is often offered in a study-abroad format. *Prerequisite: ISAT 320 or permission of the instructor.*

**ISAT 427. Industrial Hygiene.** 3 credits.

This course provides an introductory survey of the field of industrial hygiene. Chemical hazards are addressed first, focusing on respiratory and dermal exposures, followed by a treatment of physical hazards including sound, radiation and temperature. The course includes industrial case studies illustrating administrative and engineering controls in common use.

**ISAT 428. Industrial Ecology.** 3 credits.

Industrial ecology, the science of sustainability, seeks to encourage the development of a sustainable industrial society. This course introduces and examines this relatively new field of inquiry and practice. We address various practical topics which are associated with industrial ecology, including life cycle assessment, design for environment and environmentally conscious manufacturing.

**ISAT/GEOG 429. Sustainability: An Ecological Perspective.** 3 credits.

This course examines present global environmental impacts and efforts made to change production and consumption patterns toward those that reduce impact on ecosystems or promote increased ecosystems health. The focus lies in understanding the basic resources of productivity including soils, agricultural systems, agroforestry, forestry and aquatic environments and applying solutions on a personal and community level. *Prerequisite: ISAT 320 or permission of the instructor.*

**ISAT/MATS 430. Materials Science in Manufacturing.** 3 credits.

This course is the study of engineering materials used in the fabrication of products including metals, polymers, ceramics, composites and elastomers. Topics include physical, mechanical and electrical properties of materials,

elements of strength of materials, failure criteria and materials selection. *Prerequisite: ISAT 152 or permission of the instructor.*

**ISAT/MATS 431. Manufacturing Processes.** 3 credits.

This course provides an introduction to the processes used for fabricating parts, such as machining, grinding, and casting and sheet-metal fabrication, including both traditional and nontraditional processes. Topics include interaction of materials, processing and design, economics of manufacturing, design for improved processing. Manufacturing processes for metals, plastics and composites are addressed. *Prerequisite: ISAT 430 or permission of the instructor.*

**ISAT/MATS 432. Selection and Use of Engineering Materials.** 3 credits.

This course deals with the interplay between engineering product specification, design, economics, environment, energy, materials selection, fabrication route, manufacturing cost and product service requirements. Students will be taught how to perform design projects that involve understanding the behavior of materials and selection of materials for a specific function. *Prerequisite: ISAT 430 or permission of the instructor.*

**ISAT 433. Selected Problems in Manufacturing.** 3 credits.

This course addresses selected problems in manufacturing and their solutions. Materials, processes and systems will be stressed. Solutions may involve laboratory experiments and/or other analytical tools, such as modeling, system selection and evaluation, and process selection and improvement. Case studies and current projects from industry will be used. *Prerequisite: ISAT 330 or permission of the instructor.*

**ISAT 435. Integrated Product and Process Development.** 3 credits.

This course focuses on the integrated approach for developing products simultaneously with manufacturing processes. Students learn about successful product development techniques and effective organization of product development teams. Topics include design for manufacturing, design for the environment, rapid prototyping, economics of product development and managing of development projects. *Prerequisite: ISAT 331 or permission of the instructor.*

**ISAT/MATS 436. Micro-Nanofabrication and Applications.** 3 credits.

This course examines processes used in the manufacture of microelectronic devices (VLSI integrated circuits, optoelectronic devices, flat panel displays), microelectromechanical devices (micromotors, microactuators), data storage media (magnetic and optical disks, including CDs), optical fibers, and some sensors and transducers. Principles of operation of semiconductor and other devices are also studied. *Prerequisite: ISAT 253, PHYS 150, PHYS 250 or permission of the instructor.*

**ISAT 440. Seminar in Knowledge Management.** 3 credits.

Philosophical, ethical, social and political issues in information and knowledge management, the information and knowledge management industries and information and knowledge management systems. *Prerequisite: Senior standing.*

**ISAT/CS 447. Interaction Design.** 3 credits.

Study of and practice with processes, principles, tools, models and techniques for designing interactions between humans and digital products and systems. Topics include physiological and psychological factors affecting interaction design, interaction design processes, interaction models, styles, and paradigms, design notations and representations, prototyping and interaction design evaluation. *Prerequisite: Junior standing.*

**ISAT 450. Biotechnology and the Environment.** 3 credits.

This course will examine the impact of biotechnology on the environment, biotechnology solutions to environmental challenges as well as associated regulatory, ethical and legal issues. Topics include bioremediation, biosensors, release of engineered organisms and risk assessment. *Prerequisite: ISAT 320 or ISAT 350.*

**ISAT 451. Biotechnology in Industry and Agriculture.** 3 credits.

This course illustrates the applications of biotechnology in agriculture and industry, linking scientific discoveries to business and manufacturing practices. Topics include pharmaceutical product development, genetic engineering in agriculture, biotechnology in food processing and regulatory issues. *Prerequisites: ISAT 330, ISAT 350 or BIO 214.*

**ISAT 452. Medical Biotechnology.** 3 credits.

This course will survey the research development and implementation of select biomedical technologies, including genetic-based medical technologies, biomedical diagnostics, bioengineering at the macroscopic and microscopic levels, imaging technologies, lasers in medicine and relevant regulatory and legal issues. *Prerequisite: ISAT 351 or BIO 214 or permission of the instructor.*

**ISAT 453. Energy and Living Systems.** 3 credits.

The potential of living systems as alternative energy sources will be explored by describing energy production and transduction in living systems in the context of current and anticipated applications of biotechnology to energy production. *Prerequisite: ISAT 310 and ISAT 351 or BIO 214 or permission of the instructor.*

**ISAT 454. Computer Applications in Biotechnology.** 3 credits.

Students learn how complex biological molecules support and regulate processes in living systems, through building interactive computer models of protein and nucleic acid structure and function. The course requirements include written and oral presentations and creation of web pages. *Prerequisite: ISAT 351 or BIO 214 or permission of the instructor.*

**ISAT 455. Regulatory Issues in Biotechnology.** 3 credits.

This course examines the policies and guidelines of federal government agencies that regulate the use of recombinant DNA technology, genetically engineered organisms and the manufacturing of biotechnology products. Issues of product safety, product labeling, physical and biological containment, environmental release, and mammalian cloning are presented. *Prerequisite: ISAT 351 or BIO 214 permission of the instructor.*

**ISAT 456. Ethical, Legal and Social Implications of Biotechnology.** 3 credits.

The ethical, legal and social implications of the field of biotechnology and its applications are explored in this course. Students will analyze at an in-depth level the social impacts and ethical implications of human subjects and biological materials research, cloning, human genetic engineering and transgenic agricultural crops. *Prerequisites: ISAT 131 and ISAT 231 or BIO 260 or permission of the instructor.*

**ISAT 457. Business of Biotechnology.** 3 credits.

This course will discuss the business concepts behind the biotechnology industry. Specifically, students will learn how the industry was born, how product concepts arise and develop, how biotech products are developed and marketed, what factors lead to company success and/or failure, and what the role of intellectual property protection and regulatory issues play in the industry. *Prerequisite: ISAT 351 or permission of the instructor.*

**ISAT/IA 459. Awareness and Understanding of Chemical, Biological and Radiological Weapons of Mass Destruction.** 3 credits.

This course introduces awareness, science and societal impact of weapons of mass destruction (WMD) agents. Students study the development of vaccines and therapeutic and diagnostic drugs used in the detection and treatment of these agents. The course consists of lectures and safety training sessions that introduce tactical and logistical techniques used against chemical, biological and radiological WMD. *Prerequisite: Basic chemistry and/or biology.*

**ISAT 460. TCP/IP Networks.** 3 credits.

An overview of Local Area Network hardware, LAN topology and design, and LAN protocols. Includes installation and management of network operating systems and TCP/IP services (address management, name management, file and print sharing, account management). *Prerequisite: CS/CIS 320 or CS 350 or equivalent.*

**ISAT/CS 461. Internetworking.** 3 credits.

Wide Area Network (WAN) and Metropolitan Area Network (MAN) design. Audio, voice, data and TV transmission over ATM/B-ISDN networks. The SONET signal hierarchy and Q3 standard interface model. Network security. Performance analysis of a given network. *Prerequisite: ISAT/CS 460.*

**ISAT/CS 462. Network Applications Development.** 3 credits.

Design and implementation of network-based applications using languages and architectures such as sockets, JAVA, TL1 and CORBA. Concepts in distributed processing, including synchronization of interprocess communication and management of replicated data. Analysis of performance issues related to distributed applications. *Prerequisites: ISAT/CS 460 and either CS 159, CS 239 or CIS 344.*

**ISAT/CS 463. Network Analysis and Design.** 3 credits.

In-depth introduction to the techniques and tools used to design and analyze computer and telecommunications networks. Overview of issues related to network performance, including the impact on cost, reliability and security. *Prerequisites: ISAT/CS 460 and either CS 159, CS 239 or ISAT 340.*

**ISAT/CS 464. Telecommunications in the Public Interest.** 3 credits.

Examines the role of telecommunications in society, and the social institutions that facilitate and regulate telecom, including an analysis of the industry and the regulatory entities and other institutions that affect it. A primary focus of the course will be on the social values that shape the industry, the economics

of the industry, and on the regulation of telecom. *Prerequisite:* Junior standing or permission of the instructor.

**ISAT 465. Wireless Networking, Security and Forensics.** 3 credits.

An introduction to wireless networking and wireless LAN security and forensics. Radio frequency fundamentals are introduced with emphasis on applications and services. Hands-on network configurations and analysis tools for wireless LAN are introduced and exercised with emphasis on network performance, security and forensic applications. *Prerequisite:* ISAT 360 or CIS/CS 320 or equivalent.

**ISAT 471. Transportation: Energy, Environment and Society.** 3 credits.

This course provides an overview of transportation's role in energy demand, environmental change and economic development. Domestic and global transportation trends are compared and their impacts on fossil fuel consumption, air pollution, climate, ecosystems and social structure are analyzed. Contemporary technological, policy and behavioral solutions are critically examined with an emphasis on alternative fuels, advanced vehicle architectures and regulatory measures.

**ISAT 472. Transportation: Air Quality Modeling and Regulation.** 3 credits.

This course introduces transportation as a CLIOS (complex, large-scale, integrated, open system) that has bi-directional interactions with the social, political and economic aspects of society. Fundamental systems operation principles, institutions and regulations are explored with respect to environmental, energy, economic, land use and developmental issues. Building upon this foundation, students develop an understanding of regional planning and regulatory measures. They gain practical experience utilizing transportation and air quality models to quantify transportation impacts and to compare the effectiveness of various transportation control measures. *Prerequisite:* Junior standing.

**ISAT 473. Local Agriculture and Farm Internships.** 4 credits.

The objectives for this course include understanding local ecology and its impacts on farming, as well as how farming impacts local ecology; practicing diversified farming techniques; understanding how small-scale farms operate as businesses; examining localization and slow-food movements and recognizing the impacts of globalized or industrial food and fiber production; identifying the strengths and limitations of small-scale farming. *Prerequisite:* Permission of the instructor.

**ISAT 477. Complex Systems and How They Fail.** 3 credits.

Interdisciplinary study of complex system operation, interdependencies and failure focusing on real-world critical infrastructure systems (e.g. electric power, telecommunications and health). Systems response to natural and human-induced hazards, including cascading effects. Examination of risk management strategies including technical and policy solutions.

**ISAT 480. Selected Topics in Integrated Science and Technology.** 1-4 credits.

Topics in integrated science and technology which are of interest to the upper-division student but not otherwise covered in the regular course offerings. Offered only with the approval of the program coordinator. May be repeated for credit when course content changes. Students should consult the instructor prior to enrolling for the course. *Prerequisite:* Junior or senior standing required. *Topic selected may dictate prerequisite.*

**ISAT/WGS 485. Gender Studies in Science.** 3 credits.

An interdisciplinary course that looks at the scientific process, science practitioners and science students through the lens of gender analysis. Students read literature, lead discussions, perform experiments and analyze both data and processes to address the effects of educational systems on the preparation and careers of scientists, the influence of politics and culture on scientific inquiry, and the effects of critiques grounded in gender analyses on understanding the scientific process.

**ISAT 491. Senior Capstone Project I.** 1 credit.

First course in a three-course sequence. Student generates an idea for and writes a proposal for an independent or team-based research project. Student must identify and analyze a science- or technology-based problem (broadly defined), identify potential solutions, recommend an approach, and prepare a written proposal.

**ISAT 492. Senior Capstone Project II.** 2 credits.

Second course in a three-course sequence. Student performs the bulk of the research needed for an independent research project, either alone or within an investigative team, to address a technologically based problem.

**ISAT 493. Senior Capstone Project III.** 3 credits.

Third course in a three-course sequence. Student finishes the research and prepares an oral and a written report on the work (either alone or within an

investigative team), addressing a technologically based problem and developing alternative solutions.

**ISAT 495. Technology in our World: Better by Design.** 3 credits.

Students explore the importance of design in technology and engineering and contrast the design process with the scientific method. This includes evaluating functional requirements, ergonomics, usability, cost, risk and environmental impact. Students complete a design project integrating these factors to address a real-world problem. *Prerequisite:* Completion of IDLS core science course work.

**ISAT 499A. Senior Honors Thesis I.** 1 credit.

First course of a three-course sequence. Student generates an idea for and writes a proposal for an independent research project that meets the requirements set forth by the Honors program. Student must identify and analyze a science- or technology-based problem (broadly defined), identify potential solutions, recommend an approach, and prepare a written proposal. *Equivalent to ISAT 491 for ISAT department credit.*

**ISAT 499B. Senior Honors Thesis II.** 2 credits.

Second course in a three-course sequence. Student begins the research necessary for an independent research project that meets the requirements set forth by the Honors program. Student pursues the approach described in his or her proposal from ISAT 499A. *Fulfills same requirements as ISAT 492.*

**ISAT 499C. Senior Honors Thesis III.** 3 credits.

Third course in a three-course sequence. Student completes the research for and prepares an oral and written presentation of their results for an independent research project that meets the requirements set forth by the Honors program. Student completes and presents (in written and oral form) the project described in his or her proposal from ISAT 499A. *Fulfills same requirements as ISAT 493.*

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## Intelligence Analysis

**IA 200. Introduction to National Security Intelligence.** 3 credits.

Intelligence analysis is a complex, dynamic process that includes determining the intelligence needs, data collection, pre-processing, analysis and production of the customer's product. This is an introduction to the history, structure and practices of the national security intelligence community (IC). The course is team-oriented, project-based and grounded in the relevant legal and ethical context.

**IA 210. Introduction to Global Competitive Intelligence.** 3 credits.

This course will focus on global competitive intelligence (CI): the tools and methods that enhance strategic and tactical decision making in the analysis and interpretation of business data related to current and emerging competitors. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. Not open to students in the College of Business. *Prerequisites:* Grades of "C" or better in IA 200, IA 261 and ISAT 252. *Not open to students pursuing a major or minor in CIS. Not open to any major in the COB other than international business.*

**IA 240. Technology Applications in a Networked World.** 3 credits.

Students develop broad technical competencies of current and future technology applications, such as databases, spreadsheets and Internet-of-things. They explore technical-socio-ethical aspects of the cyber world. This hands-on and team-based course supports development of working technical knowledge for accessing, evaluating, modeling and analyzing information and data for problem solving. Students develop a systematic appreciation of computing, network and cyber security. *Prerequisite:* Sophomore standing as an IA major or permission of instructor.

**IA 241. Introduction to Programming and Data Science.** 3 credits.

The course introduces students to data analysis through computer programming. The course will focus on key elements from data science that are critical to the intelligence analyst such as manipulating, processing, cleaning and crunching data. The course will serve as a practical, modern introduction to scientific computing in Python, tailored for data-intensive applications. This course will introduce the Python language and libraries students need to effectively solve a broad set of data analysis problems. The course is hands-on and places emphasis on practical case studies with a broad scope of techniques useful for the data analyst. *Prerequisite:* IA 240.

**IA 261. Hypothesis Testing.** 3 credits.

Examines hypothesis testing in national, military, counter, and competitive intelligence. By comparing alternate theories in terms of their explanatory power and predictive success, students will learn the most relevant methods

for integrating facts into unified theories, assessing theories, and properly qualifying and reevaluating theories to compensate for risk and uncertainty.

**IA 280. Selected Project in Intelligence Analysis.** 3 credits.

This course will examine projects of interest to lower-division students in intelligence analysis not otherwise offered in regular course offerings. They are offered only with the approval of the program director and they may be repeated when course content changes. Students should consult with the instructor prior to enrolling in the course. *Prerequisite: Junior standing.*

**IA 312. Causal Analysis.** 3 credits.

Examines causal analysis in national, military, counter and competitive intelligence. By assessing a factor's amount and kind of efficacy, students will learn the most reliable methods for distinguishing between relevant/irrelevant events and factors, identifying and excluding "pseudo-causes," and anticipating higher order effects of a causal process. *Prerequisites: Grades of "C" or better in IA 200, IA 261 and ISAT 252.*

**IA 313. Counterfactual Reasoning.** 3 credits.

Examines counterfactual reasoning in national, military, counter and competitive intelligence. By analyzing alternate scenarios and their consequences, students will learn the most relevant methods for employing creative thinking in generating, developing, and assessing possibilities; substantiating "after-action" reports, and structuring futures analysis. *Prerequisite: IA 312.*

**IA/PHIL 314. Strategy Assessment (Rational Decision Theory).** 3 credits.

Examines strategy assessment in national, military, counter, and competitive intelligence. By applying probabilities and goals to potential threats and opportunities (short and long-term), students will learn the most relevant methods for formulating and evaluating possible courses of action, and projecting and explaining actions by assessing an agents' strategic interests and circumstances. *Prerequisite: IA 313.*

**IA 340. Data Mining, Modeling and Knowledge Discovery.** 3 credits.

Data mining is the nontrivial extraction of previously unknown and potentially useful information from (large) data sets to help explain current behaviors and anticipate future outcomes. Students will apply data mining and knowledge discovery methods to data sets from business, industry and government. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. *Prerequisites: Grades of "C" or better in ISAT 252, IA 200 and IA 261.*

**IA 341. System Dynamics Modeling, Simulation and Analysis.** 3 credits.

System dynamics analysis is a perspective and a set of conceptual and computing tools to help us understand the structure and dynamics of complex systems. This course will apply system dynamics analysis to complex systems (problems) that involve the interplay of physical and social-political factors. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. *Prerequisite: IA 312.*

**IA 342. Visualization Methods, Technologies and Tools for Intelligence Analysis.** 3 credits.

Data visualization presents laboratory or simulation data or the results from sensors out in the field in a way that aids reasoning about and hypothesis building in complex data sets. This course will apply data visualization technologies and tools to timely data sets from business, industry and government. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. *Prerequisites: ISAT 251 and ISAT 252.*

**IA/REL 363. Apocalypticism, Religious Terrorism and Peace.** 3 credits.

This course traces apocalypticism from its ancient Jewish and Christian roots to its contemporary manifestations in religious groups around the world. Since apocalypticism is a worldview that cuts across religious traditions, the course covers a variety of religious groups. The last half of the course focuses on the complex relationships between apocalyptic thinking and religious terrorism and entails an independent research project.

**IA 400. Cognitive Science and Intelligence Analysis.** 3 credits.

Cognitive science examines a wide range of mind/brain processes, including thinking, learning, language acquisition, pattern recognition, memory, creativity, volition, etc. This course will take an information processing systems approach to study cognitive processes that comprise intelligence analysis. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. *Prerequisite: IA 314.*

**IA 405. Ethics, Law and Intelligence Analysis.** 3 credits.

This course will examine ethical and legal issues raised in the practice of intelligence analysis. It will draw on philosophical ethical theories and reasoning to explicate the issues addressed, and will explore the relevant constitutional and other legal constraints on the practice of intelligence

analysis, particularly issues of information privacy, civil liberties and limitations on government action. *Prerequisite: IA 314.*

**IA 440. Seminar on Issues in Intelligence Analysis.** 3 credits.

This course will focus on important issues in the theory and practice of intelligence analysis as the basis for implementing team projects in the IA Capstone Seminar. Students will individually identify, analyze, plan and report on a feasible capstone seminar project. Students will then organize teams and develop plans to complete a subset of the most promising projects in the Capstone Seminar. *Prerequisites: Senior standing in the IA program and IA 314.*

**IA 450. Capstone Project in Intelligence Analysis.** 3 credits.

Building on the Seminar on Issues in Intelligence Analysis students will complete and present solutions for team-based intelligence community or competitive intelligence IA projects. Students will produce written and oral technical reports/briefs of their results. *Prerequisite: IA 440.*

**IA 459/ISAT 459. Awareness and Understanding of Chemical, Biological and Radiological Weapons of Mass Destruction.** 3 credits.

This course introduces awareness, science and societal impact of weapons of mass destruction (WMD) agents. Students study the development of vaccines and therapeutic and diagnostic drugs used in the detection and treatment of these agents. The course consists of lectures and safety training sessions that introduce tactical and logistical techniques used against chemical, biological and radiological WMD. *Prerequisite: Basic chemistry and/or biology.*

**IA 460. All Hazards Response And Management Systems.** 3 credits.

Incident Command Systems enables incident management by integration of facilities, equipment, personnel, procedures, and communications operating in a common organizational structure. ICS is used to organize near and long-term operations for a spectrum of emergencies, small to complex incidents, natural and man-made. ICS is used by government, many private and nongovernmental organizations in 5 major functional areas: command, operations, planning, logistics, and finance and administration.

**IA 480. Selected Topics in Intelligence Analysis.** 3 credits.

This course will examine topics of interest to upper-division students in intelligence analysis not otherwise offered in regular course offerings. They are offered only with the approval of the program director and they may be repeated when course content changes. Students should consult with the instructor prior to enrolling in the course. *Prerequisites: Junior standing.*

**IA 499A. Honors Thesis I.** 1 credit. Spring only.

This is an honors thesis proposal course. It is the first of the three-course sequence intended to satisfy the requirements for the honors program as well as the Intelligence Analysis program. Students will develop a thesis proposal, including objectives, audience, literature review, timeline and deliverables. The goal of the course is for the student to develop a compelling and complete senior thesis proposal. *Prerequisite: Junior standing; must be in the honors program.*

**IA 499B. Honors Thesis II.** 3 credits. Fall only.

This is an honors thesis development course. It is the second of the three-course sequence intended to satisfy the requirements for the honors program as well as the Intelligence Analysis program. Most of the course will be jointly administered/taught with IA 440: Senior Seminar in Intelligence Analysis. In addition, students may be required to meet with the instructor to discuss progress on his or her project. *Prerequisite: Senior standing; must be in the honors program.*

**IA 499C. Honors Thesis III.** 3 credits. Spring only.

This is an honors thesis completion course. It is the third of the three-course sequence intended to satisfy the requirements for the honors program as well as the Intelligence Analysis program. Most of the course will be jointly administered/taught with IA 450: Capstone Project in Intelligence Analysis. In addition, students may be required to meet with the instructor to discuss progress on his or her project. *Prerequisite: Senior standing; must be in the honors program.*

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## Interdisciplinary Liberal Studies

**IDLS 350. Literacy and Society.** 3 credits.

An exploration and analysis of societal literacy practices as viewed through cognitive, cultural, class, workplace and technological lenses. *Prerequisite: WRTC 103 or equivalent.*

**IDLS 391. Study Abroad.** 1-6 credits.

Credit for academically-grounded, interdisciplinary study abroad. Students seeking credit must secure the approval of the department head and a faculty supervisor who will provide the academic structure, assignments and student evaluation.

**IDLS 395. Topics in Interdisciplinary Liberal Studies. 1-6 credits.**

Examination of selected interdisciplinary topics of importance to teacher education content areas. May be taken for a maximum of six credit hours toward the major.

**IDLS 400. Seminar in Liberal Studies. 3 credits.**

Capstone seminar for IDLS students in the humanities/social sciences content area. Students will apply different disciplinary perspectives to a single topic. Course requirements will emphasize superior written and oral communication skills and the integration and application of content area knowledge to the teaching environment. *Prerequisites: Students must have completed their IDLS core requirements and be within one course of completing the track. Education students should be in their third semester of their teacher education program.*

**IDLS 486. Internship and Field Experience. 1-6 credits.**

IDLS credit for academically-grounded internships and field experiences. Students seeking credit must secure the approval of the department head for the use of academic structures, assignments and evaluation plans provided by qualified internship or field experience supervisors.

**IDLS 490. Independent Study in Interdisciplinary Liberal Studies. 3 credits.**

Individualized projects in interdisciplinary liberal studies. *Prerequisite: Permission of the director.*

**IDLS 499A, B and C. Honors. 1-6 credits.**

## Interdisciplinary Science

**ISCI 101. Physics, Chemistry and the Human Experience. 3 credits.**

A survey of the fundamental concepts, principles and ideas of chemistry and physics. Particular emphasis is placed on understanding the development of the principles and their application in understanding the world around us. May be used for general education credit. *Prerequisite or corequisite: One of the following: MATH 103, MATH 107, MATH 205, MATH 220, MATH 231 or MATH 235.*

**ISCI 104. Scientific Perspectives. 1 credit.**

A study of topics selected to allow students to participate in mathematical and scientific problem solving approaches to knowledge. May be used for general education credit. *Prerequisite or corequisite as indicated on MyMadison.*

**ISCI 171. Earth and Planetary Science for Teachers. 3 credits.**

This course provides university-level foundations of earth and planetary science for future pk-8 teachers. Content aligns with various teacher competencies, and includes such topics as the formation and evolution of the earth and the earth's solar system, the characteristics of stars, planets, asteroids, and comets, and how earth and planetary science knowledge and technologies function with social context. Hands-on, experiential inquiry will be integrated into the course, as will an exploration of such methods as observation, classification, comparison, measurement, data interpretation, mathematical analysis, inference, prediction, and hypothesis testing. Normally open to IDLS majors only, but other students may request admission by special permission. May be used for general education credit.

**ISCI 172. Physical Science for Teachers. 3 credits.**

This course provides university-level foundations of physical science for future pk-8 teachers. Content aligns with various teacher competencies, and includes such topics as matter, conservation of mass and energy, chemical structures and bonds, coordinate systems and their use in describing motion and force, thermodynamics, light, sound, magnetism and electricity, and how physical science knowledge and technologies function with social context. Hands-on, experiential inquiry will be integrated into the course, as will an exploration of such methods as observation, classification, comparison, measurement, data interpretation, mathematical analysis, inference, prediction and hypothesis testing. Normally open to IDLS majors only, but other students may request admission by special permission. May be used for general education credit.

**ISCI 173. Life and Environmental Science for Teachers. 3 credits.**

This course provides university-level foundations of physical science for future pk-8 teachers. Content aligns with various teacher competencies, and includes such topics as energy, environment, ecological succession, biological diversity and evolution, life systems and systems feedback, air and water quality, resource use and conservation, and how life and environmental science knowledge and technologies function with social context. Hands-on, experiential inquiry will be integrated into the course, as will an exploration of such methods as observation, classification, comparison, measurement, data interpretation, mathematical analysis, inference, prediction, and hypothesis testing. Normally open to IDLS majors only, but other students may request admission by special permission. May be used for general education credit.

**ISCI 450 A, B, C. Interscience Research. 1-4 credits, repeatable to 6 credits.**

An investigative experience spanning more than one field of science which may require supervision by multiple faculty members from different disciplines. Students must get prior approval for this course from each of the supervising faculty members and the department head of their program. *Prerequisites: Junior status and permission of the instructors.*

## Interdisciplinary Social Science

**ISS 200. Introduction to the Social Sciences. 3 credits.**

The course serves as an introduction to the social sciences. It includes a review of the general content of selected social sciences with emphasis on primary foci, methods employed and perspectives guiding each disciplinary approach. The course will vary each semester according to the interests and specialization of the instructor(s).

**ISS 300. Experiential/Service Applications. 3 credits.**

Provides students with practical work experience through an internship, service learning program, etc. This experience culminates in the application of knowledge and skills emerging from previous courses. *Prerequisite: Junior standing.*

**ISS 330. Maps, Money and World Trade. 3 credits.**

This is an interdisciplinary class designed to help students, especially future teachers, integrate perspectives from various disciplines, especially history, geography, and economics, into a coherent account of an increasingly globalized world. We will pay particular attention to map construction and use (both historical and contemporary) and the relationship between economic ideas and world events, focusing on a variety of case studies over the last millennium.

**ISS 400. Senior Seminar in Social Science. 3 credits.**

The course builds upon all previous course listings and serves as the final integrating experience providing closure to the interdisciplinary social sciences. Students are expected to integrate theories, research and/or methods from several social science disciplines to present a senior level research paper. The course will vary each semester according to the interests and specialization of the instructor.

## International Affairs

**INTA 295. Cross-National Research Skills. 4 credits.**

Students learn how to conduct research from theory formulation through data collection and hypothesis testing in the field of international affairs. Special emphasis on research and computer literacy. *Prerequisite: MATH 220.*

**INTA 301W: The Washington Semester Experience: Global Affairs. 3 credits.**

Part of the "Global Affairs" Washington Semester program, the course entails intensive study of a global theme. The theme's dynamics will be explored in varied settings: localities, nation-states, global geographic regions and international organizations (both governmental and non-governmental). The course provides outlets for engagement with policy actors and institutions based in Washington, D.C., as well as for individual and group experiential learning activities. *Prerequisite: Enrollment in the Washington Semester program.*

**INTA 489. Seminar in International Affairs. 4 credits.**

This is the capstone course in the international affairs major. It provides an interdisciplinary overview of the fields within international affairs and an opportunity for students to complete individual research projects on international problems. *Prerequisites: Completion of all courses in the core requirement of the major and senior standing.*

## International Business

**IB 294. Internship Abroad. 3 credits.**

A course providing students an opportunity to work in an organization abroad in order to gain insight into the practical side of modern business operations.

**IB 298. Special Topics in International Business. 3 credits.**

The course is designed to allow exploration of current topics in international business. Course content will vary. See program director for current content.

**IB 480. International Business Theory and Policy. 3 credits.**

The course is designed to serve as an application of theory for business students to allow them to put the total picture of international business together. *Prerequisite: IB major, senior standing.*

**IB 490. Special Studies in International Business. 1-3 credits.**

Designed to give capable students in international business an opportunity to complete independent study under faculty supervision. *Prerequisites: GPA of 2.8, recommendation of the instructor and approval of the director prior to registration.*

**IB 494. International Business Internship. 3 credits.**

A course providing students an opportunity to work in and with an organization in order to gain insight into the practical side of modern international business operations. *Prerequisites: IB major, completion of 85 credit hours and COB 300, minimum cumulative GPA of 3.0, and approval of director of International Business program prior to registration.*

**IB 498. Special Topics in International Business. 3 credits.**

An advanced course designed to allow exploration of current topics in international business. Course content will vary. See the program director for current content. *Prerequisites: COB 300 and permission of the instructor.*

**IB 499. Honors. 6 credits.**

See catalog section "Graduation With Honors."

## Interprofessional Education

**IPE 201. Health Professionals in Diverse Communities. 1 credit. Offered fall.**

An introduction to skills in professionalism and interprofessional collaboration in addressing local and global health challenges. First year pre-professional health students examine social determinants of health and diverse communities, and learn skills in reflection as they interact with health professionals and faculty. *Prerequisite: Membership in the Huber Learning Community.*

**IPE 202. Health Care Service in Diverse Communities. 2 credits. Offered spring.**

This course is the second in a two-course sequence for first year pre-professional health students in the Huber Learning Community. Students examine interprofessional perspectives on complex global health issues and apply skills in professionalism, integration, collaboration and reflection to community-based, experiential service learning. *Prerequisites: IPE 201 and membership in the Huber Learning Community.*

**IPE 220. Adult Health and Development Program. 3 credits. Offered fall.**

In this academic course and outreach program to adults age 55+ in the surrounding community, JMU students are trained to work 1:1 with the older adults, to apply aging and intergenerational theory, and to critically analyze the outcomes from their interactions.

**IPE/HTH/NSG/SOWK 314. Rural Health: An Interprofessional Approach. 3 credits.**

Students study, observe and participate in interprofessional assessment, planning and delivery of community-based primary health care in partnership with residents and agencies of a host rural county. Learning activities will emphasize rural culture, rural health care and interprofessional practice.

**IPE 320. Adult Health and Development Program – Leadership. 3 credits. Offered fall.**

Both an academic course and an outreach program to adults age 55+ in the surrounding community, this course offers JMU students who have previously participated in the program the opportunity to become senior staff who provide program leadership, oversight and implementation to the program. *Prerequisites: Permission of the instructor and completion of one semester of AHDP.*

**IPE 391. Introduction to Informatics for Health Care Professionals. 1 credit.**

Electronic health records and health apps exemplify how health information technology (IT) is changing health care today. Students will learn how health IT tools and big data can improve communication between health providers, support better patient outcomes and reduce spending on health care. Designed with an emphasis on interprofessional collaborative practice, students will learn about their own and others' professional roles and responsibilities in achieving health goals using health IT.

**IPE 401. Workshops in Interprofessional Education and Practice. 0 credits.**

IPE workshops offer a time-limited and concentrated focus on issues that are specific to interprofessional education and/or practice.

**IPE/NSG 415. Ethical Decision-Making in Healthcare: An Interprofessional Approach. 1 credit. Offered fall and spring.**

Healthcare ethics is a shared, relevant concern among health and human service disciplines; it is an ideal vehicle for students to learn other discipline perspectives. Students examine dilemmas encountered in practice and apply interprofessional knowledge using a case method of instruction. Readings and activities emphasize interprofessional competencies and ethical principles for practice in the context of respectful communication, analysis and problem solving in interprofessional teams.

**IPE 440. International Health and Human Services in Malta. 4 credits. Offered May.**

This May session, study abroad course examines health issues in Malta and provides a team oriented project experience. Project participation, tours and arranged meetings with local experts are used to illustrate health related problems that apply globally and which are compared and contrasted with those in the United States.

**IPE/NSG 460. Healthcare Informatics. 3 credits.**

This course focuses on the nature and functions of present and future application of health care informatics. Emphasis is on preparing current and future health care professionals to plan, design, collaborate with other health care disciplines, and utilize healthcare informatics for effective health care delivery, health organizational management and improved client outcomes. *Prerequisite: Minimum of sophomore standing.*

**IPE 490. Special Topics in Health and Human Services. 0-4 credits. Offered fall and spring.**

This course involves topics of special interest in the area of health and human services but is open to all students. The focus of specific courses is identified for specific offerings. Courses are offered based on faculty and student interests.

## Italian

**ITAL 101. Elementary Italian I. 3-4 credits.**

The fundamentals of Italian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course.

**ITAL 102. Elementary Italian II. 3-4 credits.**

The fundamentals of Italian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite: ITAL 101.*

**ITAL 102F. Elementary Italian-Florence II. 4 credits.**

The fundamentals of Italian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. If student has had two or more years of the language in high school he/she will not get credit for the course. *Prerequisite: ITAL 101.*

**ITAL 109. Accelerated Review of Elementary Italian. 3 credits.**

Reviews elementary Italian grammar, reading, writing, speaking and listening skills in Italian. One hour of work a week in the language laboratory. For students who have had no more than two or three years of Italian in high school or qualify through the placement exam. *Prerequisite: Permission of the department head.*

**ITAL 111. Intensive Italian I. 6 credits.**

The fundamentals of Italian through intensive listening, speaking, reading and writing. This four-week course is the equivalent of ITAL 101-102.

**ITAL 212. Intensive Italian II. 6 credits.**

The fundamentals of Italian through intensive listening, speaking, reading and writing at the intermediate level. This four-week course is the equivalent of ITAL 231-232. *Prerequisite: ITAL 102, ITAL 109 or ITAL 111, or per placement exam score.*

**ITAL 231. Intermediate Italian I. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: ITAL 102, ITAL 109 or ITAL 111, or per placement exam score.*

**ITAL 231F. Intermediate Italian-Florence I. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: ITAL 102, ITAL 109 or ITAL 111, or per placement exam score.*

**ITAL 232. Intermediate Italian II. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: ITAL 231.*

**ITAL 232F. Intermediate Italian-Florence II. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: ITAL 231.*

**ITAL 300. Italian Grammar and Communication. 3 credits.**

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Italian. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: ITAL 232 or ITAL 212.*

**ITAL 307. Italian Civilization. 3 credits.**

A study of the history and the arts of Italy from the Etruscans to 1814. Instruction is in Italian. *Prerequisite: ITAL 300.*

**ITAL/HIST 308. Contemporary Italian Civilization. 3 credits.**

A study of Italian society, economics, politics and the arts from 1814 to the present. Instruction in English. (Research papers for Italian majors/minors in the language.)

**ITAL 315. Italian Phonetics. 3 credits.**

Intensive drill in Italian sounds and intonation patterns. Instruction is in Italian. *Prerequisite: ITAL 232 or equivalent.*

**ITAL 317. Strategies for Italian Oral Communication. 3 credits.**

In this course students will develop linguistic competencies and learn basic tools to improve their oral communication skills. *Prerequisite: ITAL 232 or permission of the instructor.*

**ITAL 320. Italian Oral and Written Communication. 3 credits.**

Intensive training in the use of modern, everyday Italian with emphasis on conversation and composition. Readings in Italian will provide a context for discussion and writing. *Prerequisite: ITAL 300.*

**ITAL 330. Business Italian. 3 credits.**

A study of commercial and technical vocabulary and trade customs in conjunction with practice in the art of commercial communication, including interviews, letter writing and simultaneous interpretation. Instruction is in Italian. *Prerequisite: ITAL 300.*

**ITAL 335. Introduction to Italian Literature. 3 credits.**

A survey of Italian literature from its beginning to the late 18th century. Textual analysis of sample writings representative of the most important literary movements. Instruction is in Italian. *Prerequisite: ITAL 300.*

**ITAL 375. Business and Society in Italy. 3 credits.**

This course studies Italian business, economy, politics and the influence the Italian society has on them. *Prerequisite: ITAL 300.*

**ITAL 397. Creative Writing in Italian. 3 credits.**

This course will develop strategies both for writing well and for writing creatively. *Prerequisite: ITAL 300.*

**ITAL 400. Advanced Conversation. 3 credits.**

Discussions deal with topics of current interest. *Prerequisite: ITAL 320.*

**ITAL 410. Italian Through Broadcast and Print Media. 3 credits.**

This course is an analysis of modern Italy through television, radio, newspapers, the internet and commercial advertisement. Instruction is in Italian. *Prerequisite: ITAL 300 or permission of the instructor.*

**ITAL 425. Modern Italian Literature. 3 credits.**

A study of the works of major Italian writers from the 19th century to the present. Instruction is in Italian. *Prerequisite: ITAL 300.*

**ITAL 435. Translation Competencies. 3 credits.**

In this course, students will develop linguistic competencies required in translation, including reading comprehension, summary writing, text analysis, and use of mono- and bilingual dictionaries. Students will learn some basic electronic tools and word processing skills for translators, and practice several types of translation, including direct translation, inverse translation and back translation. *Prerequisites: ITAL 300 or permission of the instructor.*

**ITAL/ENG 437. Studies in Italian Literature. 3 credits.**

A study of selected works of Italian literature. Instruction is in English. May be repeated for credit when course content changes. (Research papers for Italian majors/minors in the language).

**ITAL 446. Special Topics in Italian Literature. 3 credits.**

Study of a particular topic in Italian literature. It may cover all or specific Italian literature genre. Course may be repeated if content varies. *Prerequisite: ITAL 300.*

**ITAL 447. Special Topics in Italian Civilization and Culture. 3 credits.**

Students will study a particular topic in the civilization and/or culture of Italy. Course may be repeated if content varies. *Prerequisite: ITAL 300.*

**ITAL 448. Special Topics in Italian Linguistics. 3 credits.**

Students will study a particular topic in Italian linguistics. Topics could include an introduction to Italian sociolinguistics and psycholinguistics. Course may be repeated if content varies. *Prerequisite: ITAL 300.*

**ITAL 465. Italian Cinema. 3 credits.** A study of Italian cinema from the early days to the present, with a focus on its relation to key features of Italian history, society, and cultures. *Prerequisite: ITAL 300 or permission of the instructor.*

**ITAL 490. Special Studies in Italian. 1-4 credits.**

Allows students an opportunity to complete independent studies under faculty supervision. *Prerequisite: Permission of the department head.*

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## Japanese

**JAPN 101. Elementary Japanese I. 4 credits.**

The fundamentals of Japanese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. Requires one hour of work a week in the language laboratory. If the student has had two or more years of the language in high school, he/she will not receive credit for the course.

**JAPN 102. Elementary Japanese II. 4 credits.**

The fundamentals of Japanese through a higher level of listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. Requires one hour of work a week in the language laboratory. If the student has had two or more years of the language in high school, he/she will not receive credit for the course. *Prerequisite: JAPN 101.*

**JAPN 111. Intensive Japanese I. 6 credits.**

The fundamentals of Japanese through listening, speaking, reading and writing. The four-week course is the equivalent of JAPN 101-102.

**JAPN 212. Intensive Japanese II. 6 credits.**

The fundamentals of Japanese through listening, speaking, reading and writing. The four-week course is the equivalent to JAPN 231-232. *Prerequisites: JAPN 102 or JAPN 111 or permission of the instructor.*

**JAPN 231. Intermediate Japanese I. 3 credits.**

A thorough review of Japanese grammar, vocabulary building, conversation, composition and reading. *Prerequisite: JAPN 102 or JAPN 111.*

**JAPN 232. Intermediate Japanese II. 3 credits.**

A thorough review of Japanese grammar and vocabulary building, conversation, composition and reading. *Prerequisite: JAPN 231 or permission of the instructor.*

**JAPN 300. Japanese Grammar and Communication. 3 credits.**

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Japanese. Fulfills the College of Arts and Letters writing-intensive requirements for possible international affairs majors and/or IB majors. *Prerequisite: JAPN 232 or JAPN 212.*

**JAPN 320. Japanese Oral and Written Communication. 3 credits.**

Intensive training in the use of modern, everyday Japanese with emphasis on conversation and composition. Readings in Japanese will provide a context for discussion and writing. Instruction is in Japanese. *Prerequisite: JAPN 300 or permission of the instructor.*

**JAPN 446. Special Topics in Japanese Literature. 3 credits.**

Study of a particular topic in Japanese literature. It may cover all or a specific Japanese literature genre. Course may be repeated if content varies. *Prerequisite: JAPN 300.*

**JAPN 447. Special Topics in Japanese Civilization. 3 credits.**

Students will study a particular topic in the civilization and/or culture of Japan. Course may be repeated if content varies. *Prerequisite: JAPN 300.*

**JAPN 448. Special Topics in Japanese Linguistics. 3 credits.**

Students will study a particular topic in Japanese linguistics. Topics could include an introduction to Japanese sociolinguistics or psycholinguistics. Course may be repeated if content varies. *Prerequisite: JAPN 300*

**JAPN 490. Special Studies in Japanese. 3 credits.**

Special topics or independent studies in Japanese.

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## Justice Studies

**JUST 100. Justice Studies Proseminar. 1 credit.**

This course is designed to help justice studies majors explore opportunities for internships, careers, graduate and professional education, and civic and community engagement. The course focuses on developing skills in resume writing, interviewing and networking techniques, job and internship search skills, and investigating graduate and law school opportunities. *Prerequisites: JUST 200 and admission to the justice studies major.*

**JUST 200. Introduction to Justice Studies. 3 credits.**

This course introduces students to the interdisciplinary field of justice studies, including the development of justice concepts, principles and theories and their application to public issues. This course also provides an overview of the three tracks in the justice studies major: crime and criminology, global justice and social justice. *Prerequisites: Declaration of justice studies major.*

**JUST 210. Crime and Criminal Justice. 3 credits.**

This course provides an introduction to the nature of the crime problem in the United States, including patterns of victimization and offending and the ways in which the criminal justice system responds to these behaviors. *Prerequisites: JUST 200 and admission to the major.*

**JUST 212. Theories of Crime and Criminal Justice.** 3 credits.

This course provides an in-depth exploration of theoretical perspectives pertaining to the two central realms of criminological inquiry: crime and the response to crime (criminal justice). Both classic and contemporary perspectives are examined. The course will examine why people commit crime, why crime occurs, why it differs across groups and the objective underlying crime control policy. *Prerequisite: JUST 200.*

**JUST 221. Social Justice Theories.** 3 credits.

This course serves as a theoretical introduction to the social justice track of the justice studies major. It includes an examination of the major concepts regarding inequality. How do we define and create inequality? Can we rid ourselves of inequality or should we accept it as a necessary element in society? *Prerequisite: JUST 200.*

**JUST 223. Social Justice Interventions and Policies.** 3 credits.

This class provides a review of the general structures of American social justice interventions and policies including governmental, corporate and not-for-profit organizations. Emphasis will be placed on macro-structures such as entitlement programs and micro-structures such as neighborhood and grassroots organizations. *Prerequisite: JUST 200.*

**JUST 225. Justice and American Society.** 4 credits.

This course introduces the student to the concept and reality of justice in America. It is a broad-based, interdisciplinary consideration of justice: What it is, what it means and how it intersects with society and social institutions in American. Philosophical and theoretical underpinnings of the notion of justice and the historical context of justice in American society will be considered. May be used for general education credit. May not be used for major credit. May not be used for major credit.

**JUST 235. Justice in the Global Community.** 3 credits.

A survey of different definitions of justice relating to the operation and development of a global community in international affairs. *Prerequisite: JUST 200.*

**JUST/PSYC 255. Abnormal Psychology for Law Enforcement Personnel.** 3 credits.

This course for students interested in becoming law enforcement professionals critically examines psychological normality and abnormality. The course focuses on description and causes of abnormal behavior likely to be encountered by law enforcement professionals and on intervention options for police officers. May not be taken by psychology majors or students who have completed PSYC 250 or PSYC 335. *Prerequisites: PSYC 101 and JUST 200.*

**JUST 300. Perspectives on Comparative Justice.** 3 credits.

This course provides students with an overview of contemporary justice policy problems and issues in a comparative context. It begins with an assessment of comparative case study research strategies and proceeds to a comparative investigation of a specific topic. Ethical and legal issues will be addressed. The topic covered will vary but include such concerns as war, terrorism, corruption, social and political repression, human rights violation and law enforcement. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 301. Special Topics in Justice Studies.** 3 credits.

This course provides an examination of topics that are of current interest in the field of justice studies. The class may be repeated for credit when course content changes. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST/PSYC 314. Police Psychology.** 3 credits.

This course explores the role of psychology in various aspects of police work and examines how psychological research and methods can assist police departments and police officers in reaching law-enforcement goals. *Prerequisites: PSYC 101 and for Justice Studies majors, JUST 200 and one additional 200-level JUST course.*

**JUST 315. Mental Illness and the Criminal Justice System.** 3 credits.

This course introduces students to a growing crisis facing the U.S. criminal justice system: the growing numbers of mentally ill offenders in the criminal justice system. Following a consideration of the needs of individuals with mental illness, the course focuses on the treatment and management of mentally ill offenders at each stage of the criminal justice system, from initial contact with law enforcement to re-entry into the community. *Prerequisites: JUST 200 and one additional 200-level JUST course.*

**JUST/PSYC 316. Human Development and Crime.** 3 credits.

This course examines how psychological research and theory shed light on the development of criminal careers, the factors that protect children and adolescents from becoming criminals, how being a victim of crime influences well-being, and the efficacy of rehabilitation. Special attention will be paid to the knowledge base on delinquency and childhood/adolescent victimization. *Prerequisites: PSYC 101, and for Justice Studies majors, JUST 200 and one additional 200-level JUST course.*

**JUST 317. Victimization of Children.** 3 credits.

This course provides an overview of patterns, causes and remedies for the various victimizations of children in the United States and throughout the world (abductions, child abuse, sexual exploitation, etc.). *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 318. Sex Offenders.** 3 credits.

This course is designed to introduce to the issue of sex offenders in society. Students will consider sexual values in American society and how they relate to the development, thought patterns, and behavior of individuals who sexually violate others. Students will learn about theories of sex offending, the effects of sex offending on victims and society, and strategies for treating and managing sex offenders. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 319. Psychopathology and Crime.** 3 credits.

This course introduces students to various types of psychopathology, including state disorders, personality disorders and organic mental disorders, as they relate to different types of crimes. Students consider the concept of abnormality, as viewed by society and the criminal justice system. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 320. Organized Crime.** 3 credits.

This course is designed to give an overview of issues associated with Organized Crime. Organized Crime is an increasingly global phenomenon, and as such the class focuses not only on the situation in the United States, but the rest of the world as well. Attention is also given to the "businesses" of organized crime (e.g., drug trafficking, counterfeiting), the law enforcement responses to Organized Crime, and the role/depiction of Organized Crime in popular culture. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 322. Understanding Violence.** 3 credits.

This course examines violence in its many forms and provides a theoretical and conceptual foundation for understanding what it is, why it happens, and how it might be prevented or diminished. Structural, institutional and interpersonal forms of violence are examined as are theoretical perspectives focusing on the individual, socio-structural and cultural levels of explanation. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 323. Comparative Criminal Justice.** 3 credits.

A comparative study of criminal justice systems derived from the major world legal systems. The relevant background factors, government, laws, law enforcement, courts, corrections, youthful offenders are examined in each representative country studied. Multinational criminal justice organizations and special issues are addressed. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 324. Death Penalty.** 3 credits.

This course provides students with a broad survey of the death penalty as a penal sanction and the controversies and issues which surround it. Key topical areas covered are history and foundations, legal landscape, execution and death penalty processes, contemporary issues including innocence, cost, discrimination and deterrence, and perspectives and voices surrounding the death penalty. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 327. Criminal Law.** 3 credits.

Study of substantive criminal law including common law sources and elements of various criminal offenses, justifications and defenses. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 328. Race, Class and Justice.** 3 credits.

This course provides students with an overview of contemporary justice issues in a comparative perspective. It includes an introduction to case-studies, comparative research methods and cross-national comparisons of justice issues concerning race and class. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST 329. Perspectives on Law.** 3 credits.

In this course, a broad array of perspectives on law and legal processes in the United States are examined. Students will examine perspectives from the realms of jurisprudence, philosophy, sociology, psychology, economics, anthropology and literature among others and will consider the intersection of these realms with law, legal processes, legal evolution and development, and the legal professions. *Prerequisites: JUST 200 and one other 200-level JUST course.*

**JUST/POSC 331. Human Rights in Theory and Practice. 3 credits.**

This course will explore the nature and value of human rights by investigating some major debates over their status and meaning, and by examining some of the ways people have tried to secure human rights in practice. *Prerequisites:* JUST, POSC and INTA majors only. For justice studies majors, the completion of JUST 200 and one other 200-level JUST course is a prerequisite.

**JUST/SCOM 333. Negotiations. 3 credits.**

Provides an overview of negotiation as a strategy for dealing with conflict. *Prerequisites:* For justice studies majors, JUST 200 and one other 200-level JUST course. For SCOM fully-admitted majors/minors: No prerequisites.

**JUST/SMAD 334. Media and Justice. 3 credits.**

This course will examine media constructions of justice. Students will be required to critically analyze the portrayal of justice issues in various media forms including television, internet, and film. Attention will be given to the accuracy of such portrayals and whether they have any broader social implications in regards to how we view complex justice issues. *Prerequisite:* JUST 200 and one other 200-level JUST course.

**JUST/WGS 341. Gender and Justice. 3 credits.**

This course is an interdisciplinary examination of the causes, structure and consequences of gender oppression. Consistent with the social justice track of the major, notions of fairness, justice and equality with respect to gendered social, political and economic relations will be examined. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 343. Justice and Society. 3 credits.**

This course focuses on the various intra- and interpersonal processes that underlie situations related to (in)justice at the individual and group levels. Theories, empirical research and real-world examples of social perception (e.g., prejudice and discrimination), social influence (e.g., attitudes, conformity) and social relations (e.g., altruism, aggression) related to (in)justice will be examined. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 344. Marginalized Populations. 3 credits.**

This course examines the social processes of distancing, excluding or rendering powerless marginalized groups in society, as well as the effects of such marginalization, from the individual, local community and global-structural levels. The course introduces theories of marginalization and focuses on several marginalized groups as cases in point. The course analyzes the history of marginalization for lessons learned and considers strategies for prevention / intervention for the future. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 345. Restorative Justice. 3 credits.**

In this course, the restorative justice paradigm will be examined at multiple levels including consideration in the international, local community and criminal justice contexts. Both the underlying principles and practical applications of restorative justice will be explored. The related concept of community justice will also be addressed. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 346. Intervention, Reconciliation and Justice in World Affairs. 3 credits.**

This course examines the complex relationship between reconciliation, justice and peace building in world affairs. The domestic and international problems that bring forth demands for reconciliation and justice are examined along with the actions of governments and nongovernmental actors in building peace, and the different ways in which reconciliation and justice can be defined and evaluated. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 347. Drugs, Politics and Society. 3 credits.**

This course examines the relationship between drugs, politics and society in the United States and elsewhere. A full range of drugs, both legal and illegal, will be discussed. Topics to be covered include: the consumption, production, and distribution of different types of drugs; drug addiction and recovery; the representation of drug users; and attempts to regulate drugs and drug users. Addressing key justice issues posed by drugs and their users will be a key concern. *Prerequisite:* JUST 200 and one other 200-level JUST course.

**JUST 350. Justice and Globalization. 3 credits.**

Globalization is the phenomenon of interconnectedness of economic, political and cultural activities across different parts of the globe. The class will survey several aspects of globalization through the lens of justice and injustice. Class time will be devoted to discussion and student presentations. *Prerequisite:* JUST 200 and one other 200-level JUST course.

**JUST 351. Building Democracy. 3 credits.**

This course will review historic and modern transitions to democracy, explore democracy as a 'just' form of government, examine correlates with its

strengths and weaknesses, and provide an overview on how to build a quality democracy. *Prerequisite:* JUST 200 and one track foundation course.

**JUST 353. Justice and Development. 3 credits.**

This course introduces the concept of justice as a standard for evaluating strategies for political, economic and social development in the contemporary international system. *Prerequisite:* JUST 200 and one other 200-level JUST course.

**JUST 354. Dynamics and Resolution of Societal Conflicts. 3 credits.**

This course seeks to understand justice by exploring its opposite – injustice, as manifested in selected societal conflicts in different parts of the developing world. What causal dynamic can be used to understand the trajectory of each conflict? What solutions have been proposed / implemented, and with what effect? The course will use in-depth exploration of these selected cases to engage with theories of societal conflicts and policy analysis. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 357. Environmental Justice. 3 credits.**

This course provides students with an interdisciplinary introduction to environmental justice. Emphasizing how contemporary environmental issues are profoundly rooted in social, political and economic conditions, students will apply principles and conceptions of justice to ecological challenges and sustainability efforts in local, national and global contexts. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 361. Terrorism. 3 credits.**

This course is a survey of the evolution of the phenomenon of terrorism and an analysis of its causes, strategies and forms. This course also discusses the consequences of terrorism in terms of government responses to terrorist threats (homeland security and counter-terrorism) and the economic and political costs of such responses. An interdisciplinary approach linking history, sociology, criminology and political science is used to make sense of this multifaceted phenomenon. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 365. Justice in Literature, Film, and Art. 3 credits.**

This class provides an opportunity for students to consider the ways in which issues related to the Justice fields are expressed in literature, film, and/or art and the ways in which such media may influence or create our conceptions of justice. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST/POSC 372. Ethics and International Politics. 3 credits.**

This course investigates the significance of ethical questions in the theory and practice of contemporary international politics, introducing a variety of normative approaches that shape the issues of peace and conflict, morality and justice in global affairs. Practical case studies will also be used to address issues of policy relevance, with particular attention paid to the American experience. *Prerequisites:* JUST, POSC and INTA majors only. For justice studies majors, the completion of JUST 235 is a prerequisite.

**JUST 373. Rebuilding Post Conflict Societies. 3 credits.**

This course examines the social, economic, security and political problems faced in rebuilding societies that are emerging from a period of intense and prolonged conflict. This course presents an overview of the scope of this multidimensional challenge as well as strategies that have been used to address them. In the course of doing so, evaluation standards are discussed that can be used to measure the success, failure and justness of the newly emerging political system. *Prerequisite:* JUST 200 and one other 200-level JUST course.

**JUST/POSC 374. War and Justice. 3 credits.**

This course is an empirical and normative investigation of the relationship between war and justice. Empirically, it examines the causes of war and the ways in which wars end. From a normative perspective it raises the questions of when are wars just; how should a just war be fought; and what is a just peace. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 375. Genocide in the 20th Century. 3 credits.**

This course is an interdisciplinary examination of the various definitions, causes, and structure and consequences of genocide. We will study some of the major 20th century genocides (Indigenous peoples, Armenia, USSR, Jewish Holocaust, Cambodia, Bosnia/Kosovo, Rwanda and Darfur) using the following conceptual schemes: social death, structured violence, oppression and mass murder. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 377. Global Futures. 3 credits.**

Explores possible future directions that the global system may take in selected issue areas such as energy, democratization, food supplies and infectious diseases. Emphasis is on active learning strategies, introducing the analytical

tools used for analysis of international trends and addressing questions of how to respond in a manner that promotes global justice. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 385. Disability and Justice.** 3 credits.

An interdisciplinary exploration of justice & disability which examines issues such as the historical and theoretical contexts of disability, the social and rhetorical construction of disability, disability legislation and public policy, disability and the criminal justice system, and disability rights movements and inclusion as they relate to larger civil and human rights movements in the US & globally. The course highlights the importance of disability in broader conversations about justice. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST/POSC 392. Peace Studies.** 3 credits.

A study of the evolution, theory and practice of peace studies. The course focuses on how we wage and resolve conflict, how we affect social change, and how we provide for security through nonviolent means. *Prerequisites:* JUST 200 and one other 200-level JUST course.

**JUST 399. Justice Research Methods.** 4 credits.

This course provides students with the tools necessary for conducting independent research in the area of Justice Studies. Both quantitative and qualitative methods are covered. A term project, in which the skills covered in the course are applied, is a significant part of the class. *Prerequisites:* MATH 220 and JUST 200 and one other 200-level JUST course.

**JUST 400. Senior Seminar in Justice Studies.** 3 credits.

The capstone course for the justice studies major. Students are expected to enter JUST 400 with a proposed area of study and will spend the semester in developing a thesis. Class discussion and review of individual projects along with oral presentation of work are integral parts of the course. Students are expected to produce a piece of original scholarship related to their study in the major. *Prerequisites:* JUST 200, JUST 399, admission to the major and senior standing.

**JUST 401. Internship in Justice Studies.** 4 credits.

This course allows students to receive academic credit for work experienced in an agency or organization related to the justice studies major. Students should consult the justice studies director for assistance in arranging approved internships. *Prerequisites:* JUST 200 and JUST 399. *Successful completion of four additional justice studies courses.*

**JUST 402. Advanced Research in Justice Studies.** 3 credits.

This course is designed to give students a context in which to pursue advanced research in a justice studies context. It is especially appropriate for students interested in graduate study in the field. *Prerequisites:* JUST 200 and JUST 399. *Successful completion of four additional justice studies courses.*

**JUST 403. Nelson Institute Seminar.** 3 credits.

Students enrolled in this course will be assigned to consider a contemporary problem Justice Studies. Working individually and in teams, students will first study the problem, and then propose workable solutions. *Prerequisite:* Junior or senior status and permission of the instructor.

**JUST 404. Practicum in Community-Based Research.** 3 credits.

This course provides students with an intensive, collaborative community-based research experience working in partnership with a community organization or group. Students will integrate and apply principles and conceptions of justice and methods of scholarly inquiry to a community-identified problem. This course may be taken only once for credit. *Prerequisites:* JUST 200, JUST 399 and permission of the instructor.

**JUST 499. Honors.** 6 credits.

Year course. An independent research topic initiated and completed by qualified majors wishing to graduate with distinction.

## Kinesiology

**KIN 100. Lifetime Fitness and Wellness.** 3 credits. Offered fall and spring.

This course is designed to help students adopt and maintain the behaviors associated with an active and healthy lifestyle. Through this course students will learn the importance of maintaining wellness through a physically active lifestyle. Through lectures and labs, students study and develop the behavioral patterns consistent with the current knowledge base in fitness and wellness. May be used for general education credit.

**KIN 101. Adapted Activities in Kinesiology.** 1 credit. Offered fall and spring.

Designed for students with severe medical restrictions and is adapted to individual needs. May be taken credit/no credit only. *Prerequisites:* Recommendation of university physician and permission of the department head. **KIN 122-180. Basic Instruction Activities.** 1 credit. Offered fall and spring.

The following courses provide basic instruction in the activities listed: 121, Flying Disc Sports; 122, Road Cycling; 123, Mountain Cycling; 124, Basic Rock Climbing and Experiential Activities; 125, Tennis; 126, Golf; 128, Fencing; 129, Badminton; 131, Basic Skiing or Snowboarding; 133, Bowling; 138, Racquetball; 139, Basic Paddle Sports: Canoeing or Kayaking; 140, Basic Swimming; 145, Strength Training and Cardiovascular Conditioning; 148, Jogging; 149, Group Fitness, 151, Swim Conditioning; 152, Lifesaving Life guarding; 156, Scuba and Skin Diving; 157, Self Defense for Women; 158, Aikido; 159, Basic Aerobic Kickboxing; 162, Intermediate Swimming; 163, Intermediate Tennis; 170, Fitness Instructor Training; 174, Water Safety Instructor; 175, Wilderness First Aid; 173, Introduction to Adventure Trip Leading; 171, Basic Group Fitness Instructor Training; 172, Group Fitness Instructor Training: Mind and Body; 179, Volleyball; 180, Soccer. May be taken credit/no credit only.

For more specific course information, contact the department office (568-6145). Fees are required in certain courses to cover equipment and/or facility rental. Refer to MyMadison for prevailing fees. The university reserves the right to cancel any class should suitable facilities be unavailable and to alter fees in the event of unusual inflation. Students must furnish their own transportation to bowling, canoeing, golf and skiing classes.

**KIN 190. Basic Sports Officiating.** 1 credit. Offered fall and spring.

This course will teach the fundamentals and skills necessary for officiating sports (football, basketball, softball or soccer) at any level. It will also focus on developing an officiating philosophy, understanding the psychology of officiating, being physically prepared to officiate, understanding the responsibilities of officiating and knowing how and where to work as an official. May be taken credit/no credit only.

**KIN 199. New Directions in Kinesiology.** 1-3 credits. Offered fall and spring.

In-depth exploration of topics significant in kinesiology. Topics for each semester will be announced on MyMadison.

**KIN 201. Introduction to Kinesiology.** 2 credits.

Students are introduced to the discipline of kinesiology and recreation. They will study the effects of physical activity on human beings; survey the subdisciplines, including exercise physiology, biomechanics, motor behavior and sociological, historical and philosophical perspectives; and discuss how the discipline can be applied professionally.

**KIN 202. Biological Foundations of Kinesiology.** 3 credits. Offered fall and spring.

Introduction to the biological scientific foundations within the discipline of kinesiology and recreation. Includes applied anatomy and physiology, biomechanics and exercise physiology.

**KIN 211-218. Coaching Techniques.** 2 credits. Offered fall and spring.

The following courses provide motor skills, strategy, rules and officiating techniques in the activities listed: 211, team; 212, track and field; 213, soccer; 214, football; 215, basketball; 216, individual; 217, volleyball; 218, softball.

**KIN 221-225. Skill Laboratories.** 2-10 credits. Offered fall and spring.

The skill laboratories are designed for participants who will be in a role of educating others in a particular area of movement. Each skill laboratory provides: a) basic movement skills, b) analysis of movement, c) developmentally appropriate progressions and teaching ideas, d) curriculum development, and e) microteaching opportunities. These courses are: KIN 221. Rhythmic and Dance Activities; KIN 222. Teaching Fitness and Wellness in the Schools; KIN 223. Individual and Lifetime Activities; KIN 224. Court and Field Games; KIN 225. Wilderness and Adventure Education.

**KIN 242. Introduction to Sport Communication.** 3 credits. Offered fall.

This class provides a foundation for students who are pursuing a minor in sport communication. The course provides an overview about information management and how it applies to the professional sporting industry. Students will learn about careers in sport information, how an organization communicates with the media and its constituents, and how communication in sport has evolved and continues to evolve.

**KIN/SMAD 243. Sport Communication Techniques: Broadcasting.** 3 credits. Offered spring.

Study and practice of broadcast and A/V techniques applied in a variety of sport settings. *Prerequisite:* KIN 242.

**KIN/SMAD 244. Sport Communication Techniques: Writing and Reporting.** 3 credits. Offered fall.

Basic skills of sport writing and reporting are studied and applied. Students gain experience in a variety of sports and learn and apply skills in researching,

interviewing, reporting, writing columns and features involving the world of sports. *Prerequisite: KIN 242.*

**KIN 302. Exercise Physiology.** 3 credits. Offered fall and spring.

This course is designed to help the student explore and understand the physiological changes that occur during an acute bout of exercise and as a result of chronic physical training. Students will study the role various (e.g., cardiovascular, respiratory, nervous, neuro-endocrine and renal etc.) systems play in maintaining homeostasis during physical activity. In addition, the physiology of physical performance under a range of environmental conditions will also be examined. This course must be taken concurrently with KIN 302L. *Prerequisites: KIN 202 and BIO 270 or BIO 370. Corequisite: KIN 302L.*

**KIN 302L. Exercise Physiology Laboratory.** 1 credit. Offered fall and spring.

Laboratory experiences in exercise physiology. This course must be taken concurrently with KIN 302. *Corequisite: KIN 302.*

**KIN 303. Motor Development and Learning.** 3 credits. Offered fall and spring.

This course provides understanding of motor development from early childhood through adulthood. The focus is on the constraints to development and the interaction between the environment, task and learner. The course provides an understanding of the learning processes underlying performance. Emphasis is given to the application in both teaching and coaching settings.

**KIN 304. History and Philosophy of Physical Education and Sport.** 2 credits.

*Offered fall and spring.*

Introductory analysis of various theoretical approaches to the discipline of physical education fitness and sport; brief historical study of the development of school programs and sport; and debates current professional issues.

**KIN 305. Social/Psychological Foundations in Kinesiology.** 3 credits.

*Offered fall.*

The focus of this course is on exploring psychological concepts related to participation and performance in sport and exercise contexts. Additionally, knowledge from the related discipline of motor learning will be integrated to explore psychological aspects of the learning process that take place in these domains. *Prerequisite: KIN 302, KIN 302L.*

**KIN 306. Human Biomechanics.** 3 credits. Offered fall and spring.

Studies of anatomical, physical and mechanical factors, as these factors affect human movement. This course must be taken concurrently with KIN 306L. *Prerequisites: BIO 290 and KIN 202. Corequisite: KIN 306L.*

**KIN 306L. Human Biomechanics Laboratory.** 1 credit. Offered fall and spring.

This laboratory course is designed to complement and supplement the lecture course KIN 306. The course will focus on enhancing the student's laboratory experiences in biomechanics. This course must be taken concurrently with KIN 306. *Corequisite: KIN 306.*

**KIN 310. Instructional Methods in Physical Education.** 3 credits. Offered fall.

Students will apply the affective, cognitive and psychomotor principles in class management, unit and lesson planning and instructional techniques. This course introduces students to effective teaching strategies and allows application through peer microteaching and teaching students in a school setting. Principles of self-evaluation and reflective teaching are reinforced. *Prerequisite: Acceptance to the PHETE program. Corequisite: KIN 311.*

**KIN 311. Elementary Curriculum in Physical Education.** 2 credits. Offered fall.

Theory and application of games, dance and gymnastic activities compatible with the developmental characteristics of elementary children and the educational objectives of the elementary school. *Prerequisite: Acceptance to the PHETE program. Corequisite: KIN 310.*

**KIN/HTH 312. The Profession of Teaching Health & Physical Education.** 2 credits. Offered fall.

Introductory study of the roles of the teacher and the learner and the pedagogical content knowledge of health and physical education. An in-depth examination of the unique position and qualifications of the specialist in physical education and health. Systematic observations will occur.

**KIN 313. Adapted Physical Education.** 3 credits. Offered fall.

Principles and procedures for adapting elementary physical education programs for students with physical, emotional and mental limitations. Laboratory experience included. *Prerequisite: Acceptance to teacher education. Corequisite: KIN 310.*

**KIN 314. Assessment in Elementary Physical Education.** 3 credits.

*Offered spring.*

Introductory study of developmentally appropriate authentic and formal assessment techniques unique to elementary physical education. *Prerequisite: Admission to student teaching.*

**KIN 315. Adolescent Behavior and Health for PHETE.** 3 credits. Offered spring.

Course is designed to focus on the study of current health status and health risk behaviors of children and adolescents. Focus on epidemiological trends and behavioral and etiological factors. The application of theory will be made regarding appropriate strategies for health promotion and interventions to reduce specific health problems for teachers in public school settings. *Prerequisite: Admission to the PHETE program.*

**KIN 321. Principles of Health Fitness Assessment.**

3 credits. Offered fall and spring.

Emphasizes the skills in conducting various health and fitness tests for assessing the five areas of health-related physical fitness (body composition, cardiorespiratory fitness, muscular strength, muscular endurance and flexibility). Interpretation of the test results will also be reviewed. This course must be taken concurrently with KIN 321L. *Prerequisite: KIN 202. Corequisite: KIN 321L.*

**KIN 321L. Principles of Health Fitness Assessment Laboratory.**

1 credit. Offered fall and spring.

This laboratory course is designed to complement and supplement the lecture course KIN 321. The course will focus on enhancing the student's exercise testing skills and knowledge with particular attention to preparing the student for the Certified Exercise Physiologist certification examination sponsored by the American College of Sports Medicine. The laboratory (KIN 321L) and lecture (KIN 321) portions must be taken concurrently. *Prerequisite: KIN 202. Corequisite: KIN 321.*

**KIN 322. Fundamental of Exercise Prescription.** 3 credits. Offered fall and spring.

Emphasizes the knowledge and skills necessary to effectively develop and implement an appropriate exercise prescription for improving health-related physical fitness for apparently healthy adults. *Prerequisites: KIN 321 and KIN 321L.*

**KIN 325. Kinesiology Honors Research Prep.** 3 credits. Offered fall.

This course is designed to provide Honors Students (Tracks 1, 2 & 3) with insight into the research carried out by current Kinesiology faculty members prior to enrolling in KIN 499 A. Students will identify a research topic suitable for their Honors Thesis, gain insight into the application of the scientific method in Kinesiology research, and interact with Kin faculty members and students actively involved in the research process. The course is by permission only.

**KIN 329. Social Aspects of Sport.** 3 credits.

This class is designed to familiarize students with the concepts of sport as they relate to individuals and the larger society in which they live and the ways in which this relationship is reciprocal, with both people impacting the world of sport and sport impacting individual, social, cultural, economic and political developments. Students learn the tools needed to think in a critical way about sports in society and make informed choices about sports and participation.

**KIN 353. Maximizing Sport Performance.** 3 credits. Offered fall.

This course explores current sport psychology theories, models and concepts as they relate to sport behavior and performance. Students examine the theoretical basis of cognitive sport skills and apply the information to the sport environment.

**KIN 355. Introduction to Driver Education.** 3 credits.

An introduction to the task of the motor vehicle operator within the highway transportation system and factors that influence performance ability. *Prerequisites: Junior standing and permission of the instructor.*

**KIN 407/HTH 441. Rehabilitative Biomechanics.** 3 credits.

*Offered fall and spring.*

This course will examine a variety of biomechanical concepts and applications as related to the health professions. Specific attention will be given to the biomechanical aspects of the musculoskeletal system. *Prerequisite: BIO 290.*

**KIN 410. School Health Content for PHETE.** 3 credits. Offered spring.

An overview of selected topics in health content required for teacher candidates preparing to teach health education in public schools. Special emphasis will be on issues relevant to teaching those topics in schools. *Prerequisite: Admission to the PHETE program.*

**KIN 411. Measurement and Evaluation in Kinesiology.** 3 credits. Offered spring.

The administration and interpretation of measurement and evaluation procedures in kinesiology and recreation.

**KIN 420. Exercise Programming for Special Populations.** 3 credits.

*Offered fall and spring.*

This course will include an in-depth study of the recommended procedures for exercise testing and prescription for non-diseased special populations,

children and youth, elderly, women and pregnant women. *Prerequisites: KIN 302 and KIN 302L.*

**KIN 422. Advanced Principles of Group Exercise Leadership.** 3 credits.

Theories, principles and procedures involved with leading group fitness classes. Students will gain knowledge and experience in class design and choreography development. Programming for children, older adults, pregnancy and aquatic exercise will be included. Practical and written assessments will occur throughout the semester. Participation in group exercise classes is a requirement. Students will have the opportunity to enroll in the AFAA Primary Group Exercise Certification. *Prerequisite: KIN 100, KIN 202, or permission of the instructor.*

**KIN 424/NUTR 455. Exercise and Nutrition in Chronic Disease.**

3 credits. Offered fall and spring.

This interdisciplinary course examines the evidencebased relationship between exercise and diet patterns and behaviors, and major chronic diseases. Students will understand the epidemiology and pathogenesis of prevailing chronic diseases. Emphasis will be placed on developing exercise and dietary strategies to reduce the burden of chronic disease. *Prerequisites: KIN 302, KIN 321, and KIN 322.*

**KIN 425. Concepts of Strength and Conditioning.** 3 credits. Offered fall and spring.

Theory and application of coaching concepts in strength/conditioning training including program design, testing and specific techniques for the physical development of athletes. Designed for students interested in working with athletic populations, this course also prepares students for NSCA certification. *Prerequisites: KIN 100 and KIN 202.*

**KIN 426. Physical Activity Behaviors.** 3 credits. Offered fall and spring.

This course will focus on the theoretical and practical applications of behavior change related to healthy lifestyles with an emphasis on physical activity. In addition, course content will include a detailed investigation into the psychological and environmental factors associated with adoption and maintenance of healthy behaviors including a regular physical activity program. *Prerequisite: Senior standing.*

**KIN 428. Advanced Topics in Exercise Science and Leadership.**

3 credits. Offered fall and spring.

This course is designed to allow students to study specific topics in exercise science and leadership. Topics will be chosen each semester and reflect current research in exercise science related to clinical exercise physiology, human performance and methodologies or trends in exercise science/leadership. May be repeated once (maximum six credits) for credit when course content changes. *Prerequisites: KIN 302 and KIN 302L.*

**KIN 429. Special Topics in Adapted Physical Education.** 3 credits.

This course provides an in depth look into specific areas within the field of adapted physical education. This application-based course provides hands-on experiences that allow students to work with individuals with disabilities in a variety of settings.

**KIN 430. Exercise Across the Lifespan.** 3 credits.

An advanced course in exercise science that examines aspects of physical activity and exercise as they relate to specific phases of the human lifespan. This course will address the importance of physical activity for children, pregnant women, and older adults and will include an in-depth study of aspects of exercise physiology that are unique to these populations.

**KIN 431. Environmental Exercise Physiology.** 3 credits. Offered spring.

An advanced course in exercise physiology that examines how human physiological systems respond and adapt to exercise performed in challenging environmental conditions (i.e. high altitude, diving, hot, cold). *Prerequisites: KIN 302 and KIN 302L.*

**KIN 432. Physiology of Endurance Performance.** 3 credits. Offered spring.

This course aims to provide students with an understanding of how to utilize endurance training to maximize athletic performance. Various factors that limit endurance performance and examine methods to overcome these factors will be explored. Emphasis will be placed on the role of seasonal periodization and program planning to maximize the long-term development of athletes. Supplemental factors that may also aid performance, such as equipment, nutrition and ergogenic aids will be discussed. *Prerequisites: KIN 302 and KIN 302L.*

**KIN 433. Exercise, Cardiovascular Disease, + ECG Assessment.**

3 credits. Offered fall.

This course is designed to provide students with a foundational information related to electrocardiography, diagnostic exercise testing and the effects of exercise on specific cardiovascular diseases. *Prerequisites: KIN 302 and KIN 302L.*

**KIN 450. Principles of Coaching.** 3 credits. Offered spring and fall.

Concepts, competencies and principles of coaching as they relate to sports in general. Includes the personal and professional responsibilities of a coach.

**KIN 455. Methods in Driver Education.** 3 credits.

Analysis of the rules and regulations governing driver education in the Commonwealth of Virginia with application to program organization and administration, and the development and conduct of learning experiences in the classroom and laboratory. *Prerequisites: Valid Virginia operator's license and SRM 335.*

**KIN 471. Practicum in Exercise Science and Leadership.** 3 credits.

A sequence of selected practicum experiences in exercise science and leadership, which provide the student with supervised practicum experience. May be repeated in different settings. *Prerequisite or corequisite: KIN 302.*

**KIN 473. Practicum in Coaching.** 3 credits.

A sequence of selected practicum experiences in coaching, which provides the student with supervised practicum experience.

**KIN 474. Practicum in Sport Communications.** 3 credits.

A sequence of selected practicum experiences which provides the student with supervised practicum experience in sport communications.

**KIN 480. Student Teaching in Physical Education.** 8 credits. Offered spring.

A supervised teaching experience at the elementary school setting that provides teacher candidates with opportunities to experience the classroom environment, grow professionally, and develop their pedagogical skills. *Prerequisite: Acceptance to student teaching.*

**KIN 481. Internship in Exercise Science and Leadership.** 4-12 credits.

A professional experience in exercise science which affords the opportunity to apply theory and methodology under qualified supervision from the cooperating agency and the university. Students may enroll for an internship experience of 4-12 credit hours, requiring the student to complete 160-480 fieldwork hours. *Prerequisite: Successful completion of all professional courses.*

**KIN 490. Special Studies in Kinesiology and Recreation.** 1-3 credits each semester. Offered fall and spring.

Designed to give superior students in kinesiology and recreation an opportunity to complete independent study and/or research under faculty supervision. *Prerequisite: Permission of the department head.*

**KIN 499. Honors.** 6 credits. Offered fall and spring.

Year course.

## Korean

**KOR 101. Elementary Korean I (4, 1).** 3-4 credits.

The fundamentals of Korean through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language lab. If student has had two or more years of the language in high school he/she will not receive credit for the course.

**KOR 102. Elementary Korean II (4, 1).** 3-4 credits.

The fundamentals of Korean through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language lab. If student has had two or more years of the language in high school he/she will receive credit for the course. *Prerequisite: KOR 101.*

**KOR 231. Intermediate Korean I.** 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: KOR 102 or permission of the instructor.*

**KOR 232. Intermediate Korean II.** 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: KOR 231 or permission of the instructor.*

## Latin

**LAT 101. Elementary Latin I.** 3-4 credits.

An introductory course for students who intend to acquire only a reading knowledge of classical and medieval Latin. Systematic study of the fundamentals of grammar. If student has had two or more years of the language in high school he/she will not receive credit for the course.

**LAT 102. Elementary Latin II.** 3-4 credits.

An introductory course for students who intend to acquire only a reading knowledge of classical and medieval Latin. Systematic study of the fundamentals of grammar. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite: LAT 101.*

**LAT 231. Intermediate Latin I.** 3 credits each semester.

An introduction to Latin literature. The further study of Latin grammar and the elements of Latin prosody are also presented. *Prerequisite: LAT 102 or permission of the instructor.*

**LAT 232. Intermediate Latin II. 3 credits.**

An introduction to Latin literature. The further study of Latin grammar and the elements of Latin prosody are also presented. *Prerequisite: LAT 231 or permission of the instructor.*

**LAT 446. Special Topics in Latin Literature. 3 credits.**

Study of a particular topic in Latin literature. It may cover all or specific Latin literature genre. May be repeated if content changes. *Prerequisite: LAT 232 or permission of the instructor.*

## Learning, Technology and Leadership Education

**LTLE 150. Information in Contemporary Society. 3 credits.**

Concerns the individual's need for information, especially that which will assist in solving problems related to everyday needs and interests and with the agencies and resources which can help to meet those needs. Will not count as social science course for teacher licensure.

**LTLE 370. Instructional Technology. 3 credits.**

Principles and procedures of a teaching/learning process designed to provide reliable, effective instruction to learners through systematic application of instructional technology. Includes selecting, producing, evaluating and utilizing nonprint media and equipment for application to instructional process.

**LTLE 372. Visual Literacy. 3 credits.**

This foundational course will cultivate the ability to evaluate and create conceptual visual representations. Students will practice the necessary critical attitude, principles, tools and feedback to develop their own high-quality graphics for learning and performance. Topics also include the impact of visual literacy on the learning process related to instructional design, instructional technology and information presentation.

**LTLE 374. Photography for Learning. 1 credit.**

Students will develop a basic understanding of the principles of photography, including the use of related digital equipment and the 35mm SLR camera. Note: All needed equipment will be supplied.

**LTLE 375. Selected Topics in Media. 1-3 credits.**

An in-depth study of a narrowly defined topic or practice in media. May be repeated for credit when course content changes.

**LTLE 376. Video for Learning. 1 credit.**

Students will develop an intermediate understanding of the principles of instructional video design, production and post-production editing including the use of related hardware and software. All needed equipment will be supplied.

**LTLE 378. Web Design for Learning. 1 credit.**

Students will develop an intermediate understanding of the principles of website design including the use of HTML and design templates. Note: Server space will be provided for one semester. Students may move their websites to another server space afterward.

**LTLE 385. Foundations of Instructional Design. 3 credits.**

The purpose of this course is to apply instructional theory to the creation of instructionally sound education programs and materials.

**LTLE 470. Diversity and International Human Resource Development. 3 credits.**

The course prepares students for meeting the challenges presented by globalization and workforce diversity in HRD. Topics include the impact of increasing globalization and diversity on HRD and the workplace, cross-cultural communications, conflict resolution in diversity settings, global diversity management, ethics and cross-culture leadership competencies. It examines and explores theories and techniques for dealing with institutional "isms" (e.g. multiculturalism, sexism, ageism). *Prerequisites: LTLE 240 and LTLE 245; Must be a human resource development or educational media minor or major.*

**LTLE 475. Seminar in Leadership. 3 credits.**

Designed to provide senior-level students with the opportunity to face some of the dilemmas of leadership. Students will be encouraged to critically examine leaders and organizations to draw from real events the ambiguities of leadership. Course will involve extensive reading, case work and a range of guest speakers. *Prerequisite: LTLE 245.*

**LTLE 490. Special Study in LTLE. 1-3 credits.**

Designed to provide in-depth and up-to-date exposure to the topics/issues pertinent to human resource development and allow students to explore topics of special interest in human resource development. *Prerequisite: Permission of the instructor.*

## Management

**MGT 305. Management and Organizational Behavior. 3 credits.**

A study of management functions, decision processes and human behavior in business organizations. Ethical and political considerations are addressed, as are behavioral science research and its applicability to understanding organizational behavior. *Prerequisites: Junior standing (60 hours) and a cumulative 2.0 grade point average in all courses taken at JMU. Open only to non-business majors.*

**MGT 320. Management of Innovation and Technology. 3 credits.**

This course focuses on technological innovation as a primary source of achieving and sustaining competitive advantage for firms, from start-up to maturity. Students explore current challenges facing business leaders building firms that can consistently and successfully bring technological innovations to market. The course provides students with opportunities to integrate creativity, innovation, and problem-solving processes with course content and application projects and exercises. *Prerequisites: COB 300 and management major, declared entrepreneurship minor or departmental permission.*

**MGT 325. Project Management. 3 credits.**

This course focuses on the knowledge and skills needed to select, plan, schedule, evaluate, control, and complete a variety of complex projects that help achieve organizational goals. Students learn foundational concepts and current project management frameworks. Applying project management tools and techniques to workplace situations using project management software is emphasized. *Prerequisites: COB 300 and management major, or departmental permission.*

**MGT 340. International Management. 3 credits.**

A comparative analysis of management styles and organizational effectiveness across cultural boundaries and within other political, legal and economic environments. *Prerequisites: COB 300 and management or international business major*

**MGT 357. Evidence-Based Decision Making. 3 credits.**

This course provides students with the opportunity to use research and data analysis to explore managerial and organizational situations, and to develop and practice empirically based decision making skills. Students will learn about evidence based management, an approach to decision making based on the best obtainable evidence and unbiased organizational facts. The course will help students to develop the knowledge and skills needed to identify, access, interpret, and use factual information and empirical evidence to be more effective decision makers and managers. *Prerequisites: COB 300 and management major, or departmental permission.*

**MGT 365. Fundamentals of Human Resource Management. 3 credits.**

This course provides an overview of human resource policies and practices as a source of competitive advantage for organizations. Students gain a broad understanding of how to effectively implement policies relevant to managing human capital in order to build employee engagement and provide a strategic benefit to the organization. Topics include recruitment, selection, placement, training, compensation, employee relations, management of employees, and recent trends in employment practices. *Prerequisite or corequisite: COB 300 for management majors; Prerequisite: PPA 265 for public personnel administration majors.*

**MGT 370. Quality Management. 3 credits.**

An introduction to the management of quality in organizations. Topics include statistical quality control, the design of quality management systems, implementation, measurement and management issues in quality programs. *Prerequisites: COB 300 and junior standing.*

**MGT 375. Business Ethics and Social Responsibility. 3 credits.**

This course explores the nature of moral values, moral judgments, and ethical decision and behaviors in modern business organizations. Alternative perspectives of right and wrong will be considered. A highly interactive course, students will analyze and discuss ethics-related current events, case studies, real-world scenarios and common ethical dilemmas in order to improve skills in recognition, understanding and decision-making related to business ethics and social responsibility at various organizational levels. This course is open to students in any COB major provided they meet the course prerequisites. *Prerequisites: COB 300 and management major, or permission of instructor.*

**MGT 390. Organizational Leadership.** 3 credits.

This course provides a foundation for understanding and applying leadership knowledge and skills at the individual, dyadic, team, and organizational levels. It enables students to better understand leadership potential and ability in themselves and others, and utilize that knowledge to more effectively lead and manage in organizational settings. The course incorporates theory, cases, assessment tools, empirical evidence, and application-based exercises. Contemporary leadership theories and related frameworks involving values, attitudes, motivation, ethics, and group processes are used to foster leadership development. *Prerequisites: COB 300 and management major.*

**MGT 405. Topics in Management for Non-Majors.** 3 credits.

This course is designed to allow exploration of areas of current topical, or unique, interest, or to leverage special situations. Course content will vary. Consult your adviser for specific topics each semester when the course is offered. Course may be repeated for credit when topics vary. *Prerequisite: Cumulative 2.0 GPA in all courses taken at JMU. Open only to non-business majors.*

**MGT 457. Business Analysis and Consulting Fundamentals.** 3 credits.

This course provides an overview of the consulting industry and the analytical practices used in the consulting process. Students examine the nature and purpose of consulting, explore the careers related to consulting, learn consulting frameworks and methods, and develop an understanding of the consultant-client relationship. Additionally students learn the steps in the consulting process (entry, diagnosis, assignment strategy and plan, proposal, and contract), as well as how to implement, evaluate, and terminate a project. *Prerequisites: MGT 357.*

**MGT 460. Employment Law.** 3 credits.

This course provides students with an in-depth understanding of federal regulations, court decisions and public labor policies that influence employment decisions, employee and labor relations, and employee safety and health. Includes historical evolution of federal legislation relating to employment, the labor movement and the emergence of public sector bargaining. Explores the impact of regulations, court cases and union contracts on general business operations. *Prerequisites: COB 300 and MGT 365.*

**MGT 461. Introduction to Supply Chain Management.** 3 credits

Introduction to Supply Chain Management provides the student with a foundational knowledge of the content and processes of supply chains, with an emphasis on the strategic nature of supply chain management decisions. This course offers a survey of critical supply chain topics such as design, sourcing, networks, risk management, transportation, revenue generation, and sustainability. Selected topic areas will be evaluated through the lens of geographic information systems (GIS) using ArcGIS. *Prerequisites: COB 300 and MGT major, or GSCM minor.*

**MGT 465. Senior Seminar in Human Resource Management.** 3 credits.

A study of advanced personnel management theory and techniques. Topics include development and implementation of policy and procedures; new techniques in planning, administration and evaluation of human resources management in organizations; and research problems. *Prerequisites: Senior standing and MGT 365, or permission of instructor.*

**MGT 467. Business Analysis & Consulting Practicum.** 3 credits.

This is an applied course where students will work in teams on consulting projects for businesses or organizations. Students apply the knowledge and skills developed in MGT 357 and MGT 457. Students engage in a comprehensive consulting experience designed to build competence and confidence in analysis, problems solving, and managing client relations. Grades will be determined largely by the quality of client deliverables. *Prerequisite: MGT 457.*

**MGT 470. Acquiring & Developing Human Capital.** 3 credits.

This course provides an in-depth study and application of staffing concepts and practices, including how to identify, place, and develop the best candidates for a given position. Topics include workforce planning, recruitment, selection, the training and development of employees, and succession planning. *Prerequisite: MGT 365.*

**MGT 471. Entrepreneurship & Small Business Management.** 3 credits.

This course provides an in-depth examination of entrepreneurship and its impact and significance in the global economy, including a focus on small business. Students will learn theory and then apply it through experiential exercises and a number of different engagements. This course explores topics such as the entrepreneurial process, idea generation methodology, sources of funding, growth, succession planning, and exit strategies. Students engage in activities such as feasibility analysis, selection of appropriate entry and growth

strategies, and firm valuation techniques. *Prerequisites: MGT 320, or permission of instructor.*

**MGT 472. New Venture Creation.** 3 credits.

This experiential course explores the context and entrepreneurial process of creating new ventures. Students work in multidisciplinary teams to recognize and evaluate opportunities, develop feasible business models, and demonstrate high-performance team practices. Working with experienced entrepreneurs, teams develop and apply financing strategies for the prelaunch and launch of new ventures. *Prerequisite: MGT 471 or permission of instructor.*

**MGT 475. Managing and Retaining Human Capital.** 3 credits.

This course provides an in-depth study of two major aspects of HR policy and practice: performance management and compensation systems. Students participate in applied exercises and projects that focus on best practices in performance management and performance appraisal systems. The design of compensation and benefits systems is studied as a means to effectively retain workers. *Prerequisite: MGT 365.*

**MGT 480. Organization Theory and Design.** 3 credits.

Examines the theory and research underlying the design of complex organizations. Takes a macro approach to the study of organizations, placing particular emphasis upon the interaction between an organization and its environment and the impact that the environment has on organizational design, structure and processes. *Prerequisites: COB 300 and management major.*

**MGT 481. Negotiation and Dispute Resolution.** 3 credits.

The purpose of this course is to develop an understanding and effective improvement of participants' skills in the areas of both business and interpersonal negotiations. Through case-based exercises, attention will be given to various strategies for negotiation including distributive, integrative, intra-organizational and multi-lateral bargaining. Additional applications include how negotiation skills can serve as tools for conflict resolution in the workplace and broader life experiences. *Prerequisites: COB 300 and senior standing (90 hours).*

**MGT 490. Independent Study in Management.** 1-3 credits.

Designed to give capable students in management an opportunity to complete independent study under faculty supervision. *Prerequisites: Management major and senior standing (90 hours); recommendation of the instructor and written permission of the director prior to registration.*

**MGT 494. Management Internship.** 3 credits.

A course providing an opportunity to work in and with local industry to gain insight into the real side of modern management. *Prerequisites: Management major, senior standing (90 hours), MGT 365, MGT 340 or MGT 390, minimum cumulative GPA of 2.800, recommendation of the instructor and written permission of the program director prior to registration.*

**MGT 498. Special Topics in Management.** 3 credits for each course.

This course is designed to allow explorations of areas of current topical concern or to exploit special situations. Course content will vary. For current course content consult your adviser. *Prerequisites: COB 300 and management major.*

**MGT 499. Honors.** 1-6 credits.

Year course. See catalog section "Graduation with Honors."

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## Marketing

**MKTG 380. Principles of Marketing.** 3 credits.

Deals with fundamentals involved in the marketing process; concerned with the functions, institutions and channels used to distribute goods and services from producer to consumer. *Prerequisites: Junior standing and a cumulative 2.0 grade point average in all courses taken at JMU.*

**MKTG 384. Integrated Marketing Communications.** 3 credits.

Integrated marketing communications includes advertising, sales promotions, packaging, public relations, publicity, personal selling, direct marketing and event sponsorship. Students will be involved in creating, planning, implementing and evaluating client-oriented projects by developing an integrated marketing communication campaign. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 385. Consumer Behavior.** 3 credits.

Deals with the behavioral science concepts of individual and group behavior of consumers. Stresses the application of consumer behavior research to marketing management. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 386. Services Marketing.** 3 credits.

Application of marketing principles to the services sector. The course focuses on review of customer demand for and assessment of services; the employee/customer interface; services operation management; review of the

services marketing mix; and development of marketing plans for service organizations. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 388. Retail Marketing.** 3 credits.

Study of the institutions of retailing, retailing research, selection of store location and layout, retail organizational structure, and merchandise planning and management. Retail store image, promotion, retail pricing, retail strategy and retail trends will be evaluated. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 405. Survey Research.** 3 credits.

This course covers the techniques and principles, skills and activities that are required to conduct an effective survey project. The course will cover survey planning, survey methods, sampling, survey instrument design, data collection and analysis, and survey reporting. Survey findings are linked to future marketing decision making. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 420. Data Mining.** 3 credits.

Examines database applications by which marketers can build a long-term, interactive relationship between their product/service and their customers. Study of the information-driven marketing process that enables marketers to develop, test, implement, measure and modify customized marketing programs and strategies. *Prerequisites: COB 300 and MKTG 482.*

**MKTG 430. Professional Selling.** 3 credits.

Provides an understanding of many aspects of professional selling including preparing for selling, selling techniques and the role of selling in our society. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 440. Retail Strategy and Buying.** 3 credits.

This course examines merchandising as a major element in the marketing of consumer goods. The student will learn the software tools and formulas for merchandising strategy in a computer mediated environment and the basics of market centers and global sourcing. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 450. Business Marketing.** 3 credits.

An analysis of the policies and procedures in marketing to business buyers. The course provides emphasis on special problems connected with the segmentation and target marketing, purchase, distribution, promotion, and development of business-to-business goods and services. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 460. Global Marketing.** 3 credits.

Examines marketing in international environments, including foreign entry, local marketing in individual countries and global or standardized marketing across many countries. Emphasis is placed on cultural, economic and strategic variables in deciding how to enter and compete in various markets. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 462. International Logistics.** 3 credits.

The goal of the course is to tie the international logistics concepts and tools to real world situations, preparing students for dynamic decisionmaking and problem solving. For marketing majors, this elective would complement such courses as global marketing, business to business marketing, retail management and marketing analytics and provide students with an understanding of one of the key elements of marketing: place/physical distribution, from an international perspective. *Prerequisite: COB 300 and Acceptance in Global Supply Chain Management Minor.*

**MKTG 465. CRM Technology for Sales Professionals.** 3 credits.

The objective of this course is to introduce students to customer relationship management (CRM) technologies used in professional selling. Students will investigate sources of customer data, data management technology, and the use of customer information for professional selling. The course develops technology skills applicable in carrying out sales strategies. *Prerequisite: MKTG 430.*

**MKTG 466. Advanced Professional Selling.** 3 credits.

The purpose of this class is to build on the selling skills first learned in MKTG 430. It will focus on enhancing existing skills and learning new ones in order to even better prepare students for a successful career in sales. In addition, students may be selected to compete in regional or national sales competition during the summer. *Prerequisite: MKTG 430.*

**MKTG 470. Strategic Internet Marketing.** 3 credits.

Studies the culture and demographics of the Internet and examines online business strategies. Students will learn the hardware and software tools necessary for Internet commerce, identify appropriate target segments, develop product opportunities, price structures and distribution channels over the Internet

and execute marketing strategy in computer mediated environments. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 477. Digital Marketing Practicum.** 3 credits.

With an applied focus, this course introduces students to some of the most important and fastest growing sectors in online marketing. Students apply marketing theories in a uniquely applied manner as they become active learners involved in an online marketing campaign, facing real pressures similar to those in the professional workplace (i.e., account management, client relationships, financial constraints, market competition, time limitations, technology, etc.). Student teams will work with actual clients on online marketing campaigns. Throughout their campaigns, students continually make finance, advertising and marketing decisions. Students gather real world data using online marketing dashboards to gain a strong understanding of real market conditions. Students experience traditional advertising concepts such as copy writing, cost per thousand (CPM), return on investment, as well as online marketing concepts such as click-through-rate (CTR), cost-per-click (CPC), conversion rates, landing page strategies, and optimization techniques. *Prerequisites: MKTG 470 and permission of the instructor.*

**MKTG 480. Product Development and Management.** 3 credits.

The process of developing new products will be developed and explored. The marketing tasks which are unique to this operation will be investigated. An understanding of the marketing management of products throughout their life cycles will complete the course. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 482. Marketing Analytics.** 3 credits.

This course focuses on the use of information technology and marketing metrics to increase marketing productivity. Students learn how to evaluate marketing strategies and performance using database queries and statistical analysis. Information technologies are applied in market segmentation and target marketing, lifetime value analysis and RFM (recency, frequency and monetary value) analysis. *Prerequisites: COB 300 or permission of the academic unit head.*

**MKTG 485. Marketing Management.** 3 credits.

Case studies are used to develop analytical and decision-making skills. Knowledge gained from previous course work is applied to actual circumstances faced by marketing managers in private, public, profit and not-for-profit organizations. Extensive preparation of case materials outside of class provides the basis for case presentations and discussion of case situations in class. *Prerequisites: COB 300, MKTG 384, MKTG 385 and senior standing.*

**MKTG 490. Special Studies in Marketing.** 1-3 credits.

Designed to give capable students in marketing an opportunity to complete independent study under faculty supervision. *Prerequisites: GPA of 2.8, instructor recommendation and department head approval prior to registration.*

**MKTG 494. Marketing Internship.** 3-6 credits.

A course providing an opportunity to work in and deal with industry to gain insight into the realities of modern business. *Prerequisites: COB 300, minimum cumulative GPA of 2.80, senior standing, recommendation of the internship coordinator and approval of the academic unit head prior to registration.*

**MKTG 498. Special Topics in Marketing.** 3 credits.

This course is designed to allow explorations of areas of current topical concern or to exploit special situations. Course content will vary. *Prerequisite: Permission of the instructor.*

**MKTG 499 A,B,and C. Honors.** 6 credits.

Year course. See catalog section "Graduation with Honors."

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## Materials Science

**MATS/PHYS 337. Solid State Physics.** 3 credits.

A study of the forces between atoms, crystal structure, lattice vibrations and thermal properties of solids, free electron theory of metals, band theory of solids, semiconductors and dielectrics. *Prerequisite: PHYS 270 or consent of the instructor.*

**MATS/CHEM/PHYS 375. An Introduction to Materials Science.** 3 credits.

An introduction to materials science with emphasis on general properties of materials. Topics will include crystal structure, extended and point defects, and mechanical, electrical, thermal and magnetic properties of metals, ceramics, electronic materials, composites and organic materials. *Prerequisites: CHEM 131, PHYS 150 or PHYS 250, ISAT 212 or permission of the instructor.*

**MATS/PHYS 381. Materials Characterization (Lecture/Lab).** 3 credits.

A review of the common analytical techniques used in materials science related industries today, including the evaluation of electrical, optical,

structural and mechanical properties. Typical techniques may include Hall Effect, scanning probe microscopy, scanning electron microscopy, ellipsometry and x-ray diffraction. *Prerequisites: MATS/PHYS 375, MATS/ISAT 431 or MATS/GEOL 395.*

**MATS 382. Materials Microfabrication Laboratory.** 3 credits.

A materials processing course that examines the design and fabrication of micro- and nano-devices using standard technologies and new lithography techniques. Topics will include laboratory safety and protocol, substrate cleaning, thermal oxidation, photolithography, diffusion, metallization, process integration, and device testing. *Prerequisite: MATS 381 or permission of the instructor.*

**MATS/GEOL 395. Geologic Perspectives in Materials Science.** 3 credits.

A one-semester course which emphasizes the commonalities between the geological sciences and materials science. Course includes topics from mineralogy, crystallography, petrology and structural geology, which are also important in metallurgy and ceramics. *Prerequisites: An introductory course in any physical science or integrated science and technology (i.e., GEOL 110, CHEM 131, PHYS 140 or ISAT 141) and at least one additional advanced course in the major.*

**MATS/GEOL 396. X-ray Characterization of Solid Materials.** 3 credits.

Covers fundamental principles and theory behind two powerful, X-ray based, technologies: X-ray Diffraction and Energy Dispersive Analysis of X-rays (EDS). Students will collect and analyze data from a single crystal Gandolfi X-ray camera, automated powder diffraction system (focusing goniometer), and EDAX system (EDS). *Prerequisites: GEOL 280, MATS/CHEM/PHYS 375 or ISAT 300.*

**MATS/ISAT 430. Materials Science in Manufacturing.** 3 credits.

This course is the study of engineering materials used in the fabrication of products including metals, polymers, ceramics, composites and elastomers. Topics include physical, mechanical and electrical properties of materials, elements of strength of materials, failure criteria, and materials selection. *Prerequisites: ISAT 211 and ISAT 142 or permission of the instructor.*

**MATS/ISAT 431. Manufacturing Processes.** 3 credits.

This course provides an introduction to the processes used for fabricating parts, such as machining, grinding, and casting and sheet-metal fabrication, including both traditional and nontraditional processes. Topics include interaction of materials, processing and design, economics of manufacturing, design for improved processing. Manufacturing processes for metals, plastics and composites are addressed. *Prerequisite: ISAT 430 or permission of the instructor.*

**MATS/ISAT 432. Selection and Use of Engineering Materials.** 3 credits.

This course deals with the interplay between engineering product specification, design, economics, environment, energy, materials selection, fabrication route, manufacturing cost and product service requirements. Students will be taught how to perform design projects that involve understanding of the behavior of materials and selection of materials for a specific function. *Prerequisite: ISAT 211 or permission of the instructor.*

**MATS/ISAT 436. Micro-Nanofabrication and Applications.** 3 credits.

This course examines processes used in the manufacture of microelectronic devices (VLSI integrated circuits, optoelectronic devices, flat panel displays), microelectromechanical devices (micromotors, microactuators), data storage media (magnetic and optical disks, including CDs), optical fibers and some sensors and transducers. Principles of operation of semi-conductor and other devices are also studied. *Prerequisites: Junior standing in ISAT; PHYS 150, PHYS 250 or permission of the instructor.*

**MATS 498R. Undergraduate Materials Science Research.**

1-3 credits, repeatable to 6 credits.

Research in a selected area of materials science arranged with and approved by a faculty research adviser. *Prerequisites: Study proposal must be approved by research adviser and director of Center for Materials Science prior to registration.*

## Mathematics

**MATH 103. The Nature of Mathematics.** 3 credits. Offered fall and spring.

Topics such as geometry, computing, algebra, number theory, history of mathematics, logic, probability, statistics, modeling and problem solving intended to give students insight into what mathematics is, what it attempts to accomplish and how mathematicians think. May be used for general education credit.

**MATH 105. Quantitative Literacy and Reasoning.** 3 credits.

Offered fall and spring.

Applications and interpretation of numerical information in context. Selection and use of appropriate tools: scientific notation, percentages, descriptive summaries, absolute and relative changes, graphs, normal and exponential population

models, and interpretations of bivariate models. Making informed decisions and effectively communicating them. Identifying limitations of information sources, assessing reasonableness of results, and basic concepts of confidence amid uncertainty. Not open to majors in mathematics or statistics. Not open to students who have previously earned credit in courses requiring MATH 105 competency such as MATH 205, MATH 220, MATH 220H, all MATH courses numbered 232 or higher, COB 191, CSD 310, HTH 320, INTA 295, ISAT 151, ISAT 251, ECON 483, JUST 399, MKTG 405, NSG 464, POSC 295, PSYC 210 - 213, PSYC 420, SOCI 231, and SOWK 305 except with the consent of the Mathematics and Statistics department head. May be used for general education credit.

**MATH 107\*-108. Fundamentals of Mathematics I-II.** 3 credits each semester. Offered fall and spring.

These courses, along with MATH 207, form a sequence that covers the topics of sets, logic, numeration systems, development of real numbers, number operations, number theory, geometry, measurement, algebra, functions, probability and data analysis. Sequence is required for early childhood, elementary or middle school teacher licensure. May be used for general education credit. *Prerequisite for MATH 107: Sufficient score on the Mathematics Placement Exam or a grade of "C-" or better in MATH 105. Prerequisite for MATH 108: MATH 107 with a grade of "C-" or better.*

**MATH 135. Elementary Functions.** 4 credits. Offered spring.

Algebraic, exponential, logarithmic and trigonometric functions; matrices and matrix solutions to systems of linear equations; vectors. Not open to students who have previously earned credit in MATH 155, 156, 205 or 235, except with the consent of the department head.

**MATH 155. College Algebra.** 3 credits. Offered fall and spring.

Polynomial, rational, exponential and logarithmic functions and applications, systems of equations and inequalities, sequences. *Prerequisite: Demonstration of proficiency in algebra at an intermediate level. A test is required to determine placement in MATH 155 or MATH 156. Not open to students who have previously earned credit in MATH 135, 156, 205, 231, 232 or 235.*

**MATH 156. College Algebra.** 3 credits. Offered fall.

Covers same topics as MATH 155. MATH 156 will meet five times a week for students requiring more instructional time. *Prerequisites: Demonstration of proficiency in algebra at an intermediate level. A test is required to determine placement in MATH 155 or MATH 156. Not open to students who have previously earned credit in MATH 135, 155, 205, 231, 232 or 235.*

**MATH 167. Topics in Mathematics.** 1-3 credits. Offered on demand.

Topics or projects in mathematics which are of interest to the lower-division student. May be repeated for credit when course content changes. Topics or projects selected may dictate prerequisites. Students should consult the instructor prior to enrolling for this course.

**MATH 199 Algebra/Precalculus Gateway.** 1 credit. Offered fall and spring.

Review of fundamental mathematics required to be successful in MATH 205 or MATH 231, including graphs of functions, factoring, simplifying, solving equations and inequalities, and exponential/logarithmic/trigonometric functions. Self-paced study with required proctored tests. Students needing more instruction should register for MATH 155 instead. *Corequisite: MATH 205 or MATH 231 with appropriate calculus placement score.*

**MATH 205. Introductory Calculus I.** 3 credits. Offered fall and spring.

Topics from differential and integral calculus with applications to the social, behavioral or life sciences and business or management. *Prerequisite: One of MATH 135, MATH 155, MATH 156 or sufficient score on the mathematics placement exam. Not open to mathematics or physics majors or to students who have already earned credit in MATH 232 or MATH 235. Not recommended for chemistry majors.*

**MATH 205E. Introductory Calculus I with Laboratory.** 4 credits. Offered on demand.

Topics from differential and integral calculus, including a laboratory component stressing data collection, data analysis, and applications to environmental issues. *Prerequisite: Demonstration of strong preparation in algebra. Not open to mathematics or physics majors or to students who have already earned credit in MATH 205, MATH 231 or MATH 235. Not recommended for chemistry majors. Sufficient score on the Mathematics Placement Exam.*

**MATH 206. Introductory Calculus II.** 3 credits. Offered on demand.

Topics from integral calculus with applications to the social, behavioral or life sciences and business or management. *Prerequisite: MATH 205. Not open to*

mathematics or physics majors or to students who have already earned credit in MATH 236. *Not recommended for chemistry majors.*

**MATH 207. Fundamentals of Mathematics III.** 3 credits. Offered fall and spring.

A continuation of topics listed in the MATH 107-108 description will be covered. The MATH 107-108-207 sequence fulfills the requirements for licensure of prospective early childhood, elementary or middle school teachers. *Prerequisite:* "C-" or better in both MATH 107 and MATH 108.

**MATH 220. Elementary Statistics.** 3 credits. Offered fall and spring.

Descriptive statistics, frequency distributions, sampling, estimation and testing of hypotheses, regression, correlation and an introduction to statistical analysis using computers. May be used for general education credit. *Prerequisite:* MATH 105 with a grade of "C-" or better or sufficient score on the Mathematics Placement Exam.

**MATH/CS 227-228. Discrete Structures I-II.** 3 credits each semester. MATH/CS 227 offered spring; MATH/CS 228 offered fall.

An introduction to discrete mathematical structures including functions, relations, sets, logic, matrices, elementary number theory, proof techniques, basics of counting, graphic theory, discrete probability, digital logic, finite state machines, integer and floating point representations. *Prerequisite for MATH/CS 227:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. *Prerequisite for MATH/CS 228:* MATH/CS 227.

**MATH 231. Calculus with Functions I.** 3 credits. Offered fall and spring.

MATH 231 and MATH 232 form a sequence that combines first-semester calculus with algebra and trigonometry. The sequence is designed for students whose pre-calculus skills are not strong enough for MATH 235. Calculus material in MATH 231 includes limits and derivatives of algebraic functions and their applications. May be used for general education credit. *Prerequisite:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. MATH 231-232 together are equivalent to MATH 235 for all prerequisites. *Not open to students who have already earned credit in MATH 235.*

**MATH 232. Calculus with Functions II.** 3 credits. Offered fall and spring.

A continuation of MATH 231. Calculus topics include limits and derivatives of transcendental functions, the theory of integration and basic integration techniques. *Prerequisite:* MATH 231 with a grade of "C-" or better. MATH 231-232 together are equivalent to MATH 235 for all prerequisites. *Not open to students who have already earned credit in MATH 235.*

**MATH 235\*-236. Calculus I-II.** 4 credits each semester. Offered fall and spring.

Differential and integral calculus of functions of one variable. Sequences and infinite series. MATH 235 may be used for general education credit. *Prerequisite for MATH 235:* Sufficient score on the Mathematics Placement Exam. *Prerequisite for MATH 236:* MATH 232 or MATH 235 with grade of "C-" or better. MATH 235 is not open to students who have already earned credit in MATH 232.

**MATH 237. Calculus III.** 4 credits. Offered fall and spring.

Vectors. Multivariate calculus. *Prerequisite:* MATH 236 with grade of "C-" or better.

**MATH 238. Linear Algebra with Differential Equations.** 4 credits. Offered fall and spring.

Matrices; determinants; vector spaces; linear transformations; eigenvalues and eigenvectors; separable, exact and linear differential equations; and systems of linear differential equations. *Prerequisite:* MATH 236. *Not open to students with credit in MATH 300 or MATH 336 without departmental permission.*

**MATH 245. Discrete Mathematics.** 3 credits. Offered fall and spring.

Logic, set theory, relations and functions, mathematical induction and equivalent forms, recurrence relations, and counting techniques. *Prerequisite or corequisite:* MATH 236.

**MATH 248. Computers and Numerical Algorithms (3, 2).** 4 credits. Offered fall and spring.

Programming in a high-level computer language. Applications of numerical algorithms to problems basic to areas such as mathematics, the sciences and economics and finance. *Prerequisite:* MATH 236 or corequisite MATH 236 and consent of instructor. *This course is not open to students who have previously earned credit in MATH/CS 448.*

**MATH/PHYS 265. Introduction to Fluid Mechanics.** 4 credits. Offered spring of even years.

Introduces the student to the application of vector calculus to the description of fluids. The Euler equation, viscosity and the Navier-Stokes equation will be covered. *Prerequisites:* MATH 237 and PHYS 260.

**MATH 285. Data Analysis.** 4 credits. Offered on demand.

Topics include experimental and survey design, distributions, variation, chance, sampling variation, computer simulation, bootstrapping, estimation and hypothesis testing using real data generated from classroom experiments and large databases. *Prerequisite:* MATH 206, MATH 236 or permission of the instructor. *Not open to students who have already earned credit in MATH 220 or MATH 318.*

**MATH 286. Independent Study.** 1-3 credits. Offered on demand.

Independent study in mathematics under faculty supervision. Offered only with consent of the department head.

**MATH 297. Undergraduate Research.** 1-4 credits. Offered on demand.

Students pursue research in a selected area of mathematics and/or statistics. Student must make arrangements with a supervising instructor prior to registration. Course may be repeated.

**MATH 300. Linear Algebra.** 3 credits. Offered fall and spring.

Vector spaces, linear transformations, matrices, determinants, systems of linear equations, and eigenvalues and eigenvectors. *Prerequisite:* MATH 236. *Not open for credit to students with credit in MATH 238.*

**MATH 304. Principles of Algebra.** 3 credits. Offered fall and spring.

Algebraic structures, number systems, matrices, groups, rings, factors and solutions to equations, graph theory. *Prerequisite:* "C-" or better in MATH 107, MATH 108 and MATH 207.

**MATH 305. Principles of Geometry.** 3 credits. Offered fall and spring.

Finite geometries, geometric transformations, constructions, geometry of inversion, projective geometry and non-Euclidean geometry. *Prerequisite:* "C-" or better in MATH 107, MATH 108 and MATH 207.

**MATH 306. Principles of Analysis.** 3 credits. Offered fall and spring.

Sequences, discrete calculus and difference equations, derivatives and integrals, concepts of differential equations and applications. *Prerequisite:* "C-" or better in MATH 107, MATH 108 and MATH 207.

**MATH 307. Principles of Probability and Statistics.** 3 credits. Offered fall and spring.

Descriptive statistics, measures of central tendency and dispersion, correlation, probability, probability distributions and statistical inference. *Prerequisite:* "C-" or better in MATH 107, MATH 108 and MATH 207.

**MATH 309. SAS Programming and Data Management.** 3 credits. Offered fall and spring.

Use of statistical software to manage, process and analyze data. Writing of statistical programs to perform simulation experiments. *Prerequisite:* MATH 220 or MATH 318 or equivalent.

**MATH 310. Elementary Theory of Numbers.** 3 credits. Offered every third semester as of fall 2015.

Properties of integers and prime numbers, divisibility, congruence, residues and selected topics. *Prerequisite:* MATH 245 or consent of the instructor.

**MATH 315. The Real Number System.** 3 credits. Offered every third semester as of fall 2016.

A development of the real number system through a systematic approach to the natural numbers, integers, rationals and irrationals. *Prerequisite:* MATH 245 or consent of the instructor.

**MATH 318. Introduction to Probability and Statistics.** 4 credits. Offered fall and spring.

Descriptive statistics, counting, probability axioms, discrete and continuous univariate random variables, expected values of random variables and sums of independent random variables, sampling distributions and the Central Limit Theorem, single and two sample inference for proportions and means, chi-square test of independence, simple linear regression, and correlation. *Prerequisite:* MATH 236.

**MATH 321. Analysis of Variance and Experimental Design.** 3 credits. Offered fall and spring.

Introduction to basic concepts in statistics with applications of statistical techniques including estimation, test of hypothesis, analysis of variance and topics in experimental design. *Prerequisite:* MATH 220 or MATH 318 or equivalent.

**MATH 322. Applied Linear Regression.** 3 credits. Offered fall and spring.

Introduction to basic concepts and methods in regression analysis and the application of these models to real-life situations. *Prerequisite:* MATH 220 or MATH 318 or equivalent.

**MATH 324. Applied Nonparametric Statistics.** 3 credits. Offered spring.

Methods of analyzing data from non-normal populations including binomial tests, contingency tables, use of ranks, Kolmogorov-Smirnov type statistics and selected topics. *Prerequisite: MATH 220 or MATH 318 or equivalent.*

**MATH 325. Survey Sampling Methods.** 3 credits. Offered fall.

Theory and practice of sampling including stratified random samples, discussion of simple random samples, cluster sampling, estimating sample size, ratio estimates, subsampling, two-state sampling and analysis of sampling error. *Prerequisite: MATH 220 or MATH 318 or equivalent.*

**MATH 326. Statistical Quality Control.** 3 credits. Offered on demand.

Uses and concepts of probability and sampling procedures. Acceptance sampling by attributes and variables, Shewhart concepts of process control, control chart process capability studies, reliability and life testing. Design of sampling plans. *Prerequisite: MATH 318.*

**MATH 327. Categorical Data Analysis.** 3 credits. Offered fall.

Exact inference for population proportions, comparison of population proportions for independent and dependent samples, two and three-way contingency tables, Chi-square tests of independence and homogeneity, Chi-square goodness-of-fit tests and Poisson and logistic regression. *Prerequisite: MATH 220 or MATH 318 or equivalent.*

**MATH/FIN 328. Time Series Analysis.** 3 credits. Offered fall of even years.

Regression and exponential smoothing methods for forecasting nonseasonal and seasonal time series, stochastic processes, Box-Jenkins' autoregressive and moving average models. *Prerequisites: MATH 238 or MATH 300; and MATH 318.*

**MATH 336. Elementary Differential Equations.** 3 credits. Offered on demand.

Development of techniques for obtaining, analyzing and graphing solutions to differential equations, with emphasis on first and second order equations. *Prerequisite: MATH 236. Not open for credit to students with credit in MATH 238.*

**MATH 337. Methods of Applied Calculus.** 3 credits. Offered every third semester as of fall 2015.

Laplace transforms, power series and their application to differential equations. Vector differential and integral calculus; parametric curves; coordinate systems; line, surface and volume integrals; and gradient, divergence and curl including the theorems of Green, Stokes and Gauss. *Prerequisites: MATH 237; and MATH 238 or MATH 336.*

**MATH 340. Mathematical Modeling I – Optimization.** 3 credits. Offered fall of even years.

Linear and nonlinear optimization with an emphasis on applications in the sciences, economics and social sciences. Techniques studied include the simplex, Newton and Lagrange methods and Kuhn-Tucker theory. Software packages will be used to implement these methods. *Prerequisites: MATH 237; and MATH 238 or MATH 300 or consent of instructor.*

**MATH/PHYS 341. Nonlinear Dynamics and Chaos.** 3 credits. Offered spring.

Introductory study of nonlinear dynamics and chaos intended primarily for upper-level undergraduates in science and mathematics. Topics include stability, bifurcations, phase portraits, strange attractors, fractals and selected applications of nonlinear dynamics in pure and applied science. Computers may be utilized for simulations and graphics. *Prerequisites: MATH 238 or (MATH 300 and MATH 336); and MATH 248.*

**MATH/BIO 342. Mathematical Models in Biology.** 3 credits. Offered spring.

Introduction to dynamical models (discrete and continuous time) applied to biology. Tools of mathematical analysis from linear and nonlinear dynamics will be taught, including stability analysis of equilibria, as well as appropriate use of software packages. Emphasis will be on model development and interpretation in the context of applications, including effective written and oral presentation. *Prerequisites: MATH 232 or MATH 235 or equivalent.*

**MATH 353. Graph Theory.** 3 credits. Offered every third semester as of spring 2016.

Graphs and their applications. Possible topics include trees, Euler paths and Hamiltonian circuits, planar graphs, digraphs, adjacency matrices, connectivity and coloring problems. *Prerequisite: MATH 245 or consent of instructor.*

**MATH 354/BIO 454. Introduction to Biometrics (3, 1).** 4 credits. Offered spring.

This course discusses the role of statistics in biological research and interpretation of biological phenomena. The course will cover topics of sampling, correlation, regression analysis, tests of hypotheses, commonly observed distributions in natural populations, nonparametric tests, goodness-

of-fit tests and ANOVA. In order to fully comprehend the statistical analysis of those publications, students will review approximately half a dozen publications from different fields of biology. *Prerequisite: MATH 220 or MATH 318 or equivalent.*

**MATH 360. Complex Variables with Applications.** 3 credits. Offered every third semester as of fall 2016.

Introduction to algebraic properties of complex numbers, analytic functions, harmonic functions, mappings of elementary functions, contour integration, series, residues, and poles and conformal mappings. Emphasis on computations and applications to fluid and heat flow. *Prerequisite: MATH 237.*

**MATH/PHYS 365. Computational Fluid Dynamics.** 3 credits. Offered on demand.

Applications of computer models to the understanding of both compressible and incompressible fluid flows. *Prerequisites: MATH 248, either MATH 238 or MATH 336, MATH/PHYS 265, and PHYS 340.*

**MATH/PHYS 367. Introduction to Acoustics.** 3 credits. Offered on demand.

This course represents an introduction to sound, hearing, and vibration. Architectural, biological and environmental acoustics will also be discussed. Students will develop an ability to use mathematical models and experimental techniques to study problems in acoustics and to transfer this knowledge to analogous situations. They will also develop an ability to conduct a semester-long research or expository project and present it in written and oral form to an audience of peers. *Prerequisite: MATH 236 or permission of instructor.*

**MATH/FIN 395. Mathematical Finance.** 3 credits. Offered spring.

An overview of the role of mathematical concepts in financial applications. Topics include continuous time finance, optimization, numerical analysis and applications in asset pricing. *Prerequisites: MATH 237 and FIN 380.*

**MATH/FIN 405. Securities Pricing.** 3 credits. Offered fall.

A quantitative treatment of the theory and method of financial securities pricing to include an examination of closed form pricing models such as the Black-Scholes and its various derivatives as well as numerical solution techniques such as binomial methods. *Prerequisite: MATH/FIN 395.*

**MATH 410-411. Advanced Calculus I-II.** 3 credits each semester. MATH 410 offered fall and spring; MATH 411 offered spring.

Limits, continuity, differentiation, sequences, series, integration and selected topics. *Prerequisite for MATH 410: MATH 238 or MATH 300; and MATH 245 or consent of the instructor. Prerequisite for MATH 411: MATH 410.*

**MATH 415. History of Mathematics.** 3 credits. Offered spring.

Topics in the history of mathematics spanning ancient times to the present. *Prerequisite: MATH 245 or consent of the instructor.*

**MATH 421. Applied Multivariate Statistical Analysis.** 3 credits. Offered fall.

Multivariate statistical methods with applications. Topics include canonical correlation, clustering, discriminant analysis, factor analysis, multivariate analysis of variance, multiple regression, multidimensional scaling and principal component analysis. *Prerequisites: MATH 300 or MATH 238; and MATH 321 or MATH 322.*

**MATH 423. Stochastic Processes.** 3 credits. Offered on demand in spring.

Sequences and classes of random variables. Applications to physical, biological, social and management sciences. Topics include Markov chains, branching processes, the Poisson process, queuing systems and renewal processes. *Prerequisites: MATH 238 or MATH 300; and MATH 318.*

**MATH 424. Statistical Decision Theory.** 3 credits. Offered on demand in spring.

Development and use of probability and statistics for strategic decision making with applications. Topics include decision flow diagrams, analysis of risk and risk aversion, utility theory, Bayesian statistical methods, the economics of sampling, sensitivity analysis and collective decision making. *Prerequisite: MATH 318.*

**MATH 426. Probability and Mathematical Statistics I.** 3 credits. Offered fall.

Derivations and proofs of probability theorems, discrete and continuous univariate and multivariate random variables, conditional distributions, mathematical expectations, functions of random variables, moment generating functions, properties and derivation of estimators including the method of moments and maximum likelihood estimation. *Prerequisite: MATH 318.*

**MATH 427. Probability and Mathematical Statistics II.** 3 credits. Offered spring.

Limiting distributions, sampling theory and distributions, theory and applications of estimation and hypothesis testing. *Prerequisite: MATH 426.*

**MATH 428. Statistical Consulting.** 3 credits. Offered spring.

Training and experience in statistical consulting emphasizing oral and written communication, interview, report-writing and presentation skills. Participate in significant cross disciplinary consulting project that will require meeting with the client, creating reports summarizing the clients' problem and an analysis performed by the students, and explanation of results using language that can be understood by the client. Students are required to meet with clients outside of class meeting times. *Prerequisite or corequisite: MATH 322. Prerequisite: MATH 318 and MATH 321 and at least junior status.*

**MATH 429. Research Project in Statistics.** 1-3 credits. Offered on demand.

Experience in the design, data collection and analysis for a survey or experiment. *Prerequisite: Consent of instructor.*

**MATH 430-431. Abstract Algebra I-II.** 3 credits each semester. MATH 430 offered fall and spring; MATH 431 offered spring.

An introduction to groups, rings and fields. *Prerequisite for MATH 430: MATH 238 or MATH 300; and MATH 245 or consent of instructor. Prerequisite for MATH 431: MATH 430.*

**MATH 434. Advanced Linear Algebra.** 3 credits. Offered spring.

A proof-based linear algebra course covering such topics as vector spaces, linear transformations and matrices, eigenvalues and eigenvectors, inner product spaces, and canonical forms. *Prerequisites: MATH 245 and either MATH 238 or MATH 300.*

**MATH 435. Introduction to Topology.** 3 credits. Offered fall.

Metric spaces, limits, continuous maps and homeomorphisms, connectedness, compact topological spaces and applications. *Prerequisites: MATH 238 or MATH 300; and MATH 245 or consent of instructor.*

**MATH 440. Fourier Analysis and Partial Differential Equations.**

3 credits. Offered fall.

Elementary applied partial differential equations, the heat equation, Laplace's equation, the wave equation; Fourier series and boundary value problems. Both theory and problem-solving will be included. *Prerequisite: MATH 238 or MATH 336.*

**MATH 441. Analysis and Dynamics of Differential Equations.**

3 credits. Offered spring.

Analysis of qualitative properties and dynamics of linear and non-linear ordinary differential equations, including topics such as existence, uniqueness, phase portraits, stability and chaos, with applications to the sciences. *Prerequisites: MATH 238 or (MATH 300 and MATH 336); and MATH 245 or MATH 440 or permission of the instructor.*

**MATH/CS 448. Numerical Analysis.** 3 credits. Offered every third semester as of spring 2016.

Study and analysis of algorithms used to solve nonlinear equations and systems of linear and nonlinear equations. Iterative methods for matrices and Newton-type methods. Numerical differential and integral calculus. Programming using a high-level language and/or software packages. *Prerequisites: MATH 237, MATH 238 or MATH 300; and MATH 248.*

**MATH/CS 449. Numerical Analysis for Differential Equations.**

3 credits. Offered every third semester as of fall 2016.

Study and analysis of numerical techniques to solve ordinary and partial differential equations, including Euler, Runge-Kutta, Picard, finite-difference and finite-element methods. Programming using a high-level language and/or software packages. *Prerequisite: MATH 237, MATH 238 or MATH 336, and MATH 248.*

**MATH/CS 452. Design and Analysis of Algorithms.** 3 credits.

Offered spring.

An introduction to the analysis, design and theory of algorithms. Algorithms studied will be selected from searching, sorting and graph theory. Included are elements of counting, recurrence relations, direct and indirect proofs, recursion, complexity classes, language theory, decidability and undecidability. *Prerequisites: MATH/CS 228 and CS 240.*

**MATH/FIN 465. Seminar in Actuarial Science I.** 3 credits.

Offered on demand.

Theory and application of contingency mathematics in the areas of life and health insurance and of annuities from both a probabilistic and deterministic approach. This class, together with MATH/FIN 466, helps students prepare for the professional actuarial examinations. *Prerequisite: MATH/FIN 395 or consent of the instructor. Prerequisite or corequisite: MATH 426.*

**MATH/FIN 466. Seminar in Actuarial Science II.** 3 credits.

Offered on demand.

A continuation of MATH/FIN 465. Additional coverage of contingency mathematics in the areas of life and health insurance, annuities, pensions and risk theory from both probabilistic and deterministic approaches. The two-course sequence helps to prepare the student for the professional actuarial examinations. *Prerequisite: MATH/FIN 465. Prerequisite or corequisite: MATH 427.*

**MATH 470. Connections in Mathematics.** 3 credits. Offered spring.

This course is a mathematics capstone course primarily for math majors with secondary education minors. It covers a variety of topics, each designed to develop the interconnectedness of advanced mathematics to the secondary curriculum. *Prerequisite or corequisite: MATH 318, MATH 410, MATH 430, and MATH 475.*

**MATH 475. Fundamental Concepts of Geometry.** 3 credits. Offered fall.

Origin and development of Euclidean and other geometries including axiomatic systems, mathematical proof and special topics from incidence geometry. *Prerequisite: MATH 245 or consent of instructor.*

**MATH 485. Selected Topics.** 1-4 credits. Offered on demand.

Topics in advanced mathematics or statistics which are not covered in the regularly offered courses. Offered only with approval of the department head; may be repeated for credit when course content changes. *Prerequisite: Consent of the instructor.*

**MATH 486. Independent Study.** 1-3 credits. Offered on demand.

Independent study in mathematics under faculty supervision. Offered only with consent of the department head.

**MATH 497. Undergraduate Research.** 1-4 credits. Offered on demand.

Students pursue advanced research in a selected area of mathematics and/or statistics. Student must make arrangements with a supervising instructor prior to registration. Offered only with consent of the department head.

**MATH 499. Honors.** 6 credits. Offered on demand.

Three-semester sequence (parts A, B and C with 1-4 credits each) totaling 6 credits. Two-three-one credit sequence is recommended. *Prerequisite: Consent of SHP supervisor.*

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## Mathematics Education

**MAED 430. Teaching Mathematics in Grades K-12.** 3 credits.

This course provides students with knowledge, skills, and understanding to design and implement effective mathematics instruction (K-12). Focus is on the content, methods, and materials developmentally appropriate for mathematics instruction for a range of students, including diverse and special needs children. The course is based on the Principles and Standards for School Mathematics from NCTM. *Prerequisite: EXED 200.*

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## Media Arts and Design

**SMAD 101. Introduction to Media Arts and Design.** 3 credits.

Study of the historical evolution of today's media industries and career paths. Emphasis on contemporary issues affecting those industries and careers. Consideration given to emerging media, their required skills and social impacts. *Prerequisite: Formal declaration for admission to the SMAD major.*

**SMAD 150. Mediated Communication: Issues and Skills.** 3 credits.

Study of how mediated communication shapes the content, meaning and impact of spoken, written and pictorial messages. Emphasis on the skills required to integrate speech, text and imagery into mediated presentations. Consideration of issues involving the critical evaluation of mass-mediated communication, their effectiveness and influence. May not be used for major credit.

**SMAD 201. Foundations of Visual Communication Design.** 3 credits.

Study of the basic computer operating systems and the principles and practices of graphic production for digital and interactive media. Focus on tools and techniques used to create graphic content for diverse media delivery systems. *Prerequisite: Admission to the SMAD major.*

**SMAD 202. Foundations of Audio-visual Storytelling.** 3 credits.

Audio-visual storytelling is an experiential learning course designed to give students a foundation in creating and producing engaging stories/content utilizing a varied range of audio-visual communication/media tools and formats for distribution on multiple delivery platforms including, but not limited to, television, interactive, film, documentaries, news, commercials, radio, podcasts and web. *Prerequisite or corequisite: SMAD 201.*

**SMAD 203. Foundations of User Experience Design.** 3 credits.

Study of the aesthetic principles and practices of web and interactive narrative design. Emphasis on visual communication in an interactive media context. *Prerequisite or Corequisite: SMAD 201*

**SMAD 210. News Reporting and Writing.** 3 credits.

The study and practice of the fundamentals of news writing, including news gathering techniques and news style. Emphasis on coverage of meetings, events and breaking stories. Consideration of writing across platforms including print, broadcast and online. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: Admission to the major or permission of the instructor.*

**SMAD 220. Copy Editing.** 3 credits.

The study and practice of editing stories and visuals for publication. Focus on style, factuality, writing problems, headlines and page design. Other editing roles considered. *Prerequisite or corequisite: journalism concentrators: SMAD 210; creative advertising concentrators: SMAD 210 OR SMAD 252; or permission of instructor.*

**SMAD 225. Photojournalism.** 3 credits.

The study of visual information gathering for print media including photojournalism. Emphasis on photographic techniques and print media layout. Consideration of new visual technologies including the use of computers for electronic photo editing and design. Students must provide their own cameras. *Prerequisites: Admission to the SMAD major and SMAD 201 or permission of the instructor.*

**SMAD 231. Writing for New Media.** 3 credits.

Study of the principles and practices of writing for new media platforms. Emphasis on the nature of interactivity, narrative design, and the relationship between text, image, sound and video. Attention to the development of new media presentations designed to inform, persuade and entertain. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: Admission to the SMAD major or permission of the instructor.*

**SMAD 242. Introduction to Advertising and New Media.** 3 credits.

Introduce fundamentals of advertising in the new media environment. Examine how organizations use new media to engage with consumers to achieve advertising objectives. Focus on hands-on practice in the basic skills and processes needed to prepare multi-platform narratives. Students develop a clear understanding of what makes advertising effective across traditional and new media and develop professional research skills. *Prerequisite: Admission to the SMAD major and creative advertising concentration, or permission of the instructor.*

**SMAD/KIN 243. Sport Communication Techniques: Broadcasting.** 3 credits.

Study and practice of broadcast and A/V techniques applied in a variety of sport settings. *Prerequisite: KIN 242.*

**SMAD/KIN 244. Sport Communication Techniques: Writing and Reporting.** 3 credits.

Basic skills of sport writing and reporting are studied and applied. Students gain experience in a variety of sports and learn and apply skills in researching, interviewing, reporting, writing columns and features involving the world of sports. *Prerequisite: KIN 242.*

**SMAD 250. Scriptwriting.** 3 credits.

The study of the principles and practices of writing scripts for commercial, non-commercial and corporate media applications. Emphasis on preparing dramatic and information forms for broadcast or recording. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: Admission to the SMAD major; for non-majors: admission to the cross disciplinary minor in creative writing minor; or permission of instructor.*

**SMAD 251. Screenplay Writing.** 3 credits.

Introductory study of the principles and practices of screenwriting. Emphasis is placed on the basic narrative structures underlying cinematic story-telling and the development of a short film script. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: Admission to the SMAD major; for non-majors: admission to the cross disciplinary minor in creative writing minor; or permission of the instructor.*

**SMAD 252. Copywriting for Advertising.** 3 credits.

Study the principles and practices of developing creative copy for advertising. Examine how to solve client problems by writing persuasive stories. Focus on writing scripts for TV and radio commercials, print ads, headlines, taglines, jingles, web copy, out of home ads, new media, and social media. Emphasis on editing, researching, and writing creative briefs and strategic plans. *Prerequisites or corequisites: Admission to the SMAD major and creative advertising concentration and SMAD 242 or permission of instructor.*

**SMAD 295. Practicum in Media Arts and Design.** 1 credit, repeatable to 3 credits.

First year students and sophomores participating in co-curricular media activities may receive one hour of credit for fieldwork at *The Breeze*, WMRA-FM, the Madison Video Productions or other university-related media outlets. Students are limited to one practicum per semester. Application procedures will be available from the school prior to registration. *Prerequisite: Permission of the instructor.*

**SMAD 301. The Media Arts: Culture by Design.** 3 credits.

Study of how mediated communication molds perception and influences cultural change. Emphasis on how language and imagery, sound and music are combined in current media to create meaning. Consideration of emerging media and their implications for cultural design. *Prerequisites: SMAD 201. Prerequisites or corequisites: SMAD 202, SMAD 203. or permission of the instructor.*

**SMAD 302. Video Production.** 3 credits.

Principles and practices of video production and editing. Focus on production planning, visual composition, lighting, recording sound and sequencing of shots. Emphasis on single camera videography, and editing for broadcast, nonbroadcast, and multimedia applications. *Prerequisites: SMAD 201 and SMAD 202; prerequisite or corequisite: SMAD 203 or permission of the instructor.*

**SMAD 303. Post Production.** 3 credits.

Principles and practices of video editing. Focus on the techniques, aesthetics, and strategies of editing video. Emphasis on technical standards of ingest, storage, non-linear editing, multi-layer compositing, and transcoding required for effective program output and multi-format distribution. *Prerequisite: SMAD 302 or permission of the instructor.*

**SMAD 304. Audio Production.** 3 credits.

Study of digital sound production and digital sound-for-picture production. Emphasis on advanced theories and applications. *Prerequisite: SMAD 302; prerequisite or corequisite: SMAD 303 or permission of the instructor.*

**SMAD 305. Special Topics in Media Production.** 3 credits, repeatable to 6 credits.

The study of current topics and issues in media arts and design. Emphasis on contemporary themes of immediate concern. *Prerequisite: Admission to the SMAD major or permission of the instructor.*

**SMAD 306. Studio Production.** 3 credits.

The study of principles and practices of multi-camera studio production. Focus on visual composition, audio, lighting and communication in a studio environment. Emphasis on technical and aesthetic demands of multi-camera studio production. *Prerequisite: SMAD 302 or SMAD 309 or permission of the instructor.*

**SMAD 307. Interactive Design Web I.** 3 credits.

Study of the principles of creating effective communication for the World Wide Web. Emphasis on the techniques used to design and integrate diverse media elements. Focus on the creation and manipulation of text, graphics, audio and video for the web. Consideration of interface design and web delivery issues. *Prerequisites: SMAD 201 and SMAD 203 or permission of the instructor; prerequisite or corequisite: SMAD 202.*

**SMAD 308. Interactive Design II.** 3 credits.

Study of the principles and practices for creating effective interactive media. Emphasis on user-centered design of the interactive experience. Includes animation and scripting for online and fixed media. *Prerequisite: SMAD 307 or permission of the instructor.*

**SMAD 309. Video Journalism.** 3 credits.

Study of principles and practices in electronic journalism including information gathering, news writing, camera operations and editing techniques. Emphasis on the use of sound and video to produce hard news, feature news and long-form perspective-based stories for broadcast and online. Examination of the Internet's impact and the differences between traditional and online media outlets in constructing stories with video and sound. *Prerequisites: SMAD 201 and SMAD 202. Prerequisites or corequisites: SMAD 203 and SMAD 210; or permission of the instructor.*

**SMAD 310. Advanced Reporting and Writing.** 3 credits.

Study and practice of in-depth or specialized reporting roles and techniques, story genres, advanced writing methods and pursuing publication. Reading exemplary writers. Group and instructor critiques. *Prerequisite: SMAD 210 or permission of the instructor.*

**SMAD 311. Feature Writing.** 3 credits.

The study and practice of conceiving, reporting and writing human-interest stories. Use of advanced storytelling methods and pursuing publication. Reading exemplary writers. Group and instructor critiques. *Prerequisites: SMAD 210; for non-majors: Admission to the cross disciplinary minor in creative writing minor and SMAD 210; or permission of instructor.*

**SMAD 317. User interaction design.** 3 credits.

Study of web and mobile interaction design principles including goal-driven design, usability, interactive design strategy, wireframing, and web and mobile app prototype development. *Prerequisites: SMAD 201 and SMAD 203; prerequisite or corequisite: SMAD 202.*

**SMAD 330. New Media Law.** 3 credits.

An indepth investigation of business and legal aspects of new media production, publication and distribution, Examination of legal issues affecting the new media industry including: intellectual property laws, torts contracts and licensing. Discussion of current policies and practices affecting new media development and review of pertinent legal reference materials. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L, and junior or senior standing or permission of instructor.*

**SMAD 332. Visual Communication Design.** 3 credits.

An introduction to the theories and methods of design for visual communication. Students will learn various techniques needed to produce the design materials that go into print and electronic publications. *Prerequisite: SMAD 201 or permission of the instructor.*

**SMAD/JUST 334. Media and Justice.** 3 credits.

This course will examine media constructions of justice. Students will be required to critically analyze the portrayal of justice issues in various media forms including television, internet, and film. Attention will be given to the accuracy of such portrayals and whether they have any broader social implications in regards to how we view complex justice issues. *Prerequisite: Admission to the SMAD major.*

**SMAD 340. Advanced Screen Writing.** 3 credits.

Advanced study of the principles of screenplay writing for feature films and television movies. Emphasis is placed on the structure of narrative film. *Prerequisites: SMAD 251; for non-majors: Admission to the cross disciplinary minor in creative writing minor and SMAD 251; or permission of the instructor.*

**SMAD 342. Elements of Creative Advertising.** 3 credits.

Introduces fundamentals of advertising message design and content production for traditional and new media. Examines common questions associated with producing content (i.e., functions and basics of design for print, broadcast and online venues). Focuses on characteristics of effective messages across media and developing professional production skills to produce diverse creative pieces. Emphasizes ethical and legal issues. *Prerequisites: SMAD 201, SMAD 202, SMAD 242 and SMAD 252; prerequisite or corequisite: SMAD 203 or permission of instructor.*

**SMAD/SCOM 357. Youth, Communication and Culture.** 3 credits.

Grounded in the cultural communication perspective, the course examines the relationship between communication, youth and popular culture. Defining youth as children, tweens, teens and college-aged young people, this course focuses on communication issues such as how youth are represented in various forms of popular culture; how they are defined by corporate discourse; how young people make sense of popular culture artifacts; and how they become cultural communicators as well as consumers. *Prerequisites: Admission to the SMAD major.*

**SMAD/SCOM/WRTC 359. Digital Communication Consulting.** 3 credits.

This class will train students to become effective tutors of digital communication. The class will frame that expertise with the training of the best strategies for college tutors, via theory, research and practice. Tutors for the Learning Centers develop vital professional skills: pedagogical aptitude, professional interpersonal communication, and experience with cross disciplinary perspective on digital texts. *Prerequisites: Admission to the SCOM, SMAD, or WRTC majors.*

**SMAD 370. Mass Communication Law.** 3 credits.

Principles and case studies in communication law, constitutional guarantees, libel, privacy, contempt, copyright and governmental regulatory agencies. Emphasis on recent cases and their effects on mass communication. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, and SMAD 301 or SMAD 301L, and junior or senior standing or permission of instructor*

**SMAD 371. Narrative Media Studies.** 3 credits.

Study of narrative theories that focus on the forms and effects of storytelling in cinema and television. Emphasis on how such theories explain the cultural

impact and personal utility of narrative contents in everyday life. Consideration of "the hero's journey" in a variety of film genres and TV formats. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L, and junior or senior standing; For nonmajors: Junior or senior standing and admission to the cross disciplinary minor in film studies; or permission of instructor.*

**SMAD 372. Media History.** 3 credits.

The study of the history of the media in relation to American politics and society. Emphasis on key periods in the development of journalism and the mass media and the role of the journalist in society. *Prerequisites: Admission to the SMAD major and junior or senior standing; or permission of the instructor.*

**SMAD 373. Media Analysis and Criticism.** 3 credits.

The study and practice of journalistic and scholarly criticism of the mass media. Emphasis on interpretive writing about television, film and popular music. Consideration of contemporary analytical methods for researching massmediated culture. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L and junior or senior standing; For nonmajors: Junior or senior standing and admission to the cross disciplinary minor in creative writing; or permission of instructor.*

**SMAD/ENG 380. Introduction to Film.** 3 credits.

An introduction to the study of film as an aesthetic practice, including formal and industrial aspects of film analysis, theoretical approaches to film and writing and research methodologies of film and media studies. *Prerequisite: Admission to the SMAD major or permission of the instructor.*

**SMAD 390. Directed Projects in Media Arts and Design.** 2 credits, repeatable to 4 credits.

Supervised projects related to the study of any of the communication media. Credit given for original individual or group programs beyond the school's usual co-curricular activities. A suitable completed project or report is required before credit can be awarded. *Prerequisite: Permission of the school director.*

**SMAD 395. Advanced Practicum in Media Arts and Design.** 1 credit, repeatable to 3 credits.

Juniors and seniors participating in co-curricular media activities may receive one hour of credit for fieldwork at *The Breeze*, *Curio*, *WMRA-FM*, the Madison Video Productions or other university-related media outlets. Students are limited to one practicum per semester. Application procedures will be available from the school prior to registration. *Prerequisite: Permission of the instructor.*

**SMAD 398. Critical Studies in Media Arts and Design.** 3 credits, repeatable to 6 credits.

Special studies of contemporary media and their contents. Emphasis on the analysis of emerging issues in content production, reception and media effects. Focus on the critical methods used to examine such issues. Consideration of how particular methods may be applied in international as well as American media contexts. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L, and junior or senior standing, and permission of instructor.*

**SMAD 400. Senior Assessment in Media Arts and Design.** 0 credits.

Students participate in testing, interviews, project reviews and other assessment activities as approved by the School of Media Arts and Design. Grades will be assigned on a credit/no-credit basis. *Prerequisites: SMAD 301 or SMAD 301L and senior standing or permission of the school director.*

**SMAD 402. Motion Graphic Design and Production.** 3 credits.

Study of the principles of motion design. Focuses on integrating media (video, greenscreen, photos, vector art, type) within compositing software to tell a story, convey a complex concept or artistically present an idea. Emphasis on graphic design and motion theory, typography for video, logo animation, and show package design. *Prerequisite: SMAD 303 or permission of the instructor.*

**SMAD 403. Documentary Production.** 3 credits.

This course explores the key components of documentary filmmaking and production. The course will introduce students to a professional level of documentary filmmaking, and will focus on enhancing non-fiction storytelling skills. The course will explore funding, festival and outreach strategies. *Prerequisite: SMAD 302 or SMAD 309.*

**SMAD 404. Advanced Interactive Design.** 3 credits.

Study of advanced techniques in interactive media for online and fixed media delivery. Emphasis on emerging technologies and professional development strategies. Includes the creation of an interactive portfolio. *Prerequisite: SMAD 308 and SMAD 317 or permission of instructor.*

**SMAD 405. Producing and Directing.** 3 credits.

Study of the principles and practices of producing and directing programs for video and cinema. Emphasis on the producer's and director's contribution to creative development and production. Focus on the director's responsibilities, including directing talent, visualization, production, and project management. Additional focus on the producer's responsibilities, including creative development, production management, financial management, promotion, and distribution. *Prerequisites: SMAD 302 and senior standing, or permission of the instructor.*

**SMAD 407. Business and Management of Digital Media.** 3 credits.

Study of the principles and practices of managing digital media production. Emphasis on financial and personnel management, client relationships, and the structures and practices of digital media industries. Consideration of new trends in production and distribution. Attention to career preparation and development. *Prerequisites: Senior standing and SMAD 302 or SMAD 307, or permission of the instructor.*

**SMAD 408. Converged Media Lab.** 3 credits.

Advanced study in converged media production. A senior production studio class focusing on creative solutions for complex communication problems in print, video, and web media. The client-based projects will require creative brainstorming, teamwork, project management, and analysis and criticism in addition to production and distribution. *Prerequisites: SMAD 307 and SMAD 317, and either SMAD 305, SMAD 308 or SMAD 332, and senior standing, or permission of instructor.*

**SMAD 409. Electronic News Producing and Editing.** 3 credits.

Study of the processes and responsibilities of producing news for electronic distribution. Students will research, write and produce stories for distribution over-the-air, on cable and over the Internet. Emphasis on legal and ethical issues in news coverage. *Prerequisites: SMAD 309 or permission of the instructor.*

**SMAD 410. The Creative Producer.** 3 credits.

Study of the principles and practices of producing for television. Emphasis on programming (entertainment news to late-night talk, sketch comedy, reality TV, drama and sitcom), and the producing process (moving a project from idea to completion). Focus on budget management and all phases of production management. Consideration of industry practices to help prepare students to enter the entertainment industry. *Prerequisite: Acceptance into the JMU in LA program.*

**SMAD 421. Feature Magazine Production.** 3 credits.

A practical course in which students produce a feature magazine published regularly by the journalism area. Each student is assigned a specific staff position. Students learn to use the latest computer pagination technology in the design and production of the magazine. *Prerequisites: SMAD 309 and either SMAD 310 or SMAD 311, or permission of the instructor.*

**SMAD 422. Multimedia Journalism.** 3 credits.

Advanced study and practice of multimedia journalism. Focus on storytelling with platforms including text, video, audio, photo and social media aggregation. This is a hands-on course producing multimedia packages involving idea generation, content production, website design and management. *Prerequisites: Journalism concentrators: SMAD 210 and SMAD 309; creative advertising concentrators: SMAD 225 and SMAD 342; or permission of the instructor*

**SMAD 443. Creative Advertising Campaigns.** 3 credits.

Study how to develop a creative advertising campaign across a range of traditional and new media. Examine the creative process including conceptualizing, brainstorming, idea generation, copywriting, and design layout. Emphasis on using creativity as a foundation to develop and sell the big idea. Focus on the stages of creative inspiration, concepts of the creative process and roles/functions of creative professionals in advertising, culminating in a creative advertising campaign. *Prerequisite: SMAD 203 and SMAD 342, or permission of instructor*

**SMAD 460. Film and Society.** 3 credits.

The study of the cultural impact of the film industry as an institution of mass communication. Emphasis on the interrelationship among social, economic and technological factors influencing the creation and consumption of motion pictures. Consideration of particular films as indicators of cultural change. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L, and junior or senior standing; for non-majors: Junior or senior standing and admission to the cross disciplinary minor in film studies or permission of the instructor.*

**SMAD 461. Film as Art.** 3 credits.

Advanced study of how movies tell stories in visual terms. Emphasis on the historical evolution and design of the moving image. Consideration of the latest imaging technologies affecting film narrative. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L, and junior or senior standing; for non-majors: Junior or senior standing and admission to the cross disciplinary minor in film studies or permission of the instructor.*

**SMAD 462. Documentary in Film and Television.** 3 credits.

The study of content, style, technique and effect of representative samples of the documentary form. Consideration given to informational and persuasive elements. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L or ENG/SMAD 380 and junior or senior standing; For nonmajors: Junior or senior standing and admission to the cross disciplinary minor in film studies; or permission of instructor.*

**SMAD 463. Film Adaptations.** 3 credits.

The study of the process of adapting literature into feature films. Consideration is given to the original literary work, as well as to the changes undergone in its adaptation to film. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, and SMAD 301 or SMAD 301L, and junior or senior standing; for non-majors: Admission to the cross disciplinary minor in creative writing or film studies and junior or senior standing; or permission of the instructor.*

**SMAD 464. Contemporary American Film.** 3 credits.

Study and analysis of modern American films of the past twenty years. Focus on storytelling technique, cinematic elements and thematic content. Films will be examined against the backdrop of their specific historical, political, and sociocultural context. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L or ENG/SMAD 380 and junior or senior standing; for nonmajors: Junior or senior standing and admission to the cross disciplinary minor in film studies; or permission of instructor.*

**SMAD 465. The Entertainment Industry.** 3 credits.

The American entertainment industry is a \$900 billion a year business. This course examines the most prominent modes of entertainment — Television and feature film. Emphasis is on the struggle between art and commerce in programming. Industry professionals will address the critical aspects of the business, from Idea through Exhibition. The method of instruction will be lecture, discussion and guest speakers. *Prerequisites: SMAD 201 and SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L, plus junior or senior standing or permission of instructor.*

**SMAD 470. New Media and Society.** 3 credits.

Study of the key issues arising from the role of information and information technology in organizations and society. Emphasis on the spheres of social life in which new media technologies play a role: politics, community, economics, culture, personal and global contexts. Focus on a wide range of perspectives and on both theoretical and empirical research to examine new media's role in social capital and community. *Prerequisites: SMAD majors: SMAD 201 and SMAD 202 and SMAD 203, plus SMAD 301 or SMAD 301L and junior or senior standing; wrtc major: requires junior or senior standing or permission of instructor*

**SMAD 471. Media Ethics.** 3 credits.

Study and discussion of ethical principles and professional codes as applied to mass media production, covering journalism, advertising, public relations, and entertainment, in all media forms. Emphasis on case studies. *SMAD 301 or SMAD 301L, and SMAD 201 and SMAD 202 and SMAD 203, and junior or senior standing; or permission of the instructor.*

**SMAD/SCOM/POSC 472. Media and Politics.** 3 credits.

A study of the media's role in political campaigns, concentrating on past/present election, the media's role in covering political parties and coverage of the governing process. Discussion of electronic and print media. Topics to be examined include campaign videos, CSPAN, political ads, editorial cartoons, TV debates, convention coverage and radio talk show commentary.

**SMAD 490. Special Studies in Media Arts and Design.** 3 credits.

An independent study for students to pursue individual research under the guidance of a faculty adviser. *Prerequisites: Senior SMAD majors in good standing and permission of the school director.*

**SMAD 495. Internship in Media Arts and Design.** 1-2 credits, repeatable to 4 credits.

An off-campus program prepared and monitored on an individual student basis. Internships are designed to provide practical experience in converged and interactive media, corporate communication, digital video, cinema, and journalism. *Prerequisites: Permission of the school director and the media facility involved. Students must meet criteria and application procedures established in each concentration.*

**SMAD 497. Advanced Projects in Media Arts and Design.** 3 credits.

This advanced course will enable students to collaborate to create diverse media projects. Projects may be designed to focus on one or many concentrations, and are intended to provide a culminating media creation experience. *Prerequisites: SMAD major and junior or senior standing.*

**SMAD 498. Senior Seminar in Media Arts and Design. 3 credits.**

The study and research in the history and philosophy of the function of mass communication in society. Consideration of topics relating to problems of communication systems, technological freedoms, and press freedom and responsibilities. *Prerequisites: SMAD 201, SMAD 202 and SMAD 203, and SMAD 301 or SMAD 301L, and junior or senior standing, or permission of instructor.*

**SMAD 499. Honors in Media Arts and Design. 6 credits.**

Year course.

## Middle and Secondary Education

**MSSE 101. Orientation to the Profession. 1 credit.**

Provides information about preparation programs and careers for teachers of middle and high schools. Students participate in reflective activities for making personal and professional decisions about teaching and also engage in a service learning project. *Students are responsible for transportation to field placements at local schools.*

**MSSE 201. Introduction to Social Studies Education Seminar. 3 credits.**

The course will introduce students to social studies education through exploration of questions including: What is social studies education? Why teach social studies? What is the role of social studies content in the world of a teacher? What makes a social studies educator? Students will learn through class discussions, field based classroom observations and guest speakers. Students should come to class prepared to challenge their preconceived notions surrounding social studies education.

**MSSE 240. Foundations of General Education Grades 6-12. 3 credits.**

This course is designed to provide an overview of the structure and curriculum of the secondary (6-12) general education classroom. Students will learn assessment requirements of general secondary classrooms and the parameters under which teachers in general secondary classrooms must function. This course is not open to middle and secondary education teacher licensure candidates.

**MSSE 370. General Instructional Methods for Grades 6-12. 3 credits.**

This general teaching methods course provides a solid foundation for planning curriculum and instruction for middle and high school students. Topics include engaging adolescent learners, lesson design instructional strategies and assessment models. *Corequisite: For secondary education: MSSE 371 and EDUC 310; for middle education, MSSE 371. Prerequisites: Admission to teacher education and PSYC 160 for secondary education students; Admission to teacher education, EDUC 310, MIED 311 and READ 312 for middle education students.*

**MSSE 371. Clinical Experience in Adolescent Education. 1 credit.**

Students will devote 20 hours to instruction and clinical experiences. Instruction focuses upon diverse challenges faced by adolescent learners, as well as training in skills related to lesson delivery. Clinical experiences include observation in the field, reflection, and multiple opportunities in small groups to practice the art of teaching with peer and instructor feedback. Satisfactory performance in this course is required for retention in teacher education. *Prerequisites: PSYC 160 for secondary education students; EDUC 310, MIED 311 and READ 312 for middle education students. Corequisites: For secondary education: MSSE 370 and EDUC 310; for middle education, MSSE 370.*

**MSSE 470 (E, H, M and S). Teaching Methods Courses. 3 credits.**

Specific techniques and methods for middle and secondary teachers in their respective discipline areas. Competencies to be developed will include discipline-specific planning strategies, instructional models, assessment of student learning, etc. *Corequisite: MSSE 471. Prerequisites: EDUC 310, MIED 311, MSSE 370, MSSE 371 and READ 312 for middle education students; EDUC 310, MSSE 370 and MSSE 371 for secondary education students.*

**MSSE 470E. English/Language Arts Teaching Methods for Middle School. 3 credits.**

Specific instructional and assessment techniques and methods targeted for the middle school learner for middle and secondary teachers in their respective discipline areas. Competencies to be developed will include discipline-specific planning strategies, instructional models, assessment of student learning, etc. *Corequisite: MSSE 471. Prerequisites: EDUC 310, MIED 311, MSSE 370, MSSE 371 and READ 312 for middle education students; EDUC 310, MSSE 370 and MSSE 371 for secondary education students.*

**MSSE 470H. Social Studies Teaching Methods, Grades 6-8. 3 credits.**

Specific instructional and assessment techniques and methods targeted for the middle school learner for middle and secondary teachers in their respective discipline areas. Competencies to be developed will include discipline-specific planning strategies, instructional models, assessment of student learning, etc. *Corequisite: MSSE 471. Prerequisites: EDUC 310, MIED 311, MSSE 370, MSSE 371 and READ 312 for middle education students; EDUC 310, MSSE 370 and MSSE 371 for secondary education students.*

**MSSE 470M. Mathematics Teaching Methods, Grades 6-8. 3 credits.**

Specific instructional and assessment techniques and methods targeted for the middle school learner for middle and secondary teachers in their respective discipline areas. Competencies to be developed will include discipline-specific planning strategies, instructional models, assessment of student learning, etc. *Corequisite: MSSE 471. Prerequisites: EDUC 310, MIED 311, MSSE 370, MSSE 371 and READ 312 for middle education students; EDUC 310, MSSE 370 and MSSE 371 for secondary education students.*

**MSSE 470S. Natural Sciences Teaching Methods, Grades 6-8. 3 credits.**

Specific instructional and assessment techniques and methods targeted for the middle school learner for middle and secondary teachers in their respective discipline areas. Competencies to be developed will include discipline-specific planning strategies, instructional models, assessment of student learning, etc. *Corequisite: MSSE 471. Prerequisites: EDUC 310, MIED 311, MSSE 370, MSSE 371 and READ 312 for middle education students; EDUC 310, MSSE 370 and MSSE 371 for secondary education students.*

**MSSE 471. Content Area Field Experience in Middle Schools. 3 credits.**

Provides practical classroom experience for teacher education candidates in the middle and secondary education programs under the supervision of an in-service teacher and a clinical professor. Students engage in classroom activities that provide an opportunity for them to practice the strategies and concepts learned in the methods courses. *Corequisites: MSSE 470 and READ 472 or EXED 460 for middle education students; MSSE 470 and READ 440 for secondary education students. Prerequisites: EDUC 310, MIED 311, MSSE 370, MSSE 371 and READ 312 for middle education students; EDUC 310, MSSE 370 and MSSE 371 for secondary education students. Students are responsible for transportation to field placements at local schools.*

**MSSE 471E. Field Experience in Middle School English. 3 credits.**

**MSSE 471H. Field Experience in Middle School Social Studies. 3 credits.**

**MSSE 471M. Field Experience in Middle School Mathematics. 3 credits.**

**MSSE 471S. Field Experience in Middle School Natural Science. 3 credits.**

**MSSE 490. Special Studies in Education. 1-3 credits.**

A supervised, individualized study of one or more issues and/or problems in middle and/or secondary education. *Prerequisite: The faculty adviser and the program coordinator must approve the plan for the study.*

## Middle Education

**MIED 311. Field Experience in Middle Education. 2 credits.**

Students devote 60 clock hours to classroom activities that emphasize diverse learning needs in middle schools under university and public school supervision. Satisfactory performance in this course is required for continuing in teacher education. *Corequisites: EDUC 310 and READ 312 for middle education students.*

## Military Science

**MSCI 100. Leadership Laboratory (0, 2). 2 credits, repeatable to 4 credits.**

A laboratory in the development of leadership, stressing the practical application of leadership principles, techniques, styles and responsibilities. Participation as a member of a team or as a leader of the team given responsibility for accomplishment of given tasks. *Corequisite: MSCI 101 or MSCI 102. Prerequisites: To enroll in this lab section, students must obtain a sports physical or similar medical clearance. Contact the Military Science office for additional information.*

**MSCI 101. Introduction to Leadership and the Army. 2 credits.**

Introduction to various leadership styles and their effect on organizations; an introduction to the organization of the U.S. Army, its roles and missions, customs and traditions; effective writing and oral presentation techniques; orienteering and the use of lensatic compass; principles of physical conditioning. *Corequisite: MSCI 100.*

**MSCI 102. Leadership Development Fundamentals.** *2 credits.*

Introduction to the basic principles of leadership; developing a personal leadership style; effective writing and speaking skills; introduction to leadership in small tactical units; fundamentals of first aid, land navigation and marksmanship; principles of personal conditioning. *Corequisite: MSCI 100.*

**MSCI 150 American Military History.** *3 credits.*

An extensive look into the major engagements of the United States military from the Colonial period through the present. Particular attention will be paid to developing an understanding of the factors that have helped shape the unique way America wages war. This course considers the role and use of armed forces in relation to the social, cultural, political, economic, and technological development of the United States. It will not only address such themes as wartime strategy, operational tactics, and combat technology, but also the impact of warfare on society and on the remembrances of ordinary men and women in uniform. Significant attention will be given to the evolution of civil-military relations, the advent of professionalism in the military, the non-military uses of the military, and the military's role as a tool for global power.

**MSCI 200. Intermediate Leadership Laboratory.** *2 credits, repeatable to 4 credits.*

An intermediate leadership laboratory in the sequential process of leadership development, this course stresses the practical application of leadership principles and responsibilities and the exploratory development of personal leadership techniques and styles. The intermediate leadership laboratory focuses on leadership planning and execution and performance and evaluation as both a team member and a leader of a 10 to 30 person team. Cadets are given responsibility for accomplishing collective tasks and for the evaluation, counseling, leading and mentoring of 10 to 12 subordinates and team members. *Prerequisites: Contracting into the ROTC Basic Course (MSCI 100, MSCI 101 and MSCI 102).* Department head approval required. To enroll in this lab section, students must obtain a sports physical or similar medical clearance. Contact the Military Science office for additional information.

**MSCI 201. Leadership Styles – Theory and Application.** *2 credits.*

A study of individual leadership styles and techniques, using historical case studies, to introduce the branches and specialties of the Army. The focus of this course is communication and goal setting in small organizations, effective writing and public speaking, and performance and evaluation as the leader of a five-member team required to accomplish tasks in a practical setting. Students also serve as a member of a 10-person team responsible for accomplishing practical military and team-building tasks in a field setting. *Corequisite: MSCI 100, MSCI 200 for contracted Cadets in JMU ROTC.*

**MSCI 202. Developing Leader Skills.** *2 credits.*

This course focuses on analyzing missions to determine specified and implied tasks, organizing and conducting a briefing, preparing a concise written directive (operations order), and detailing how a team will accomplish its tasks. Performance and evaluation of Cadets as the leader of a five-person team during a 44 hour, off-campus leadership practicum and evaluation of physical fitness preparedness for attendance at Cadet Professional Development Training are also components of this course. *Corequisite: MSCI 100, MSCI 200 for contracted Cadets in JMU ROTC.*

**MSCI 300. Advanced Leadership Laboratory (0, 2).** *3 credits, repeatable to 12 credits.*

An advanced laboratory in the development of leadership, stressing the practical application of leadership principles, techniques, styles and responsibilities. The advanced leadership laboratory focuses on leadership planning, resourcing and execution. Performance and evaluation as a leader of a 10 to 30 person team given responsibility for accomplishment of given tasks. Responsible for the evaluation, counseling and mentoring of 10 to 30 subordinates and team members. *Prerequisites: MSCI 100, MSCI 101, MSCI 102, MSCI 201 and MSCI 202.* Department head approval required. To enroll in this lab section, students must obtain a sports physical or similar medical clearance. Contact the Military Science office for additional information.

**MSCI 310. Leading Small Organizations.** *3 credits.*

Ethical dilemmas in leadership – when organizational goals conflict with member welfare; the role of policy and standard procedures in organizations; continued practice in effective writing and oral presentations; performance as a leader of a 10 person team in practical exercises; evaluation as an instructor of a period of instruction for 30 subordinates; evaluation as a leader of a 10 to 30 person team in a 44 hour, off-campus leadership practicum. *Prerequisites: MSCI 101, MSCI 102, MSCI 201, and MSCI 202 or placement credit as determined by the professor of military science.* *Corequisite: MSCI 300.*

**MSCI 320. Developing Advanced Leader Skills.** *3 credits.*

Planning for the unexpected in organizations under stress; developing alternate courses of action which are viable with the given constraints; how to delegate tasks and supervise subordinate leaders; avoiding micro-management – the when and how of providing guidance and direction; time management – the “backward planning process”; evaluation of a 10 to 30 person team within tactical and non-tactical settings; analysis of assigned tasks, preparation of a written directive to accomplish these tasks and oral presentation to others in a concise briefing. *Corequisite: MSCI 300.*

**MSCI/WGS 355. American Women at War.** *3 credits.*

This course invites students to engage a series of issues about the role of women in the US military. This course will examine the contributions & experiences of women who served during the American Revolution, the U.S. Civil War, WW I & II, Korea, Vietnam and the Persian Gulf War(s). Also included in this course is an examination of how women in military service both past and present are an instrument for societal change in America specifically in promoting the cause of women's rights.

**MSCI 360. Gender and Leadership.** *3 credits.*

Explore gender in leadership by focusing on social scientific research in sociology, psychology, political science, economics, management, organizational behavior, women's studies and leadership that illuminates the difficulties women experience in attaining and being seen as effective in top leadership positions.

**MSCI 390. The Combat Experience.** *3 credits.*

The course will explore direct participation in military combat. It relies primarily on oral history gained from filmed and in-person interviews conducted by the instructor with combat veterans. Participants range from WWII to the current Middle East conflict.

**MSCI 400. Advanced Leadership Laboratory II.** *3 credits.*

An advanced laboratory in the development of leadership, stressing the practical application of leadership principles, techniques, styles and responsibilities. For seniors, the advanced leadership laboratory focuses on planning, resourcing, supervision and evaluation. Performance and evaluation as a leader of a 10 to 30 person team given responsibility for accomplishment of given tasks. Responsible for the evaluation, counseling and mentoring of 10 to 30 subordinates and team members.

**MSCI 410. Seminar on Command Management – Leadership Challenges and Organizational Goal-Setting.** *3 credits.*

Studies in advanced leadership and management; how to assess organizational cohesion and develop strategies to improve it; examine and utilize components of the Army's training cycle; methods of instruction, planning and conducting of classes to be taught at leadership lab; conduct of oral After-Action Reviews and preparation of written After-Action Reports; the counseling process for improving individual and group performance of subordinates. *Corequisite: MSCI 300.*

**MSCI 420. Seminar on Officership Transition.** *3 credits.*

Introduction to Army management systems – personnel and logistics; the military's legal system and its application at the company level; the officer-NCO relationship; The Officer Efficiency Report and its support form; establishment of project time lines with milestones, goals and In-Progress Reviews; book review on a required leadership book from chief of staff Army required reading list. *Corequisite: MSCI 300.*

**MSCI 490. Special Studies in Military Science.** *1-3 credits.*

Designed to give students an opportunity to do upper-division independent study in selected areas under the supervision of a faculty member in the military science department. *Prerequisite: Department consent required.*

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## Music

**MUS 100. Keyboard Skills I.** *1 credit.*

A beginning level keyboard skills class for music majors. Includes basic techniques, sight reading, elementary repertoire and functional theory-related keyboard skills. Music majors only.

**MUS 101. Keyboard Skills II.** *1 credit.*

An elementary, but not beginning, level keyboard skills class for music majors. Includes basic techniques, sight reading, elementary repertoire and functional theory-related keyboard skills. Music majors only. *Prerequisite: MUS 100 or placement by audition/interview.*

**MUS 120. Diction for Singers I.** *1 credit.*

The study of English and Italian pronunciation using the phonetic alphabet with emphasis on the performance of song literature in each language. Open to

music majors and minors or by permission of the instructor. *Prerequisite:* *Music major or permission of the instructor.*

**MUS 121. Diction for Singers II.** *1 credit.*

The study of French and German pronunciation using the phonetic alphabet with emphasis on the performance of song literature in each language. *Prerequisite:* *Music major or minor or by permission of the instructor.*

**MUS 131. Fundamentals of Music.** *3 credits.*

Covers basics of music theory, ear-training and sight-singing; designed for the non-music major.

**MUS 140. Introduction to Music Theory and Aural Skills.** *4 credits.*

Designed for non-music majors, music minors, musical theater majors, and students wishing to take songwriting, this course introduces students to the fundamental materials of music, both in written and aural form. Topics covered include: notation, rhythm and meter, key signatures, scales, intervals, triads, seventh chords, lead-sheet symbols, cadence, basic harmonic progressions, and form in popular music. This course may not be taken as a substitute for MUS 141/142 or MUS 143/144.

**MUS 141. Music Theory I.** *3 credits.*

Study of chord construction, diatonic harmony, species counterpoint, harmonic analysis and part writing.

**MUS 142. Music Theory II.** *3 credits.*

Continuation of MUS 141. Continued study of diatonic harmony, introduction to chromatic harmony and modulation through chorale-style part writing, composition exercises and musical analysis. *Prerequisite:* *MUS 141.*

**MUS 143. Aural Skills I.** *1 credit.*

Study of ear training and sight singing involving diatonic materials. Includes melodic, harmonic and rhythmic dictation, and singing with solmization of melodic exercises.

**MUS 144. Aural Skills II.** *1 credit.*

Continuation of MUS 143. Study of ear training and sight singing involving diatonic materials. Includes melodic, harmonic and rhythmic dictation, and singing with solmization of melodic exercises. *Prerequisite:* *MUS 143.*

**MUS 146. Jazz Theory and Ear Training.** *1 credit.*

This course introduces students to the basic elements of jazz melodic, rhythmic, and harmonic structure and style. Written analytical techniques and aural skills development will be emphasized. *Prerequisite:* *MUS 141, MUS 143 or instructor permission.*

**MUS 150. Introduction to Technological Applications in Music.** *1 credit.*

This course is designed to provide students with an overview of multiple applications of technology in music teaching. Topics to be covered include, but are not limited to, notation software, instructional software (including creative, practice and performance), MIDI, productivity applications and digital audio/recording.

**MUS 195. Recital Attendance.** *0 credits.*

Required of all music majors for the first six semesters of their enrollment as a major. Successful completion of the course requires attendance at a specified number of approved recitals/concerts each semester. For complete course guidelines, refer to the Undergraduate Music Student Handbook.

**MUS 200. Music in General Culture.** *3 credits.*

Designed to increase the student's perceptual ability in listening to music and to encourage an interest in both familiar and unfamiliar music. Primary study will be on music from the classic Western heritage. Folk, jazz, popular and non-Western music may also be considered. May be used for general education credit. May not be used for major credit.

**MUS 202. Keyboard Skills III.** *1 credit.*

An intermediate level course in functional keyboard skills for music majors. Includes sight reading, transposition, harmonization, improvisation, playing by ear and accompanying techniques. Music majors only. *Prerequisite:* *MUS 101 or placement by audition/interview.*

**MUS 203. Music in America.** *3 credits.*

Knowledge and skills to increase the student's perceptual ability in music listening with a survey of American music; examining relationships between popular and classical music styles. May be used for general education credit. May not be used for major credit.

**MUS 204. History of Rock.** *3 credits.*

History of rock is a music appreciation course designed to develop an understanding of both musical and cultural roots of rock music and the ability to hear a direct relationship between those roots and current popular music. A major component of the course is a survey of the history of 20th century American popular music.

**MUS 206. Introduction to Global Music.** *3 credits.*

A survey of various world music traditions, including those of Asia, the Pacific, Europe, Africa and the Americas. The course will focus on aesthetics, musical forms and styles, and the relationship between music and other arts. Emphasis will be placed on historical, religious and cultural events and their influence on the creation and development of music. May be used for general education credit.

**MUS 220. Assessment Tests – School of Music.** *0 credits.*  
*Offered each spring.*

Required, non-credit School of Music Assessment Test course which is to be taken before the Bachelor of Music degree is received, normally in the final spring semester of senior year. *Prerequisite:* *Music major with senior standing.*

**MUS 240. Jazz Improvisation Laboratory I.** *2 credits.*

Presents the fundamentals of improvisation in both jazz and popular musical styles. The class emphasis will be on creative work although some theory and chord nomenclature will be taught. Both vocal and instrumental musicians will be permitted to enroll, including both the general student and the music major. *Prerequisite:* *Music major or jazz minor or permission of the instructor.*

**MUS 241. Music Theory III.** *3 credits.*

Continuation of MUS 142. Continued study of diatonic and chromatic harmony through musical analysis, part writing and composition exercises. *Prerequisite:* *MUS 142.*

**MUS 242. Theory IV.** *3 credits.*

Continuation of MUS 241. Continued study of chromatic harmony through analysis and composition exercises. Introduction to post-tonal theory through analysis and composition exercises. *Prerequisite:* *MUS 241.*

**MUS 243. Aural Skills III.** *1 credit.*

Continuation of MUS 144. Continued study of sight singing and ear training with diatonic and chromatic materials through exercises in melodic, harmonic and rhythmic dictation, and singing of melodic exercises with solmization. *Prerequisite:* *MUS 144.*

**MUS 244. Aural Skills IV.** *1 credit.*

Continuation of MUS 243. Continued study of sight singing and ear training with diatonic and chromatic materials through exercises in melodic, harmonic and rhythmic dictation, and singing of melodic exercises with solmization, with an introduction to modal and 20th-century materials. *Prerequisite:* *MUS 243.*

**MUS 303. Keyboard Skills IV.** *1 credit.*

A moderately advanced course in functional keyboard skills for music majors. Includes sight reading, transposition, harmonization, improvisation, playing by ear and accompanying techniques. Designed to prepare music major students for required Keyboard Proficiency Examination. Music majors only. *Prerequisite:* *MUS 202 or placement by audition/interview.*

**MUS 304. Advanced Keyboard Skills.** *1 credit.*

Designed for music majors who are required to minor in piano and/or organ. The emphasis is on sight reading and other keyboard skills beyond those covered in the class piano MUS 303 course. This is a group class which can be repeated. *Prerequisite:* *MUS 303.*

**MUS 305. Jazz Keyboard Skills.** *1 credit.*

This course introduces and develops the keyboard skills necessary to construct piano accompaniments in the jazz idiom using a progression of chord symbols or a lead sheet. Successful completion of this course is required in order to enroll in upper level courses in the Jazz Studies major. *Prerequisite:* *MUS 101 or permission of the instructor.*

**MUS 317. Basic Conducting.** *2 credits.*

Designed to acquaint the student with the fundamental elements of conducting technique, such as beat patterns, cueing, expression, transposition and score reading, with an emphasis on applying these techniques in practical conducting experiences involving vocal and instrumental forces. *Prerequisites:* *MUS 142 and MUS 144 or junior standing.*

**MUS 318. Intermediate Choral Conducting.** *2 credits.*

Consists of the further application of basic conducting skills learned in MUS 317 to the choral situation with emphasis on baton techniques, score reading and preparation and introduction to choral literature. *Prerequisite:* *MUS 317.*

**MUS 319. Intermediate Instrumental Conducting.** *2 credits.*

A continuation of basic conducting to develop skills in baton technique with emphasis on advanced literature for public school use. Included are score sight-reading skills and literature selection. *Prerequisite:* *MUS 317.*

**MUS 341. Musical Form and Analysis.** *2 credits.*

An exploration of formal processes in tonal music, beginning with phrase and small formal structures, and including large-scale forms such as sonata, rondo and variations. Students will become conversant with the vocabulary of musical form, and through listening and analysis, demonstrate an ability to

describe formal processes used in works of the common practice era. *Prerequisite: MUS 242.*

**MUS 343. Basic Movement and Acting Skills for the Opera Stage.** 2 credits.

A studio environment dedicated to the study of gesture, basic dance, movement and acting skills for classical singers. Emphasis will be given to score interpretation, movement phrasing and physical expression of musical ideas. Final assessment will be based on duet or small scene performance. May be repeated for credit with the approval of the instructor.

**MUS 345. Small Ensemble Jazz Arranging.** 3 credits.

This course introduces students to the techniques of arranging for two-horn, three-horn, and four-horn jazz ensembles. Students will study the classic repertoire of small jazz groups between 1930 and the present day, and create and record small ensemble arrangements in various styles. *Prerequisites: MUS 146, MUS 305 or permission of the instructor.*

**MUS 346. Large Ensemble Jazz Arranging.** 3 credits.

This course introduces students to the techniques of arranging for large jazz ensemble ("big band"). Students will study representative works of seminal big band composers active between 1930 and the present day, and create and record a full big band arrangement. *Prerequisites: MUS 146, MUS 305, MUS 345 or permission of the instructor.*

**MUS 352. Music Composition.** 2-3 credits.

Individual/seminar instruction in composition using 20th-century styles and techniques. Compositions are performed publicly. *Prerequisites: MUS 141 and 142 or permission of the instructor. May be repeated.*

**MUS 356. History of Jazz in America.** 3 credits.

A study of American jazz with particular emphasis on its practices with reference to principal performers and composers of jazz-style periods.

**MUS/THEA 357. Music Theatre History and Analysis.** 3 credits.

Survey of musical theatre genres, composers, lyricists, performers, directors and choreographers in America from 1750 to the present. Includes practical study of the format of the libretto and musical score in relationship to the major musical theatre genres. Consideration of how music theatre developed from and reflected the cultural, social and political landscape of its time.

**MUS 371. Private Piano Pedagogy.** 3 credits.

Procedures and materials for the teaching of private piano students, especially elementary and intermediate. Piano solo and ensemble literature for children are emphasized. The problems of the adult beginner are studied.

**MUS 372. Supervised Private Piano Teaching.** 1 credit.

Supervised practice teaching in private lesson settings involving beginning and intermediate piano students of various ages and abilities. *Prerequisite: MUS 371.*

**MUS 373. Music History.** 3 credits.

An introduction to the discipline of music history, incorporating the study of western music from antiquity through the early Baroque Era.

**MUS 374. Music History.** 2 credits.

A history of Western music from 1600 through 1827.

**MUS 375. Music History.** 3 credits.

A history of western music from the late Romantic era through the 20th century.

**MUS 395. Junior or Senior Half Recital.** 0 credits.

Presentation of a half recital, representative in quality of passing performance level 6 or 7 as set by the pertinent performance area faculty. Memorization is required in those areas that traditionally expect it. Course to be graded on credit/no credit basis. *Prerequisites: Junior standing and approval of the performance faculty of the performer's area.*

**MUS 420. Piano Technology.** 1-2 credits.

The acoustical and mechanical design and history of the piano. This course includes the theory of tuning and temperaments; procedures and techniques of regulating and voicing pianos; and an additional hour for tuning lab.

**MUS 429. Introduction to Intentional Music.** 1 credit.

This course explores intentional uses of music to achieve outcomes with atypical populations. Students will observe intentional music activities in varied settings, study research-based applications of intentional music, and develop intentional music activities for case study populations. They will also reflect on their own musical identities, and those of potential clients, to develop skills in communication and planning.

**MUS 430. Music and Human Services: Experiences and Practicum.** 2 credits.

This course integrates psychological and cultural functions of music with activities and goals of human service organizations. Representatives of human services organizations are invited to explain their interventions with diverse

populations. Students will be offered practicum experiences in these agencies. Through relating these experiences to the class, in seminar fashion, interdisciplinary practices will be illustrated.

**MUS 435. Instrumentation.** 3 credits.

In-depth practicum on idiomatic writing for orchestral instruments both individually and in an ensemble setting. Students are introduced to the characteristics and limitations of each instrument with written exercises, listening and score study examples from significant orchestral works, demonstrations by representative instrumentalists, and small-scale scoring projects. *Prerequisite: MUS 242 and MUS 352 (at least one semester) or permission of the instructor.*

**MUS 440. Jazz Improvisation Laboratory II.** 2 credits.

Presents intermediate to advanced improvisation skills in the jazz idiom alone. There is an emphasis on the theoretical analysis of chord progressions as well as on creative musical application. The course concludes by introducing some advanced musical improvisation concepts. May be repeated. *Prerequisite: MUS 240 or permission of the instructor.*

**MUS 441. Vocal Arranging.** 3 credits.

Arranging for vocal ensembles. Included will be fundamental concepts of orchestration. *Prerequisites: MUS 242 and MUS 244.*

**MUS 442. Instrumental Arranging.** 3 credits.

Arranging for various instrumental ensembles, including fundamental concepts for orchestration. *Prerequisites: MUS 242 and MUS 244.*

**MUS 444. Counterpoint.** 2 credits.

Compositional and analytical study of 18th-century Bach-style polyphony with detailed study of invention, fugue and chorale prelude. *Prerequisites: MUS 242 and MUS 244.*

**MUS 445. Orchestration.** 3 credits.

Survey of modern orchestration techniques building on the foundations established in MUS 435. Students will gain familiarity with current practice and nuances of scoring for large instrumental ensembles through examples from traditional and contemporary literature and small-scale scoring assignments. Students will focus on the preparation and production of a professional-quality score and orchestral parts leading to a reading session with the JMU Symphony Orchestra at the end of the term. *Prerequisites: MUS 435 or permission of the instructor.*

**MUS 446. Jazz Composition.** 2 credits.

An introduction to techniques of jazz composition. Students will study classic jazz compositions and create original compositions utilizing various harmonic techniques. *Prerequisites: MUS 146, MUS 244 and MUS 305.*

**MUS 450. Topics in Music Analysis.** 3 credits.

Analytical investigation of musical examples in a variety of styles with emphasis on structure and harmony. Topics vary, but may include music of the Renaissance, the common practice period, and/or the 20th century, including Debussy, Bartok, Stravinsky, and composers of the second Viennese school. Course may be repeated for different topics. *Prerequisites: MUS 242 and MUS 244.*

**MUS 460. Piano Literature I.** 2 credits.

A survey of baroque and classical literature for the piano encompassing solo and concerto repertoire. An examination of literature for the clavichord, harpsichord and pianoforte.

**MUS 464. Symphonic Literature.** 3 credits.

A historical survey of symphonic literature concentrating primarily on major composers and compositions from Baroque to present.

**MUS 465. Opera History and Literature I.** 2 credits.

A survey study of the history of opera. Consideration will be given to the chronological development of all forms of music theatre with an emphasis on style characteristics through aural identification. *Prerequisites: MUS 242, MUS 244 or permission of the instructor.*

**MUS 466. Opera History and Literature II.** 2 credits.

A study of the history of Opera from 1840 through the present. Consideration will be given to the chronological development of all forms of Opera Theater with an emphasis on identifying characteristics of style through aural identification and score study. *Prerequisites: MUS 242, MUS 244 or permission of the instructor.*

**MUS 467. Song Literature I.** 2 credits.

A survey of vocal art-song literature in Western culture emphasizing the German composers, repertoire and concepts. *Prerequisites: MUS 242, MUS 244 or permission of the instructor.*

**MUS 468. Song Literature II. 2 credits.**

A survey of vocal art-song literature in Western culture emphasizing the Italian, French, English and American composers, repertoire and concepts. If time permits, other international repertoire will also be surveyed. *Prerequisites:* MUS 242, MUS 244 or permission of the instructor.

**MUS 470. Piano Literature II. 2 credits.**

A survey of romantic, impressionistic and 20th-century literature for the piano, including solo and concerto repertoire, with an emphasis on stylistic trends of the 20th century.

**MUS 472. Instrumental Pedagogy. 1 credit.**

Presentations of instrumental methods, solo and ensemble literature related to the instrumental performer's own major area. Private instruction approaches and techniques are also considered with particular reference to the beginning player.

**MUS 477. Vocal Pedagogy. 2 credits.**

Designed to acquaint the prospective teacher with techniques of vocal pedagogy, both scientific and empirical. The course involves study, practice and observation.

**MUS 480. Advanced Seminar in Musicological Topics. 3 credits.**

An intensive study of a single topic in musicology or ethnomusicology. Topics change each semester and may include studies of a specific musical issue (performance practice, etc.), a single composer's music, a single musical genre (the string quartet, etc.), or music at a specific time and/or place (music in fin de siècle Paris, music in modern South Africa, the second Viennese school, etc.) May be repeated for credit. *Prerequisites:* MUS 480, MUS 373, MUS 374 and MUS 375 or permission of the instructor.

**MUS 485. Advanced Jazz Topics Seminar. 3 credits.**

An intensive study of a single topic in jazz studies. Topics change each semester, and may include studies of a specific musical issue (performance practice, etc.), a single composer's or performer's music (Duke Ellington, Miles Davis, etc.), a single musical genre (the development of big band style, etc), or a sociological study (jazz in Europe, jazz and American culture, etc.). May be repeated for credit. *Prerequisites:* MUS 374, MUS 356 or permission of the instructor.

**MUS 490. Special Studies in Music. 1-3 credits each semester.**

Designed to give superior music students an opportunity to complete independent study under faculty supervision. *Prerequisites:* Permission of the instructor and school director.

**MUS 495. Senior Graduation Recital. 1 credit.**

Presentation of a full recital with the quality of performance to meet standards for admission to graduate school master's degree in music programs. Memorized recital presentations will be required in those areas which traditionally demand them. *Prerequisite:* Senior standing.

**MUS 497. Senior Project in Theory. 1 credit.**

Analytical paper or other topic approved by the theory-composition area. Enrollment is for students who are planning to do graduate work in music theory.

**MUS 498. Selected Topics in Music. 1-3 credits.**

Courses in music or music education which are of a topical nature. May be repeated.

**MUS 499. Honors. 6 credits.**

This is a year long course.

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## Music Education

**MUED 200. Small Ensemble for Instrumental Music Education Majors. 0 credits.**

This course will fulfill the NASM requirement for instrumental music education majors to gain experiences in small ensembles. Students enrolled in this course may complete the requirement through a variety of experiences approved by their academic advisor, including participation in String Ensembles, Camerata Strings, Collegium Musicum, Woodwind Ensembles, Guitar Ensemble, Percussion Ensembles, Jazz Chamber Ensembles, Collaborative Piano, Brass Chamber Ensembles.

**MUED 201. Small Ensemble for Vocal Music Education Majors.**

0 credits.

This course will fulfill the NASM program requirement for vocal music education majors to gain experiences in small ensembles. Students enrolled in this course may complete the requirement through a variety of experiences approved by their academic advisor, including participation in Treble Chamber Choir, Men's and Women's Chamber Choirs, Bach Aria Group, Madison Singers, Collegium Musicum, or Opera Theatre.

**MUED 206. Instrumental Music Methods for Vocal MUED Majors. 1 credit.**

Provides vocal track music education majors with experiences, methods, and techniques for instrumental music instruction and a fundamental knowledge of and proficiency on woodwind, brass, percussion, and string instruments.

**MUED 271. Music Education: A Professional Choice. 1 credit.**

Overview of the music education profession and the music education curriculum PreK-12. Introduction to the JMU Conceptual Framework. Observation of school music programs. Students apply to teacher education as a part of this course. A portfolio is initiated which will be continually revised, culminating in the student teaching portfolio.

**MUED 273. Music Education: Professional Practice. 1 credit.**

Second course in the sophomore music education sequence. Builds on the foundation of philosophy, history and psychology of music teaching established in the first semester of the sequence (MUED 271) with an emphasis on the application of foundational knowledge to planning and leading instruction. Continued observation in PreK-12 and other settings with opportunities to teach. *Prerequisite:* MUED 271.

**MUED 301-302. Woodwind Techniques. 1 credit each semester.**

Instruction in the basic skills of playing and teaching standard woodwind instruments in a heterogeneous class situation. Various methods for woodwind teaching will be studied and materials used in public school teaching will be examined and performed. MUED 301 each fall; MUED 302 each spring. *Prerequisites:* Sophomore standing; MUED 301 is a prerequisite to MUED 302.

**MUED 303-304. Brass Techniques. 1 credit each semester.**

Instruction in the basic skills of playing and teaching standard brass instruments in a heterogeneous class situation. Various methods for brass teaching will be studied and materials used in public school teaching will be examined and performed. MUED 303 each fall; MUED 304 each spring. *Prerequisites:* Sophomore standing; MUED 303 is a prerequisite to MUED 304.

**MUED 305-306. Percussion Techniques. 1 credit each semester.**

Instruction in the basic skills of playing and teaching standard percussion instruments in a heterogeneous class situation. Various methods of percussion teaching will be studied and materials used in public school teaching will be examined and performed. MUED 305 each fall; MUED 306 each spring. *Prerequisites:* Sophomore standing; MUED 305 is a prerequisite to MUED 306.

**MUED 307-308. String Techniques. 1 credit each semester.**

Instruction in the basic skills of playing and teaching string instruments. Instruction will be on violin, viola, cello and bass in a heterogeneous class situation. Various methods for string teaching will be studied and materials used in public school teaching will be examined and performed. *Prerequisites:* Sophomore standing; MUED 307 is a prerequisite to MUED 308.

**MUED 310. Vocal Techniques. 1 credit.**

Class instruction designed to acquaint the instrumental (non-voice) major with fundamentals of vocal and choral techniques including posture, breath support, basic vocal production, physiological functions of the vocal mechanism, singer's diction, vocal exercises and individual as well as ensemble performances.

**MUED 371. Beginning Methods and Materials for Instrumental Music. 2 credits.**

Methods and materials for beginning through intermediate instrumental music students. Administrative concerns are included. *Prerequisites:* MUED 273, full admission to teacher education and Level 3 in major applied area.

**MUED 372. General Music Practices. 2 credits.**

Focuses on broad preparation for teaching the general music courses now found at both middle and high school levels. *Prerequisites:* MUED 273, full admission to teacher education and Level 3 in major applied area.

**MUED 373. Advanced Methods and Materials for Instrumental Music. 2 credits.**

Learning experiences related to the career needs of school instrumental music teachers are analyzed, discussed and practiced. Planning and teaching skills are presented for beginning, intermediate and advanced level students. *Prerequisites:* MUED 273 and MUS 317, full admission to teacher education and Level 4 in major applied area.

**MUED 376. Choral Music Materials and Techniques. 2 credits.**

Learning experiences of a useful and practical nature related to the career needs of school choral music teachers will be analyzed, discussed and practiced. Skills will be presented such as planning and teaching vocal technique, choosing appropriate music, and administering choral music programs. *Prerequisites:* MUS 317 and MUED 273, full admission to teacher education and Level 4 in major applied area.

**MUED 380. Music in the Elementary School.** *2 credits.*

The general music program in the elementary school presented for future music specialists, K-6. Focus is on the synthesis of current philosophy, learning theories and educational practices for teaching elementary school music. Preparation for organizing music curricula and daily lesson plans is included. *Prerequisite: MUED 273, full admission to teacher education and Level 3 in major applied area.*

**MUED 431. Psychology of Music.** *3 credits.*

This course examines the topic of music psychology, and explores current findings and related subtopics, including those from brain sciences. Students will observe the practical application of research findings via practicum placements. Students will reflect on, and synthesize their content knowledge of the topic with their personal field experience knowledge for the purpose of making connections to their own career goals for future employment (e.g. music classroom, and music therapy settings).

**MUED 470. Marching Band Procedures.** *2 credits.*

Skills and knowledge needed to organize, administer, plan and teach marching band shows including shows for various competitions, parades, football, basketball and festival events; and techniques for developing both marching and playing style through a functional method of fundamental drills. *Prerequisite: MUED 273 or permission of the instructor.*

**MUED 471. School Musical, Jazz and Show Choir Procedures.** *2 credits.*

Covers skills and concepts needed to organize, administer, plan, teach and perform in musicals, jazz choirs and show choirs. Highlights techniques of commercial and theatrical vocal style, fundamentals of producing a musical and choreography for the show choir. *Prerequisites: MUS 317 and MUED 271 or permission of the instructor.*

**MUED 472. Survey of String Orchestra Repertoire.** *2 credits.*

An examination of concert repertoire for string and full orchestra appropriate for performance by students in grades seven through 12. The course will include a study of evaluation and selection of music appropriate for a specific ensemble. *Prerequisite: MUED 271 or permission of the instructor.*

**MUED 473. Jazz Ensemble Procedures and Techniques.** *2 credits.*

This course addresses all aspects of instrumental jazz instruction (big band and small group) in the public schools. Teaching philosophies, rehearsal techniques and resource materials will be examined; the syllabus includes opportunities to observe and rehearse jazz groups. Enrollment is not limited to traditional jazz instrumentation. *Prerequisite: MUED 271 or permission of the instructor.*

**MUED 474. Classroom Guitar Pedagogy.** *2 credits.*

Preparation to teach guitar in beginning, intermediate and advanced school music settings. Content includes information specific to guitar pedagogy (e.g. fretboard knowledge, chord shapes), and traditional guitar method approaches to various skills (e.g. reading standard notation, positions, fingerboard harmony). Guitar repertoire, relevant literature, available resources, and the role of the guitar ensemble in public schools will be examined from teaching and administrative perspectives.

**MUED 480. Student Teaching.** *3-12 credits.*

Enables students to apply, in the public school classrooms and the comprehensive child development programs, those skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors, students are provided activities designed to familiarize them with the classroom teacher's role. *Prerequisites: PSYC 160, EDUC 300 or EDUC 360, appropriate methods courses, and permission of the coordinator of field experiences.*

**MUED 482. Orff and Kodaly: Literature, Principles and Practices.** *1 credit.*

Students will study the repertoire employed in the Orff and Kodaly approaches to music education. They will develop skills and understanding of the principles related to these approaches. Work with peers and school children will provide the opportunity to develop teaching skills. May be repeated for credit.

**MUED 485. Teaching Music to Students with Special Needs.** *3 credits.*

Students will become familiar with trends affecting students with special needs and introduced to diverse variations in language ability, assessment, inclusion and music education. Students will collaborate online through discussion forums regarding case study and video presentations. Students will become knowledgeable in language, motor, visual and social development, connecting current research and theory to classroom practice. Students will also critically assess inclusive school settings.

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## Music Industry

**MUI 221. Survey of the Music Industry.** *3 credits.*

An overview of the recording, entertainment and performing arts industries including an examination of the historical, aesthetic and commercial developments of the music industry in the United States.

**MUI 231. Legal Aspects of the Music Industry.** *3 credits.*

An examination of the legal issues affecting the performing arts, recording and music publishing fields. Topics include music rights and licensing, performing arts unions and guilds, artist representation, and contractual relationships. *Prerequisites: MUI 221, music major or permission of music industry coordinator.*

**MUI 250. Portfolio Review.** *0 credits.*

Portfolio review required to enroll in 300- and 400-level music industry courses. May be repeated once.

**MUI 315. Songwriting.** *3 credits.*

An introduction to form, lyric development and melodic structure of contemporary songwriting for commercial entertainment applications. The course will include examination of leadsheet writing, demo production, copyright protection and publishing of commercial songs. *Prerequisites: MUS 250, MUS 142 or permission of the instructor.*

**MUI 324. Introduction to Audio Devices.** *3 credits.*

Introduction to electronic devices utilized in the sound recording industry. *Prerequisites: PHYS 121, MUI 250 or permission of the instructor.*

**MUI 330. Music Publishing.** *3 credits.*

This course will offer a comprehensive overview of the music publication industry. The focus will be upon, but not limited to, mainstream popular music. It will also consider songwriter/publisher relations, self-publication, as well as an examination of art. Religious and educational music publishing. *Prerequisite: MUI 250 or permission of the instructor.*

**MUI 400. Multi-Track Recording Techniques I.** *3 credits.*

An introduction to contemporary multi-track recording studio techniques. Students will be introduced to recording studio design, psycho-acoustics, miking techniques, musical instrument digital interface and the mixing console. *Prerequisites: MUI 250, MUI 324 or permission of the instructor.*

**MUI 401. Multi-Track Techniques II.** *3 credits.*

Advanced multi-track recording studio techniques. Students will examine signal processing, musical instrument digital interface, mix down and editing procedures. *Prerequisites: MUI 250, MUI 400 or permission of the instructor.*

**MUI 405. Logic Pro.** *3 credits.*

An introduction to analog synthesis, digital synthesis, an overview of conditions and events that led to the development of MIDI, a study of the MIDI protocol itself, as well as Apple Certified instruction in music production utilizing Logic Pro. *Prerequisite: MUI 324 or permission of the instructor.*

**MUI 411. Audio Postproduction.** *3 credits.*

An examination of music and sound used in the broadcast and entertainment media from an intensive, hands-on engineering perspective. The course will feature multiple post-production assignments to be completed in our on-campus Studio B, as well as field trips to off-campus post-production studios. *Prerequisites: MUI 250, MUS 324 and MUI 400 or permission of the instructor.*

**MUI 415. Songwriting II.** *3 credits.*

This course is a continuation in the study of form, lyric development and melodic structure of contemporary songwriting for commercial entertainment applications. This course will also take into account some basic music business aspects important in the music industry directly related to song writers. *Prerequisite: MUI 250 or permission of the instructor.*

**MUI 422. Concert Production and Promotion.** *3 credits.*

Study of the presentation of cultural and commercial entertainment in the form of concert events from artistic, technical and business viewpoints. The roles of the cultural impresario and concert promoter in contemporary society are examined. *Prerequisite: MUI 250 or permission of the instructor.*

**MUI 423. Sound Reinforcement.** *3 credits.*

An introduction to the history, equipment, skills, and business of sound reinforcement. The technique of contemporary sound engineers are examined and experienced by the use of audio amplification systems to design and use for public address and musical performance. *Prerequisite: MUI 324.*

**MUI 430. Artist Management.** *3 credits.*

This course will evaluate the function of musician/recording artist representatives in the music industry. Focus of discussions will include artist development from early career stages to concert tours, unions, recording

companies, personal appearances, contractual agreements, etc. *Prerequisite: MUI 250 or permission of the instructor.*

**MUI 435. Marketing of Recorded Music.** 3 credits.

Examination of the process of studio production, manufacturing, promotion and distribution of contemporary recordings. Record release programs for independent and major label-controlled products are analyzed. *Prerequisite: MUI 250 or permission of the instructor.*

**MUI 440. Entrepreneurship in the Music Industry.** 3 credits.

The study of business aspects of the music industry including managing, marketing, finance and sales. Students develop a comprehensive music business plan. *Prerequisite: MUI 250 or permission of the instructor.*

**MUI 492. Internship in Music Industry.** 3-6 credits.

A supervised off-campus co-curricular learning activity designed to provide practical experience in the music industry. *Prerequisites: MUI 221 and MUI 323, MUI 250 or permission of the instructor.*

## Music Instruction, Applied

Private and/or group applied lessons are basic areas of study for all music majors and approved minors. All other students, including first year students and transfer students entering in an undeclared major status, who desire applied instruction will be accommodated after declared majors and minors have been scheduled and if time permits.

A once per semester fee will be applied for enrollment in MUAP 200, MUAP 214 and MUAP 300, applied lessons. See MyMadison for details.

Permission to register must be obtained from the coordinator of the respective applied area.

### Applied Areas

Bassoon	Horn	Trombone
Clarinet	Jazz Studies	Trumpet
Double Bass	Oboe	Tuba
Euphonium	Percussion	Viola
Flute	Piano	Violin
Guitar	Piano Accompanying	Violoncello

### Small Groups

**MUAP 113.** 1 credit.

Two hours per week. May be repeated.

**MUAP 114. Group Voice for Musical Theatre Concentrators.** 1 credit.

First level voice class for Musical Theatre concentrators in the School of Theatre and Dance. *Prerequisite: Audition and admission to the Musical Theatre concentration in the School of Theatre and Dance.*

**MUAP 115. Group Voice for Theatre/Dance Majors.** 1 credit.

May be repeated for up to four credits.

### Applied Lessons

**MUAP 200. Applied Music Lesson (Undergraduate).** 1-3 credits.

Applied weekly lessons for non-majors and secondary instruments. See MyMadison for details. May be repeated.

**MUAP 205. Small Group Voice for Keyboard Majors.** 2 credits.

A practical introduction to singing technique and musicianship designed for future choral music teachers and accompanists. Concludes with Vocal Proficiency Examination. Limited to maximum of eight students. May be repeated for credit. *Prerequisite: Sophomore standing in music or permission of the instructor.*

**MUAP 214. Private Voice for Musical Theatre Concentrators.** 1 credit.

Private voice lessons for Musical Theatre concentrators in the School of Theatre and Dance. *Prerequisite: Permission of the instructor.*

**MUAP 300. Applied Music Lesson (Undergraduate)** 1-3 credits.

Applied weekly lessons for music majors. See MyMadison for details. May be repeated.

### Music Ensembles

Student performing ensembles sponsored by the School of Music provide unique musical experiences for music majors and any other university students who wish to continue developing their performing skills. The numerous large and small choral and instrumental ensembles encompass a wide range of musical styles and repertoire. Although participation in most ensembles requires an audition, several only require the permission of the director. All ensembles must be taken for credit and may be repeated. Students new to JMU should contact the music office during the registration periods for additional information.

### Instrumental

**MUAP 237. Marching Band (Fall Semester).** 2 credits.

The marching band will perform music and drill which is artistically structured. The repertoire will be representative of all styles of music. The marching band

is required for two years of wind and percussion majors in the music education degree program.

**MUAP 238. Concert Band.** 1 credit.

Open to all interested participants. A wide variety of music is utilized to acquaint the student with different types of band literature.

**MUAP 239. Symphonic Band.** 1 credit.

The JMU Symphonic Band is a select group of brass, woodwind and percussion students who are dedicated to the performance of both traditional and contemporary band literature. The ensemble performs music of all periods and is open to any university student by audition.

**MUAP 344. Chamber Orchestra.** 1 credit.

Open to all university students. Membership is determined by audition. Music written for chamber orchestra from all periods is studied and performed.

**MUAP 345. Symphony Orchestra.** 2 credits.

The JMU Symphony Orchestra is a participating member of the American Symphony Orchestra League. Membership is determined by audition and is open to all university students. Literature performed is from the standard symphonic repertoire.

**MUAP 346. Wind Symphony.** 2 credits.

The JMU Wind Symphony is a highly select group of brass, woodwind and percussion students who are dedicated to the performance of wind orchestra music and chamber music for winds. The ensemble performs music from all periods and is open to any university student by audition in the fall of each academic year.

**MUAP 347. Jazz Ensemble.** 2 credits.

Instrumental music performance ensemble of the standard "big band" instrumentation whose repertoire reflects jazz styles from the swing era to contemporary jazz. Admission is by audition.

**MUAP 348. Jazz Band.** 1 credit.

Instrumental ensemble, performing the standard and contemporary repertoire of American music with emphasis on the jazz idiom. Jazz band is open to all JMU students by audition.

**MUAP 349. Monticello Strings Faculty and Students Ensemble.** 1 credit.

A joint string ensemble of string faculty and students, with a mission to provide mentoring, hands-on and shared experiences in learning, rehearsing and performing string chamber orchestra repertoire from the Baroque to Contemporary periods. In addition, the ensemble focuses on creative and scholarly endeavors, collaboration between faculty and students, and university outreach with performances on and off campus.

**MUAP 350. String Ensemble.** 1 credit.

A rehearsal and performance ensemble where students of similar technical and musical ability are grouped in traditional string or piano trios, quartets and quintets and present public performances of important compositions from the chamber music literature of all historical periods.

**MUAP 351. Woodwind Ensemble.** 1 credit.

Woodwind ensembles consisting of quintets or other smaller and larger combinations, limited to specially selected personnel through auditions. Concerts and other performances are prepared from a variety of literature from the classical period to the present.

**MUAP 352. Brass Band.** 1 credit.

Open to all university students by audition. A select brass and percussion ensemble limited to the standard instrumentation of the "British-style" brass band. The ensemble performs literature of all styles from the extensive brass band tradition. The band typically participates in the annual NABBA Championships.

**MUAP 353. Guitar Ensemble.** 1 credit.

The performance of guitar music from Renaissance to 20th century for duos, trios and quartets.

**MUAP 354. Percussion Ensemble.** 1 credit.

The study and preparation for public performance of percussion ensemble literature. The ensemble is open to all university students by audition.

**MUAP 355. Jazz Chamber Ensemble.** 1 credit.

Open by audition to students demonstrating a high degree of skill in jazz improvisation. Concerts and other performances are prepared from a variety of literature from early jazz to the present day.

**MUAP 360. Opera/Musical Theatre Orchestra.** 1 credit.

This ensemble will serve as the accompanying ensemble for staged productions within the School of Music and the School of Theatre and Dance. Enrollment in this course will be open to all students at the university by audition.

**MUAP 362. Brass Chamber Ensembles. 1 credit.**

Brass chamber ensembles consisting of quartets, quintets or larger combinations, limited to specially selected personnel through auditions. Concerts and other performances are prepared and presented from literature spanning the Renaissance to the present day. *Prerequisites: Permission of the instructor.*

**MUAP 364. Camerata Strings. 1 credit.**

Camerata Strings is a select instrumental string ensemble that performs a broad range of string ensemble literature from the 1600s to the present. The ensemble is open to any student of the university through competitive auditions held at the start of each spring semester. *Prerequisite: Participants must complete competitive auditions at the start of the spring semester and, based on audition outcomes, be offered membership by the Music Director of the ensemble.*

**MUAP 380. Collegium Musicum. 1 credit.**

The Collegium Musicum is a select vocal/instrumental ensemble dedicated to the historically-informed performance of early music (music composed before ca. 1700). Repertoire includes major works primarily of the renaissance and early Baroque era. Membership is by audition or invitation. May be repeated for credit.

**Vocal****MUAP 234. Men's Chorus. 1 credit.**

Performs music of various styles but with primary focus on the lighter genres. It is open to the entire male student body without audition. The director reserves the right to limit membership because of balance or space considerations.

**MUAP 235. Treble Chamber Choir. 1 credit.**

This is an advanced level chamber chorus for women and male countertenors interested in a small choral ensemble experience. Open to all majors, and auditioned at the beginning of every semester, this choir frequently performs off campus as well. Contact the director of choral activities for more information.

**MUAP 236. Women's Chorus. 1 credit.**

Performs music of various styles but with primary focus on the lighter genres. It is open to the entire female student body without audition. The director reserves the right to limit membership because of balance or space considerations.

**MUAP 340. Chorale. 1 credit.**

A highly selected, 60-voice mixed choir that performs repertoire from the Renaissance to the contemporary era, both sacred and secular. There are opportunities to perform on and off campus. Membership is by audition.

**MUAP 341. Madison Singers. 2 credits.**

Madison Singers is a highly select choral chamber ensemble that performs the best of representative choral music from the Renaissance to the present. The ensemble is open to any university student by audition in the fall of the academic year.

**MUAP 343. Opera Theatre. 1-2 credits.**

The preparation and public performance of grand opera, light opera and musicals. Work will include coaching of both music and acting. Credit may vary with permission of the instructor depending on the amount of time commitment. Admission is by audition only.

**MUAP 381. Bach Aria Group. 1 credit.**

The Bach Aria Group is a select vocal/instrumental ensemble dedicated to the historically-informed performance of arias and small ensembles from the Cantatas, Oratorios and Passions of J.S.Bach. Repertoire is specifically limited to this material. Membership is voluntary, and by audition or invitation. May be repeated for credit. This ensemble will not fulfill the music major requirement for a minimum of one ensemble per semester.

**Piano****MUAP 357. Piano Accompanying and Piano Ensemble. 1 credit.**

A course in basic accompanying skills and style characteristics required for two semesters (one fall, one spring) of all piano majors. Students will be assigned to vocal or instrumental studios and have the opportunity to perform in master class and private coaching sessions.

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## Nonprofit Studies

**NPS 300. Introduction to Nonprofits. 3 credits.**

An introduction to the development of the nonprofit sector in the American context exploring history, theories, legal issues, governance and ethical considerations. Global nonprofits are also explored. Provides a foundation for subsequent work in the nonprofit studies minor. *Prerequisite: Sophomore standing with a declared major.*

**NPS 320. Nonprofit Management. 3 credits.**

A study of organizational and management functions in the nonprofit sector. Examination of the unique role of volunteers, boards and public relations in the nonprofit environment. *Prerequisites: NPS 300 and junior status.*

**NPS/FAM/GERN/SOWK 375. Grant Writing for Agencies. 3 credits.**

Emphasizing active learning, this course teaches the basics of grant and proposal writing. Efficient research, persuasive prose and the importance of relationships are stressed. Private and corporate philanthropy and government grants are examined.

**NPS 400. Internship/Practicum in Nonprofit Studies. 4 credits (160 hours in agency), 6 credits (240 hours in agency).**

Supervised internship/practicum experience in a nonprofit organization setting that allows experimental learning and practice experiences. A research or applied paper, learning journal and presentation based on the experience are required. *Prerequisites: NPS 300 and the discipline specific elective.*

**NPS 450. Nonprofit Studies Capstone Seminar. 3 credits.**

The capstone seminar is designed to integrate and apply knowledge from the student's major and the nonprofit studies minor. A substantial, individualized project will strengthen the student's capabilities in research and/or applied knowledge, information access, and self-directed learning. *Prerequisites: NPS 300, NPS 320, NPS 400 and discipline elective. Related elective may be taken concurrently.*

**NPS 487. Special Topics in Nonprofit Studies. 3 credits.**

Examination of selected topics in nonprofit studies that are of current importance in the nonprofit arena. Course may be repeated for credit. *Prerequisite: NPS 300 or permission of the instructor.*

**NPS 490. Special Studies in Nonprofit Studies. 1-3 credits.**

This course is designed to provide capable nonprofit studies minors an opportunity to complete independent study under faculty supervision. Course may be repeated for credit. *Prerequisites: NPS 300, NPS 320 and one additional course in the minor or permission of the instructor.*

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## Nursing

**NSG 301. History Taking/History Telling: Narratives of Chronic Illness and Disability. 2 credits.**

This course introduces students to first-person narratives of patients, family care providers, and health care workers as a way to more fully understand the complexities of living with and managing chronic illness. Students will explore the narrative as an increasingly relevant component of understanding and responding to experiences of chronic illness and disability.

**NSG 302. Behavioral and Mental Health in Children and Adolescents. 2 credits.**

This course will explore the state of mental and behavioral health of children and adolescents. It will examine the neuropathophysiological nature of mental and behavioral illnesses, health promotion, and care of children and adolescents.

**NSG 303. The Art of School Nursing. 1 credit.**

This particular course provides a comprehensive focus on the multiple facets within the specialty practice of school nursing. The course will discuss the history of school nursing, the roles of the school nurse, laws and standards of practice. We will discuss collaborative teaming, cultural diversity, and marketing/educational strategies for promoting school nursing.

**NSG 310. Helping Persons in Pain. 2 credits.**

This course, open to students from all majors, is an examination of pain, its impact on people, causes, treatments and the role of health professionals. Emphasis is on understanding how people experience pain and its effect on quality of life.

**NSG 313. Issues and Applications of Family Caregiving. 1 credit.**

Students from any major engage in service learning with clients and staff of Caregivers' Community Network, a program of information, companion care and support for family caregivers. Hours are flexible and activities are tailored to student interests.

**NSG/HTH/IPE/SOWK 314. Rural Health: An Interdisciplinary Approach. 3 credits.**

Students study, observe and participate in interdisciplinary assessment, planning and delivery of community-based primary health care in partnership with residents and agencies of a host rural county. Learning activities will emphasize rural culture, rural health care and interdisciplinary practice.

**NSG 317. History of Nursing. 1 credit.**

An elective nursing course that explores fundamental aspects of nursing history including pertinent nursing founders and leaders as well as examination of the many influences that have shaped the nursing profession. Review of nursing within its historical context provides an opportunity to consider changes for the future.

**NSG 320. Innovative Diabetes Health Education. 1 credit.**

Based on the chronic illness model component of patient self-management, this course focuses on the use of an innovative teaching strategy for diabetic education. Working in teams students will utilize conversation maps to learn about Diabetes Mellitus Type II, gestational diabetes and patient education.

**NSG 322. Integrative Health Care. 2 credits.**

This course examines the principles, practices, and outcomes of complementary therapies and alternative healing that are widely used in the general population. The integration of alternative and conventional health practices will be examined. Ethical, legal and professional issues will be explored.

**NSG 323. Cardiovascular Health and Illness. 1 credit.**

In this course risk factors associated with cardiovascular disease will be highlighted. Lifestyle changes, prevention and treatment strategies will be reviewed. Students will learn effective skills for teaching patients about cardiovascular health and illness. Students will have the opportunity to review case studies identifying risk factors and learn successful teaching strategies. The course will emphasize and promote student and patient understanding of cardiovascular disease.

**NSG 324. RN-BSN Strategies for Success. 1 credit.**

This course is designed to provide strategies for academic success in an online learning environment for students in an R.N.-B.S.N. program. Students will apply concepts of scholarly writing and will identify research. An emphasis is placed on competence with technology and working collaboratively within an online environment.

**NSG 325. Concepts in Aging. 3 credits.**

This online course is divided into eight modules and examines the physiological, psychosocial, cognitive, legal and ethical aspects of aging within a holistic context. A focus is on the issues that surround the concepts of aging and how the ethical aspects of care relate to the utilization of resources. *Prerequisite: Admission to R.N.-B.S.N. program.*

**NSG 326. Care and Consideration for Children with Special Needs. 1 credit.**

Open to students from any major. Students will gain insight into the lives of children with special needs and discuss how having children with special needs affects the entire family. A variety of topics such as autism, brain injury, and other disabilities will be investigated. Learning activities include guest speakers, discussion, and hands-on service learning. Students must provide their own transportation to service learning sites off campus.

**NSG 327. Disaster Nursing. 1 credit.**

This elective course is designed as an opportunity for students to acquire knowledge and skills in the fundamentals of disaster preparedness. The student will be prepared as a Red Cross volunteer for disaster service locally or nationally and will be Red Cross certified in selected areas.

**NSG 328. Life, Death and the Dash Between. 1 credit.**

This course focuses on preparing the student to give patient-centered end-of-life care. Using a variety of learning methods, the student will examine theories and care models, and will discuss current topics surrounding death and dying, including social, cultural, ethical, spiritual and legal issues.

**NSG 329. Best Practices in Diabetes Care. 2 credits.**

The student will develop a basic understanding of the current practices related to diabetes care and the impact of a diabetes diagnosis on the individual, family and community. The content is centered around the American association of Diabetes Educators (AADE) 7 Self-Care Behaviors: healthy eating, being active, monitoring, taking medications, problem solving, healthy coping and reducing risks.

**NSG 333. Health Assessment. 3 credits.**

The health assessment online course is designed to develop knowledge and skills necessary to gather, organize and present relevant health data. Emphasis is placed on systematic strategies, frameworks and skills used to conduct both comprehensive and need-specific health assessments for individuals in the context of their family and community. *Prerequisite: Admission to R.N.-B.S.N. program.*

**NSG 350. Foundations of Nursing. 2 credits. Offered every semester.**

This course provides an overview of foundational principles of professional nursing practice. Students will be introduced to the evolution of nursing, basic nursing theory and knowledge, and beginning concepts. This course promotes self-analysis and socialization into the role of the professional nurse.

**NSG 351. Health Assessment. 3 credits. Offered every semester.**

This course develops knowledge and skills necessary to gather, organize, and present relevant health data that includes wellness and illness considerations across the life cycle. Emphasis is placed on systematic strategies, frameworks, and skills used to conduct both comprehensive and need-specific health

assessments for individuals in the context of their family and community. *Prerequisite: Formal acceptance into the nursing program.*

**NSG 352. Clinical Applications and Reasoning in Nursing Care I. 4 credits. Offered every semester.**

Through didactic learning, students learn theories, rationale, and principles underlying the application of acute care skills in nursing practice. In the laboratory, students will practice and demonstrate mastery of selected skills. In the clinical setting, students will apply knowledge through clinical reasoning in planning and facilitating nursing care for patients and their families. *Corequisite: NSG 352L. Prerequisite: Formal acceptance into the nursing program.*

**NSG 352L. Clinical Applications and Reasoning in Nursing Care I Clinical. 2 credits. Offered every semester.**

Through didactic learning, students learn theories, rationale, and principles underlying the application of acute care skills in nursing practice. In the laboratory, students will practice and demonstrate mastery of selected skills. In the clinical setting, students will apply knowledge through clinical reasoning in planning and facilitating nursing care for patients and their families. *Corequisite: NSG 352. Prerequisite: Formal acceptance into the nursing program.*

**NSG 353. Pathophysiology & Pharmacology. 4 credits. Offered every semester.**

This course is a comprehensive examination of the principles of pathophysiology and pharmacology for nurses. Emphasis will be placed on concepts and rationales necessary for clinical decision making and nursing care of patients with select disease processes.

**NSG 354. The Art & Science of Nursing. 2 credits. Offered every semester.**

This course is designed to provide an overview of current issues relevant to the art and science of the practicing nurse. This course will provide the student with a concentrated focus on the role of the professional nurse and the nursing profession. The course explores nursing theory, health care models of practice, diversity issues, as well as legal and ethical realities within the healthcare delivery system.

**NSG 355. Women's Health. 3 credits. Offered every semester.**

This course promotes synthesis of concepts and principles utilized in health promotion, risk reduction and critical reasoning in the management of women's health care. Areas of focus include women's health issues, perinatal care of mothers and infants, and gynecological health. Clinical experiences provide students with opportunities to apply evidence based practice for women/newborn/family units of diverse cultural backgrounds. *Corequisite: NSG 355L. Prerequisites: NSG 350, NSG 351, NSG 352, NSG 352L and NSG 353.*

**NSG 355L. Women's Health Clinical. 1 credit. Offered every semester.**

This course promotes synthesis of concepts and principles utilized in health promotion, risk reduction and critical reasoning in the management of women's health care. Areas of focus include women's health issues, perinatal care of mothers and infants, and gynecological health. Clinical experiences provide students with opportunities to apply evidence based practice for women/newborn/family units of diverse cultural backgrounds. *Corequisite: NSG 355. Prerequisites: NSG 350, NSG 351, NSG 352, NSG 352L and NSG 353.*

**NSG 356. Clinical Applications and Reasoning in Nursing Care II. 4 credits. Offered every semester.**

This course focuses on pathophysiologic and pharmacologic concepts and principles of nursing process, health promotion, risk reduction, clinical decision making, and collaborative management of care for adults experiencing moderate to severe health alterations. Students will apply concepts, theories and skills in the nursing care of adults. *Corequisite: NSG 356L. Prerequisites: NSG 350, NSG 351, NSG 352, NSG 352L and NSG 353.*

**NSG 356L. Clinical Applications and Reasoning in Nursing Care II Clinical. 2 credits. Offered every semester.**

This course focuses on pathophysiologic and pharmacologic concepts and principles of nursing process, health promotion, risk reduction, clinical decision making, and collaborative management of care for adults experiencing moderate to severe health alterations. Students will apply concepts, theories and skills in the nursing care of adults. *Corequisite: NSG 356. Prerequisites: NSG 350, NSG 351, NSG 352, NSG 352L and NSG 353.*

**NSG 357. Psychiatric Mental Health Nursing. 3 credits. Offered every semester.**

This course examines the pathophysiology, psychosocial manifestations, psychopharmacological and psychiatric mental health nursing treatment of selected mental illnesses. Analysis of the role and practice of psychiatric mental health nursing both as a nursing specialty and as an integral facet of

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general nursing are emphasized. *Corequisite: NSG 357L. Prerequisites: NSG 350, NSG 351, NSG 352, NSG 352L and NSG 353.*

**NSG 357L. Psychiatric Mental Health Nursing Clinical.** 1 credit. Offered every semester.

This course examines the pathophysiology, psychosocial manifestations, psychopharmacological and psychiatric mental health nursing treatment of selected mental illnesses. Analysis of the role and practice of psychiatric mental health nursing both as a nursing specialty and as an integral facet of general nursing are emphasized. *Corequisite: NSG 357. Prerequisites: NSG 350, NSG 351, NSG 352, NSG 352L and NSG 353.*

**NSG 390. Impact of Chronic Illness.** 3 credits. Offered fall and spring.

This course will explore core concepts of chronic illness across the lifespan from an interdisciplinary perspective. Epidemiology, economics, ethics, culture, family and policy will be emphasized. These topics and concepts will be related to model(s) of chronic care.

**NSG 391. Living Successfully with Chronic Illness.** 3 credits. Offered fall and spring.

This course will examine models and strategies that aid individuals to live successfully with chronic illness. An interdisciplinary evidence-based approach will be used to investigate how outcomes may be improved through the individual's integration of lifestyle changes within the context of culture and family.

**NSG 392. Hello Nurse: Images of the Nurse in American Culture.** 2 credits.

The image of the nurse in American culture has been varied, complex, and provocative. This course will introduce students to textual images of nurses in fiction, film, television, and visual arts within the context of American and nursing history.

**NSG 393. Family Violence.** 1 credit.

This course introduces students to the roots of family violence, including the political, cultural, social, and economic structures that perpetuate violence, and explores approaches to changing those structures in order to reduce or end violence. Students will think critically about the local and global impact of family violence, how it intersects with other forms of oppression, and achieve an understanding of these issues that will be useful intellectually and personally.

**NSG 394. Special Topics in Chronic Illness.** 1-6 credits.

Study of selected topics in chronic illness.

**NSG/IPE 415. Ethical Decision-Making in Healthcare: An Interprofessional Approach.** 1 credit. Offered fall and spring.

Healthcare ethics is a shared, relevant concern among health and human service disciplines; it is an ideal vehicle for students to learn other discipline perspectives. Students examine dilemmas encountered in practice and apply interprofessional knowledge using a case method of instruction. Readings and activities emphasize interprofessional competencies and ethical principles for practice in the context of respectful communication, analysis, and problem solving in interprofessional teams.

**NSG/HTH/WGS 417. Women's Global Health and Human Rights.** 3 credits.

An international and human rights approach providing an overview of health issues within the context of a woman's life cycle. Attention will be given to critical issues of women's health such as access to health care and gender based violence. Such issues as sexuality, nutrition, diseases affecting women, violence, harmful traditional practices, and sex trafficking will be discussed.

**NSG 450. Nursing Research.** 3 credits. Offered every semester.

This course explores the research process and utilization of research and theory in evidence based professional nursing practice. It also explores the dissemination and utilization of research in nursing practice. Students learn to critique healthcare literature in order to answer a research question that would impact nursing practice. *Prerequisite: Formal acceptance into the Nursing Program.*

**NSG 451. Child Health.** 3 credits. Offered every semester.

This course promotes the development of knowledge, skills and the ability to care for children including those with acute and chronic illnesses/conditions. Learning will focus on the unique healthcare needs of children with emphasis on family centered care. Students will apply knowledge through clinical reasoning in planning and facilitating nursing care for children and families. *Corequisite: NSG 451L. Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357 and NSG 357L.*

**NSG 451L. Child Health Clinical.** 1 credit. Offered every semester.

This course promotes the development of knowledge, skills and the ability to care for children including those with acute and chronic illnesses/conditions. Learning will focus on the unique healthcare needs of children with emphasis on family centered care. Students will apply knowledge through clinical reasoning in planning and facilitating nursing care for children and

families. *Corequisite: NSG 451. Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357 and NSG 357L.*

**NSG 452. Clinical Applications and Reasoning in Nursing Care III.** 4 credits. Offered every semester.

This course focuses on the integration of complex pathophysiologic and pharmacologic concepts and principles for adults experiencing moderate to severe health alterations. Students will apply the nursing process to promote health and safety, to augment clinical reasoning and clinical decision making, and to integrate interprofessional collaboration in the care of patients. *Prerequisites: NSG 352, NSG 352L, NSG 356, NSG 356L.*

**NSG 453. Population-Centered Care in the Community.** 3 credits. Offered every semester.

In this course, students develop the knowledge, skills, and ability to conduct and interpret systematic assessments of families and vulnerable groups in community settings. The impact of increasing societal and cultural changes across the life span will be emphasized. Theoretical concepts of community-based health promotion and disease prevention of vulnerable populations will be presented emphasizing Healthy People 2020 objectives. *Corequisite: NSG 453L. Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357 and NSG 357L.*

**NSG 453L. Population-Centered Care in the Community Clinical.**

2 credits. Offered every semester.

In this course, students develop the knowledge, skills, and ability to conduct and interpret systematic assessments of families and vulnerable groups in community settings. The impact of increasing societal and cultural changes across the life span will be emphasized. Theoretical concepts of community-based health promotion and disease prevention of vulnerable populations will be presented emphasizing Healthy People 2020 objectives. *Corequisite: NSG 453. Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357 and NSG 357L.*

**NSG 454. Transition to Practice.** 3 credits.

This course explores current factors that impact the transition from student to the licensed professional nurse. The student will have the opportunity to examine and apply leadership and management principles in acute and chronic healthcare settings with a focus on safe, ethical, and quality patient care. Students will use an interprofessional approach to coordinate care for a group of patients. *Corequisite: NSG 454L. Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357, NSG 357L, NSG 450, NSG 451, NSG 451L, NSG 452, NSG 453 and NSG 453L.*

**NSG 454L. Transition to Practice Clinical.** 2 credits.

This course explores current factors that impact the transition from student to the licensed professional nurse. The student will have the opportunity to examine and apply leadership and management principles in acute and chronic healthcare settings with a focus on safe, ethical, and quality patient care. Students will use an interprofessional approach to coordinate care for a group of patients. *Corequisite: NSG 454. Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357, NSG 357L, NSG 450, NSG 451, NSG 451L, NSG 452, NSG 453 and NSG 453L.*

**NSG 455. Nursing Informatics.** 2 credits.

This course explores nursing informatics and technology applications in health care. Emphasis is on preparing entry level nurses with core nursing informatics competencies. A major theme is the use of information systems and technologies to improve the quality and safety of patient care in a changing health care environment. Students will develop their nursing informatics knowledge and skills through reading, discussions, exploration, and utilization of electronic modalities. *Prerequisite: Formal acceptance into the Nursing Program.*

**NSG 456. Capstone.** 5 credits.

This course is a focused nursing practicum under the direct supervision of clinical nurse preceptors. The purpose of the capstone experience is to facilitate student development in time management, critical thinking, assessment, clinical reasoning, documentation and psychomotor skills. *Prerequisites: NSG 355, NSG 355L, NSG 356, NSG 356L, NSG 357, NSG 357L, NSG 450, NSG 451, NSG 451L, NSG 452, NSG 453 and NSG 453L.*

**NSG 460. Healthcare Informatics.** 3 credits.

This online course focuses on the nature and functions of present and future application of health care informatics. Emphasis is on preparing current and future health care professionals to plan, design, collaborate with other health care disciplines, and utilize healthcare informatics for effective health care delivery, health organizational management and improved client outcomes. *Prerequisite: Admission to R.N.-B.S.N. program.*

**NSG 461. Pathophysiology and Pharmacology.** 3 credits.

This online course provides an examination of complex physiologic responses and clinical sequela in major body systems in relation to pathologic processes. Emphasis is placed upon physiologic compensation and defense responses. Pharmacologic management of pathology is investigated. *Prerequisite:* Admission to RN-BSN program.

**NSG 462. Issues in Contemporary Nursing Practice.** 3 credits.

This online course examines issues and trends of greatest concern to professional nursing practice today. Historical, societal, political, and economic influence and future trends will be explored. Legal and ethical dimensions of nursing will be discussed. *Prerequisite:* Admission to R.N.-B.S.N. program.

**NSG 463. Professional Role Transition.** 3 credits.

This online course expands the students' current knowledge of concepts related to nursing theory, nursing image and professional role development at the B.S.N. level. Emphasis will be placed upon leadership and management skill development at the personal level. *Prerequisite:* Admission to R.N.-B.S.N. program.

**NSG 464. Introduction to Nursing Research.** 3 credits.

This online course will focus on the study of research methods that generate quantitative and qualitative data. Students will examine the research process with an emphasis on critique of research methodologies and application of research findings to nursing practice. *Prerequisite:* Admission to R.N.-B.S.N. program.

**NSG 466. Community Health Practicum.** 1 credit.

This practicum, for RN-BSN students, transitions practice into the BSN role through mentored clinical experiences at selected community sites. Emphasis is on collaborative nursing care with individuals, families and groups within the community. Experiences include concepts of health promotion and disease prevention and management of acute or chronic illness. *Prerequisite:* Admission to R.N.-B.S.N. program.

**NSG 469. Caring for the Public's Health: Community Health Nursing.** 4 credits.

This online course provides R.N. to B.S.N. students a perspective of professional nursing at the community level of practice. Course content will provide an overview of specific issues and societal concerns that affect community health nursing practice including historical impact of public health, epidemiology, health promotion and disease prevention; vulnerable populations; communicable disease risk and prevention; and diversity of the role of the community health nurse. *Prerequisite:* Admission to R.N.-B.S.N. program.

**NSG 471. Leadership and Management in Health Care.** 3 credits.

This online course focuses on healthcare organizations, leadership theories and management style, organizational change, quality management, fiscal and economic issues, personnel management, and accreditation standards. *Prerequisite:* Admission to R.N.-B.S.N. program.

**NSG 490. Special Studies in Nursing.** 1-6 credits.

Study of selected topics in nursing.

**NSG 495. Special Topics in Global Health.** 1-6 credits.

Study of selected topics in global health.

## Nutrition

**NUTR 280. Nutrition for Wellness.** 3 credits. Offered fall and spring.

Students will study the impact of nutrition on wellness by learning nutrients, their functions in the human body, food sources and appropriate intake levels. Controversies surrounding use of various nutrients for improvement of health and well-being will be discussed.

**NUTR 295. Foundations of Nutrition Practice.** 2 credits. Offered fall and spring.

An introduction to the profession of dietetics, credentialing processes in nutrition/dietetics, careers available in the field and some basic skills needed for the profession.

**NUTR 340. Science of Food Preparation.** 3 credits. Offered fall.

This course explores the chemical composition of food, physical and chemical changes in food associated with household and industrial preparation techniques, definition of standard products, and appropriate assessment techniques for judging food quality. Laboratory component provides opportunity to judge foods prepared by different techniques. *Prerequisites:* Admission to the dietetics major; CHEM 131 or equivalent.

**NUTR 360. Management in Dietetics.** 3 credits. Offered spring.

Application of management concepts, theories and principles to dietetics with a focus on the work environments (clinical and food service) in which registered dietitians must effectively practice. *Prerequisite:* Admission to the dietetics major.

**NUTR 362. Food Service Systems.** 3 credits. Offered spring.

An integration of menu planning, food procurement, equipment selection and layout to provide quality food service in a variety of food systems. *Prerequisite:* Admission to the dietetics major.

**NUTR 363. Quantity Food Production (1, 6).** 3 credits. Offered fall and spring.

The principles of quantity food production and service are studied. *Prerequisite:* Admission to the dietetics major.

**NUTR 380. Global Nutrition.** 3 credits. Offered fall and spring.

A study of food habits from around the world and their contributions to nutritional adequacy. Factors affecting global food consumption behaviors including sociocultural practices, religion, health beliefs, agricultural practices, economics, politics and education are explored.

**NUTR 382. Sports Nutrition.** 3 credits. Offered fall.

A study of the relationship of nutrition and athletic performance. Identification of the effects of age, sex, body build, environment and state of health on energy needs and energy sources during physical activity. *Prerequisite:* NUTR 280.

**NUTR 384. Clinical Nutrition I.** 3 credits. Offered spring.

This course introduces nutrition as a disease therapy and the role of the clinical dietitian as a member of the health care team. Topics covered include nutrition screening and assessment, medical records documentation, basic dietary modifications and patient/family counseling. *Prerequisites:* Admission to the dietetics major; NUTR 340 and NUTR 395.

**NUTR 385. Nutrition Throughout the Life Cycle.** 3 credits. Offered spring.

A study of the nutritional needs throughout the life cycle and the development of food habits. Nutrition assessment and nutrition education from prenatal health through infancy, childhood, adolescence, adulthood and old age are emphasized. *Prerequisite:* Admission to the dietetics major.

**NUTR 395. Introduction to Patient Care in Dietetics.** 2 credits. Offered fall.

A study of the concepts of patient care in dietetics, skills needed for Medical Nutrition Therapy and the dietitian's role on the health care team. *Prerequisites:* Admission to the dietetics major and NUTR 280.

**NUTR 446. Experimental Foods (1, 4).** 3 credits. Offered spring.

An introduction to research in foods. Different techniques of food preparation are studied and evaluated for the most acceptable methods to obtain standard food products. *Prerequisites:* Admission to the dietetics major; NUTR 340, organic chemistry and statistics.

**NUTR 455/KIN 424. Theories and Practices of Weight Management.** 3 credits. Offered fall and spring.

An examination of the physiological, psychological and environmental theories of obesity. Current trends in obesity research are emphasized. A case study and laboratories are used to provide students with practical experience in constructing a weight management program. *Prerequisites:* BIO 270, BIO 290, NUTR 280 or permission of the instructor.

**NUTR 460. Computer Systems for Foods and Nutrition.** 3 credits. Offered spring.

Introduction to food and nutrition computer systems. Emphasis is placed on the role of computers in nutritional assessment, food service administration, nutrition education and food technology. *Prerequisites:* NUTR 360 and successful completion of the Tech Level I test.

**NUTR 482. Nutrition and Metabolism (2, 2).** 3 credits. Offered fall.

A study of the nutrients, their roles in intermediary metabolism, the effects of genetic errors in metabolism, nutritional deficiencies and means of assessing nutritional status. Agencies and programs concerned with nutrition and health and current trends in nutrition research are emphasized. *Prerequisites:* Admission to the dietetics major; CHEM 260 and MATH 220. *Prerequisite or corequisite:* BIO 290.

**NUTR 484. Clinical Nutrition II (2, 2).** 3 credits. Offered spring.

A study of the use of diet in preventing illness and as a means of treating disease. Emphasis is given to patient education. *Prerequisites:* Admission to the dietetics major; NUTR 384 and NUTR 482.

**NUTR 485. Community Nutrition.** 3 credits. Offered fall.

A study of human nutrition and health problems from a community perspective, programs and policies related to nutrition at local, state and federal levels including preventive nutrition or wellness and approaches and techniques for effective application and dissemination of nutrition knowledge in the community. *Prerequisite:* Admission to the dietetics major.

**NUTR 490. Field Experience in Dietetics.** 3 credits. Offered summer.

Students participate in field experience relating to their major area of dietetics and their career goals under the coordination of a dietetics faculty member. On-the-job supervision will be provided by the participating hospital

dietitians. *Prerequisites: Admission to the dietetics major; NUTR 384;NUTR 395. Application for enrollment must be completed through the course instructor in the fall semester prior to the summer in which it will be taken.*

**NUTR 495. Senior Seminar in Dietetics.** 2 credits. Offered fall.

Students will be introduced to research in dietetics and conduct a senior research project. The Code of Ethics and Standards of Practice of the American Dietetic Association will be investigated, and students will prepare for their postgraduate dietetic internship. *Prerequisite: Admission to the dietetics major.*

**NUTR 496. Special Studies in Nutrition/Dietetics.** 1-3 credits. Offered fall and spring.

This course is designed to give the student in dietetics an opportunity to complete independent study, professional conference participation and/or research under faculty supervision. *Prerequisite: Permission of the coordinator of the dietetics program.*

**NUTR 499. Honors.** 6 credits. Offered fall and spring.

Year course.

## Persian

**PERS 101. Elementary Persian I.** 3-4 credits.

The fundamentals of Persian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. Student will receive no credit for course if he/she has had two or more years of the language in high school.

**PERS 102. Elementary Persian II.** 3-4 credits.

The fundamentals of Persian through a higher level of listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. Students will receive no credit for the course if he/she has had two or more years of the language in high school. *Prerequisites: PERS 101.*

**PERS 111. Intensive Persian I.** 6 credits.

The fundamentals of Persian through listening, speaking, reading and writing. The 14-week course is the equivalent of *PERS 101-102.*

**PERS 231. Intermediate Persian I.** 3 credits.

A thorough review of first year grammar and vocabulary building. Conversation, composition and reading will be chosen to reach competency at the lower intermediate level. *Prerequisite: PERS 102.*

**PERS 232. Intermediate Persian II.** 3 credits.

A thorough review of PERS 231 grammar and vocabulary building. Conversation, composition and reading will be chosen to reach competency at the advanced intermediate level. *Prerequisite: PERS 231 or permission of the instructor.*

**PERS 490. Special Studies in Persian.** 3 credits.

Special topics or independent studies in Persian.

## Philosophy

**PHIL 101. Introduction to Philosophy.** 3 credits.

An introduction to the basic problems and concepts of philosophy – the nature of man and the self, ethics, theories of knowledge, philosophy of religion, etc. as revealed in the writings of major philosophers. May be used for general education credit.

**PHIL 120. Critical Thinking.** 3 credits.

An introduction to the techniques for analyzing and evaluating information in everyday experience. The functions of language will be discussed. Techniques for judging the strengths of arguments and the reasonableness of the arguments' premises will be examined. This course cannot be used to fulfill the B.A. Philosophy requirement. May be used for general education credit. May not be used for major credit.

**PHIL 150. Ethical Reasoning.** 3 credits.

An introduction to the principles and techniques of rational decision making in ethics, including analysis of arguments and fallacies, ethical theories, and applications of moral principles to moral issues. This course cannot be used to fulfill the B.A. Philosophy requirement. May be used for general education credit. May not be used for major credit.

**PHIL 210. Philosophy Through Film.** 3 credits.

This course combines feature length films and classic philosophical writings as points of departure for considering perennial philosophical questions such as: What is real? (Metaphysics) How can I know? (Epistemology) What is of value? (Morality).

**PHIL/REL 218. Philosophy of Religion.** 3 credits.

An intensive examination of religion from the standpoint of philosophical thinking with particular emphasis on the way philosophers view such problems as the existence of God, evil, immortality, religious language, etc.

**PHIL 240. Greek Philosophy in Context.** 3 credits.

This course will involve exploration of the intellectual world of the Ancient Greeks, with particular emphasis on the philosophical, historical and literary works produced during the period. The course will include lectures and site visits throughout Greece.

**PHIL 250. Introduction to Symbolic Logic.** 3 credits.

An introduction to the languages and techniques of propositional logic and first-order quantification theory.

**PHIL 262. Problems in Applied Ethics.** 3 credits.

Ethical theories are used to analyze contemporary moral issues in areas such as business and health care. Course content varies.

**PHIL 285. Philosophy, Art and Literature.** 3 credits.

This course will study artistic works (literary or otherwise) for their philosophical content. Related issues in the philosophy of art for example, the nature of tragedy, theories of interpretation may also be considered.

**PHIL 300. Knowledge and Belief.** 3 credits.

An extensive examination of theories of knowledge and philosophical problems concerning knowledge and belief. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL/ART 305. Seminar in Aesthetics.** 3 credits.

Readings and discussions in the persistent philosophical problems of the arts, centering on consideration of the work of art, the artist and the audience. *Prerequisite: ART 200, ARTH 205, ARTH 206 or PHIL 101.*

**PHIL 310. Symbolic Logic.** 3 credits.

The study and application of the principles and techniques of modern deductive logic to natural language. Also, examination of the properties of formal systems and of the logical implications and paradoxes of language. *Prerequisite: PHIL 250 or permission of the instructor.*

**PHIL 311. Metaphysics.** 3 credits.

Examination of central questions regarding the fundamental nature of reality. Possible topics: universals and particulars, possibility and necessity, identity of objects over time and puzzles of material constitution, the problem of free will and determinism, and the nature of time. *Prerequisite: At least one other philosophy course or permission of the instructor.*

**PHIL 315. Logic and Legal Reasoning.** 3 credits.

Application of symbolic logic (first-order logic with identity) to legal language and deductive legal argument. Will include close logical analysis of at least one of the following: Supreme Court brief, Supreme Court decision, Supreme Court oral argument. *Prerequisite: PHIL 250 or permission of the instructor.*

**PHIL 320. Inductive Logic.** 3 credits.

Introduction to inductive logic and philosophical problems it raises. Topics discussed: the traditional problem of induction, the Goodman paradox and the new riddle of induction, the probability calculus and kinds of probability, Mill's methods of experimental inquiry and the nature of causality, abduction (inference to the best explanation) and confirmation theory.

**PHIL 326. Non-Standard Logics.** 3 credits

This course will examine some nonstandard logics and some of the philosophical issues they raise. Topics may include modal logic, intuitionistic logic, temporal logic or many valued logics.

**PHIL 330. Moral Theory.** 3 credits.

An examination, at the intermediate level, of both classical and contemporary moral theories. Critical analysis of the normative and meta-ethical issues these theories raise.

**PHIL 335. The Individual, the State and Justice.** 3 credits.

Mid-level class in political philosophy. Will read classic and/or contemporary texts in philosophy influential on political thought. Focus may be on views of the justification for and role of the state. Consideration may also be given to the proper relationship of individuals and the state, political freedom autonomy. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 340. Ancient Greek Philosophy.** 3 credits.

This course traces philosophical problems raised by the pre-Socratics, Parmenides, Heraclitus, Pythagoras and the Sophists through their treatment by Plato and Aristotle. Emphasis is placed on selected writings of Plato and Aristotle. *Prerequisites: PHIL 101 and junior standing or permission of the instructor.*

**PHIL 341. Modern Philosophy. 3 credits.**

A selective survey of major issues and thinkers in Western philosophy from Descartes to Kant.

**PHIL 342. Medieval Philosophy. 3 credits.**

A survey of the major issues and thinkers of the medieval philosophical world with emphasis on the philosophical writings of those within the Western tradition, such as Augustine, Anselm, Aquinas and Scotus. *Prerequisite: One other philosophy course or permission of the instructor.*

**PHIL 344. Existentialism. 3 credits.**

An examination of existentialism and its major spokesmen including such authors as Kierkegaard, Nietzsche, Sartre, Camus, Marcel and Heidegger. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL/WGS 350. The Philosophy of Feminism. 3 credits.**

An intermediate-level examination of philosophical problems in feminist theory and feminist contributions to philosophy.

**PHIL 367. Topics in Philosophy of Law. 3 credits.**

Examination of the philosophical issues raised by the law, including the nature, foundations and limits of the law, theories of its interpretation and the fundamental interest it aims to protect. *Prerequisite: PHIL 262, PHIL 330 or PHIL 335.*

**PHIL 370. American Philosophy. 3 credits.**

A study of the main philosophical ideas in America, especially pragmatism, with particular emphasis being given to Pierce, James, Royce, Dewey and Whitehead. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL/REL 375. Nineteenth Century Philosophy and Theology. 3 credits.**

A selected study of 19th century thought, with emphasis on controversies concerning the nature and limits of reason, the ultimate meaning of history, and the inner meaning and social significance of religion. Pertinent thinkers include Hegel, Marx, Schleiermacher, Kierkegaard, Nietzsche and others.

**PHIL 376. Nietzsche. 3 credits.**

An examination of Nietzsche's philosophy based on close study of one or more of his major works. The course may also more briefly examine one or more thinkers who especially influenced Nietzsche (for example Schopenhauer) or who were strongly influenced by him (for example Foucault). *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL/REL 377. Hermeneutics. 3 credits.**

This course will examine the main features of hermeneutics with particular emphasis on its contemporary perspectives. Discussion will focus on such themes as human understanding and human finitude, the nature of history and tradition, linguisticity and textuality of experience. Readings may address Gadamer, Ricoeur, Schleiermacher and Dilthey. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 390. Special Topics in Philosophy. 3 credits.**

Topics for this intermediate-level course may be drawn from any area or period of philosophy chosen by the instructor. The course is designed primarily for Philosophy majors and minors, but any suitably prepared student may take the course with the permission of the instructor. *Prerequisite: PHIL 101 or permission of the instructor. May be repeated for credit.*

**PHIL 391. Advanced Special Topics in Philosophy. 3 credits.**

Topics for this advanced course may be drawn from any area or period of philosophy chosen by the instructor. The course is designed primarily for philosophy majors and minors, but any suitably prepared student may take the course with the permission of the instructor. *Prerequisite: six hours of philosophy or permission of the instructor. May be repeated for credit.*

**PHIL 392. Philosophy of Mind. 3 credits.**

An examination of competing theories of the intrinsic nature of mental states and mental processes, including careful consideration of questions concerning the relation between the mind and the physical world. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 394. Self and Identity. 3 credits.**

This course will explore the philosophical aspects of personal identity, with particular emphasis on the metaphysics of the self. Other issues considered may include the nature of the soul, the status of self-knowledge and the ethical aspects of personhood. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 396. Philosophy of Physics. 3 credits.**

This course examines the philosophical foundations of physics. Some of the philosophical issues explored in the course may include how various theories in physics impact metaphysics, ontology and/or epistemology. Topics may include the nature of space and time, special relativity, general relativity, quantum theory, classical mechanics, thermodynamics and/or cosmology.

**PHIL 397. Philosophy of Space and Time. 3 credits.**

This course will survey debates about the nature of space and time. Topics may include Zeno's paradoxes, time travel, relationism vs. substantialism, classical accounts of space and time, and relativistic spacetime.

**PHIL 398. Philosophy of Quantum Theory. 3 credits.**

Quantum theory describes atoms and particles and is one of the most empirically successful physical theories. However, quantum theory seems to have revolutionary conceptual implications for metaphysics and epistemology. This course offers an introduction to philosophical problems raised by quantum theory. Topics may include the measurement problem, quantum entanglement, different interpretations of quantum mechanics, the Einstein-Podolsky-Rosen (EPR) paradox, and Bell's theorem.

**PHIL 410. Philosophy of Science. 3 credits.**

This course surveys a number of topics about the nature of science. The topics may include the problem of distinguishing science from pseudoscience, the nature of scientific explanation, the notion of progress in science, and the realism and anti-realism debate.

**PHIL 420. Philosophy of Language. 3 credits.**

An examination of the central issues in contemporary (mainly 20th century) philosophy of language. Potential topics to be covered include meaning, reference, the nature of language and the nature of truth. Potential philosophers to be examined include Mill, Frege, Russell, Kripke, Lewis and Grice. *Prerequisites: PHIL 250 and one other course in philosophy, or permission of the instructor.*

**PHIL 430. Analytic Philosophy. 3 credits.**

An examination of the origins and development of contemporary philosophical analysis, with special attention given to the nature and uses of language as well as logical structures of confirmation and explanation. *Prerequisite: PHIL 101, PHIL 250 or permission of the instructor.*

**PHIL 440. Advanced Moral Philosophy. 3 credits.**

A critical examination, at the advanced level, of recent or historical work on normative and/or metaethical issues in moral philosophy. *Prerequisite: PHIL 101, PHIL 330 or permission of the instructor.*

**PHIL 445. Advanced Political Philosophy. 3 credits.**

In a seminar format we will examine, in depth, questions of political philosophy. These may include: autonomy, democracy, freedom, impartiality, universalism, toleration and the normative priority of individuals and communities. *Prerequisite: PHIL 101, PHIL 335 or permission of the instructor.*

**PHIL 460. Topics in Classical Philosophy. 3 credits.**

An advanced study of major issues in the writings of one or more thinkers in ancient Greece through the Western medieval period. May be repeated for credit with change of topics. *Prerequisite: PHIL 340 or permission of the instructor.*

**PHIL 465. Topics in Modern Philosophy. 3 credits.**

An advanced study of some of the major issues in or the writings of one or more 17th-, 18th- or 19th-century philosophers. *Prerequisite: PHIL 101, PHIL 341, PHIL 375 or permission of the instructor. May be repeated for credit when topics vary.*

**PHIL 466. Kant. 3 credits.**

An examination of the theory of knowledge and the critique of traditional metaphysics set forth in Kant's Critique of Pure Reason, and of the ethical theory and the moral metaphysics defended in his Groundwork to the Metaphysics of Morals and Critique of Practical Reason. The course may also more briefly explore some related topics, such as Kant's views on aesthetics and teleology, or the key ideas of important post-Kantian philosophers like Fichte, Schelling or Hegel. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 468. Phenomenology. 3 credits.**

A study of phenomenological investigation into the fundamental structures and conditions of conscious experience--meaning-laden, first person experience of objects, of events, of one's self, of other persons, of one's world, and so forth. The course will devote special attention to the work of Husserl and of Heidegger. Additional authors may be studied, such as Sartre, Merleau-Ponty or Levinas. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 470. Topics in Contemporary Continental Philosophy. 3 credits.**

Intensive study of one or two major thinkers or themes in 20th century European philosophy. Possible topics include figures such as Heidegger, Habermas, Foucault or Derrida; or themes such as phenomenology, critical theory, post-structuralism or the critique of Enlightenment ideals. May be repeated for credit. *Prerequisite: PHIL 101 or permission of the instructor.*

**PHIL 475. Philosophy Seminar. 3 credits.**

Seminar topics may be drawn from any area or period of philosophy chosen by the instructor. The course is designed primarily for seniors majoring in

Philosophy, but any suitably prepared student may take this course with the permission of the instructor. *Prerequisite: Senior philosophy major or permission of the instructor. May be repeated for credit.*

**PHIL 490. Special Studies in Philosophy.** 3 credits.

Designed to give capable students an opportunity to complete independent study in philosophy under faculty supervision. May be repeated for credit.

**PHIL 495. Philosophy Course Assistantship.** 1-6 credits.

Students participate as course assistants in philosophy. Assistantships provide students with a sense of what it is like to teach a philosophy course by allowing them to work closely with faculty members through different phases of course preparation, presentation and evaluation. Assistantships may also provide opportunities for student assistants to lead discussion and to help their peers review the material outside of the classroom. *Prerequisites: May be repeated once if assisting a different course, with six maximum total credit hours for both courses combined. Only three credit hours can apply to the major or minor.*

**PHIL 499. Honors.** 6 credits.

Year course.

## Physics

**PHYS 105. Foundations of Physics.** 1 credit.

An introduction to the study of physics and the physics department. Presentations are given by faculty and students to acquaint the students with current research opportunities in the department and the application of physics to broad spectrum of topics.

**PHYS 121. The Physical Nature of Light and Sound (3, 1).** 4 credits.

A study of the physical properties of light and sound waves. Topics include production, propagation and spectral analysis of waves. Applications to be covered include musical instruments, sound reproduction, room acoustics, optical instruments (cameras, projectors, lasers), and color in art and nature. The course will include outside-of-class experiential activities. May be used for general education credit.

**PHYS 140. College Physics I.** 3 credits.

The first semester of a non-calculus sequence in general physics. Topics include principles of mechanics, thermal properties of matter, wave motion and sound. A working knowledge of algebra and trigonometry is required. May be used for general education credit.

**PHYS 150. College Physics II.** 3 credits.

The second semester of a non-calculus sequence in general physics. Topics include electric charges, circuits, magnetism, optics, atomic and nuclear physics. *Prerequisite: PHYS 140 with a grade of "C-" or higher.*

**PHYS 140L\*-150L. General Physics Laboratories.** 1 credit each semester.

These laboratory courses are designed to complement and supplement the PHYS 140-150 and PHYS 240-250 lecture courses. PHYS 140L may be used for general education credit. *Prerequisite or corequisite for PHYS 140L: PHYS 140 or PHYS 240. Prerequisite for PHYS 150L: PHYS 140L and either PHYS 140 or PHYS 240. Prerequisite or corequisite for PHYS 150L: PHYS 150 or PHYS 250.*

**PHYS 215. Energy and the Environment.** 3 credits.

Energy use, sources and trends; fossil fuels, heat-work conversions, thermodynamic restrictions and electric power production; nuclear fission reactors and fusion energy; solar energy and technologies; alternative energy sources; energy storage; energy conservation; issues of waste and safety. Environmental, social and economic aspects will be discussed. Not open to ISAT majors scheduled to take ISAT 212 as part of their degree requirements. May be used for general education credit. *Prerequisites: One college course in science and one in mathematics.*

**PHYS 240. University Physics I.** 3 credits.

Kinematics, dynamics, energy and momentum conservation, oscillatory motion, fluid mechanics and waves. May be used for general education credit. *Corequisite: MATH 232 or MATH 235.*

**PHYS 246. Data Acquisition and Analysis Techniques in Physics I.** 1 credit.

This laboratory supplements PHYS 240 by establishing the experimental basis of physics. Topics include conception, design and performance of experiments in physics emphasizing data acquisition, analysis of experimental data, and the handling of experimental uncertainties. *Prerequisite: PHYS 240.*

**PHYS 247. Data Acquisition and Analysis Techniques in Physics II.** 1 credit.

This laboratory completes the introductory physics lab sequence and is designed to supplement the PHYS 240 and PHYS 250 lecture courses. Topics include conception, design and performance of sophisticated experiments in physics, computer simulation of physical processes, analysis of experimental data,

including uncertainty estimation, and error propagation. *Prerequisites: PHYS 250 and PHYS 246.*

**PHYS 250. University Physics II.** 3 credits.

Electric forces, fields and potentials; capacitance, dielectrics, resistance and DC circuits; magnetic fields, induced electric fields, inductance and AC circuits; geometrical optics, interference, diffraction and polarization. *Prerequisite: PHYS 240 with a grade of "C-" or higher. Corequisite: MATH 236.*

**PHYS 260. University Physics III.** 4 credits.

Rotational kinematics and rotational dynamics; static equilibrium and elasticity; universal gravitation and orbital mechanics; temperature, heat, heat engines, entropy and kinetic theory; Gauss' law, electric potential and capacitance; magnetic fields, induced electric fields and inductance; displacement current and electromagnetic waves; and the special theory of relativity. *Prerequisite: "C" or better in PHYS 250 or PHYS 150. Corequisites: MATH 237 and PHYS 247 or PHYS 150L.*

**PHYS/MATH 265. Introduction to Fluid Mechanics.** 4 credits.

Introduces the student to the application of vector calculus to the description of fluids. The Euler equation, viscosity and the Navier-Stokes equation will be covered. *Prerequisites: MATH 237 and PHYS 260.*

**PHYS 270. Modern Physics.** 4 credits.

A course in modern physics, consisting of a discussion of the experimental basis for and fundamental principles of quantum physics, with applications to atomic structure and nuclear physics. *Prerequisite: PHYS 260 or permission of the instructor.*

**PHYS 295. Laboratory Apparatus Design and Construction.** 1 credit.

An introduction to the design and fabrication of laboratory apparatus using machine tools. *Prerequisites: PHYS 250 and permission of the instructor.*

**PHYS 297. Topics in Physics.** 1-4 credits each semester.

Topics in physics at the second year level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite: Permission of the instructor.*

**PHYS 326. Biophysics.** 3 credits.

Physical models are used to explain biological systems. Topics from biology include cell division, replication, transcription, and translation of DNA, protein folding, and molecular motors. Physics topics include entropy and free energy, diffusion, and statistical mechanics of two state systems. Experimental tools for biophysics are also discussed. *Prerequisite: PHYS 150 or PHYS 250.*

**PHYS/ASTR 330. Relativity.** 4 credits.

The basic mathematical descriptions of both Einstein's special and general theories of relativity are introduced through specific physical cases and calculus-based lectures. Special relativity is explored through its physical consequences on a variety of phenomena. General relativity is studied by considering the effects of gravity on space-time curvature on astrophysical objects. Simple numerical experiments in both special and general relativity will be conducted as class projects. *Prerequisites: PHYS 260 and MATH 237, or permission of instructor.*

**PHYS 333. Introduction to Particle Physics.** 3 credits.

An introduction to current themes and ideas which confront the fundamental nature of matter and interactions. The most widely accepted theory, the Standard Model, will be explored. Possible extension, beyond the Standard Model physics, will be discussed. Basic properties such as charge, mass, and lepton number will be examined within these frameworks. Experiments that illuminate the basic nature of matter and ideas such as symmetry and quantum physics will be reviewed and assessed. *Prerequisite: PHYS 270.*

**PHYS/MATS 337. Solid State Physics.** 3 credits.

A study of the forces between atoms, crystal structure, lattice vibrations and thermal properties of solids, free electron theory of metals, band theory of solids, semiconductors and dielectrics. *Prerequisite: PHYS 270 or permission of the instructor.*

**PHYS 338. Nuclear Physics.** 3 credits.

An introduction to the study of the atomic nucleus. Topics covered include static nuclear properties and movements, the force between nucleons, the deuteron, nucleon scattering, isospin, nuclear structure, radioactivity, decay kinematics and selection rules, fission, and fusion. *Prerequisite: PHYS 270.*

**PHYS 339. Introductory Nuclear Science.** 4 credits.

An introduction to nuclear science that will provide a solid foundation for experimental work in applied nuclear physics. Detection of ionizing radiation, as it applies to nuclear physics, will be additionally covered in the laboratory-component of the course. Topics include concepts of radioactive decays,

radiation transport and interaction with matter, basics of radiation detection devices, dosimetry, radiation therapy, X-ray production, and fission nuclear reactors. *Prerequisite: PHYS 270 or permission of the instructor.*

**PHYS 340. Mechanics.** 3 credits.

Application of fundamental laws of mechanics to particles and rigid bodies. Topics include statics, dynamics, central forces, oscillatory motion and generalized coordinates. *Prerequisites: PHYS 260 and MATH 238.*

**PHYS/MATH 341. Nonlinear Dynamics and Chaos.** 3 credits.

Introductory study of nonlinear dynamics and chaos intended primarily for upper-level undergraduates in science or mathematics. Topics include stability, bifurcations, phase portraits, strange attractors, fractals and selected applications of nonlinear dynamics in pure and applied science. Computers may be utilized for simulations and graphics. *Prerequisites: MATH 238 or (MATH 300 and MATH 336); and MATH 248.*

**PHYS 342. Mechanics II.** 3 credits.

A continuation of PHYS 340 including Lagrangian dynamics, rigid body motion and the theory of small oscillations. *Prerequisite: PHYS 340.*

**PHYS 344. Advanced Physics Laboratory I.** 1 credit.

The first course in a three-course laboratory sequence. A set of advanced laboratory experiences in which students are introduced to experimentation in several areas of physics while gaining experience in experiment design, data analysis, formal report writing and presentations. *Prerequisite: PHYS 247.*

**PHYS 345. Advanced Physics Laboratory II.** 1 credit.

This is the second course in a three-course laboratory sequence. A set of advanced laboratory experiences in which students are introduced to experimentation in several areas of physics while gaining experience in experiment design, data analysis, formal report writing and presentations. *Prerequisite: PHYS 344.*

**PHYS 346. Advanced Physics Laboratory III.** 1 credit.

This is the third course in a three-course laboratory sequence. A set of advanced laboratory experiences in which students are introduced to experimentation in several areas of physics while gaining experience in experiment design, data analysis, formal report writing and presentations. *Prerequisite: PHYS 345.*

**PHYS 350. Electricity and Magnetism.** 3 credits.

A study of the electrostatic field, the magnetic field, direct and alternating currents and electromagnetic waves. *Prerequisites: PHYS 260 and MATH 238.*

**PHYS 360. Analog Electronics (2, 4).** 4 credits.

DC and AC circuits, spectral and pulse circuit response, semiconductor physics and simple amplifier and oscillator circuits. *Prerequisite: PHYS 250 or permission of the instructor.*

**PHYS/MATH 365. Computational Fluid Mechanics.** 3 credits.

Applications of computer models to the understanding of both compressible and incompressible fluid flows. *Prerequisites: MATH 248, either MATH 238 or MATH 336, MATH/PHYS 265, and PHYS 340.*

**PHYS/MATH 366E. Computational Solid Mechanics.** 3 credits.

Development and application of mathematical models and computer simulations to investigate problems in solid mechanics, with emphasis on numerical solution of associated boundary value problems. *Prerequisites: MATH/PHYS 266, MATH 238 and MATH 248, or permission of the instructor.*

**PHYS 371. Introductory Digital Electronics (2, 4).** 2 credits.

Transistors, integrated circuits, logic families, gates, latches, decoders, multiplexers, multivibrators, counters and displays. *Prerequisite: A grade of "C" in PHYS 150 or PHYS 250 or permission of the instructor.*

**PHYS 372. Microcontrollers and Their Applications (2, 4).** 2 credits.

Microcontrollers, their instructions, architecture and applications. *Prerequisite: PHYS 371 or permission of the instructor.*

**PHYS 373. Interfacing Microcomputers (2, 4).** 2 credits.

A study of the personal computer and its input/output bus, input/output functions, commercially available devices, proto-typing circuit boards and programs for device control. *Prerequisite: PHYS 371.*

**PHYS/CHEM/MATS 375. An Introduction to Materials Science.** 3 credits.

An introduction to materials science with emphasis on general properties of materials. Topics will include crystal structure, extended and point defects and mechanical, electrical, thermal and magnetic properties of metals, ceramics, electronic materials, composites and organic materials. *Prerequisite: CHEM 131, PHYS 150 or PHYS 250, ISAT 212 or permission of the instructor.*

**PHYS 380. Thermodynamics and Statistical Mechanics.** 3 credits.

A treatment of the thermal properties of matter from both macroscopic and microscopic viewpoints. Topics include the laws of thermodynamics, heat, work, internal energy, entropy, elementary statistical concepts, ensembles, classical and quantum statistics and kinetic theory. Approximately equal attention will be given to thermodynamics and statistical mechanics. *Prerequisites: PHYS 270.*

**PHYS/MATS 381. Materials Characterization (Lecture/Lab).** 3 credits.

A review of the common analytical techniques used in materials science related industries today, including the evaluation of electrical, optical, structural and mechanical properties. Typical techniques may include Hall Effect, scanning probe microscopy, scanning electron microscopy, ellipsometry and x-ray diffraction. *Prerequisite: PHYS/MATS 375, ISAT/MATS 431 or GEOL/MATS 395.*

**PHYS 386. Robots: Structure and Theory.** 3 credits.

An introduction to the study of autonomous robotic platforms. Topics include robot structure, propulsion systems, robot kinematics, sensors used in robotics, and sensor integration. The course combines lectures with laboratory activities in which students will get hands-on experience in designing, building, programming, and testing autonomous robotic platforms. *Prerequisite: completion of the basic preparation courses required for the robotics minor or permission of the instructor.*

**PHYS 387. Theory and Basic Principles of Mobile Robot Construction and Control.** 3 credits.

The course is designed to familiarize the student with the basic elements of mobile robots. The course will provide students the opportunity to work with engineers and experts in the field of robotics to build a mobile robot while addressing the issues of control and principles of operation. The course will take advantage of the 4VA telepresence system to bring together experts and students from outside locations to supplement local instruction. *Prerequisites: Completion of the basic preparation courses required for the robotics minor or permission of the instructor.*

**PHYS 388. Robots for Humanity.** 3 credits.

Interdisciplinary team based course in which real world problems will be analyzed and tackled using robotics. May be repeated for credit when course content changes. *Prerequisites: Completion of the basic preparation courses required for the robotics minor or permission of the instructor.*

**PHYS 390. Computer Applications in Physics.** 3 credits.

Applications of automatic computation in the study of various physical systems. Problems are taken from mechanics of particles and continua, electromagnetism, optics, quantum physics, thermodynamics and transport physics. *Prerequisites: MATH/CS 248, PHYS 240, PHYS 250 and six additional credit hours in major courses in physics, excluding PHYS 360, PHYS 371 and PHYS 372.*

**PHYS 391-392. Seminar.** 1 credit per year.

Participation in the department seminar program. *Prerequisites: Junior or senior standing and permission of the instructor.*

**PHYS 397. Topics in Physics.** 1-4 credits each semester.

Topics in physics at intermediate level. May be repeated for credit when course content changes. Topics selected may dictate prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite: Permission of the instructor.*

**PHYS/ASTR 398. Independent Study in Physics or Astronomy.**

1-3 credits, repeatable to 4 credits.

An individual project related to some aspect of physics or astronomy. Must be under the guidance of a faculty adviser. A student may not earn more than a total of four credits for PHYS/ASTR 398.

**PHYS 420. Modern Optics.** 3 credits.

A study of the kinematic properties and physical nature of light including reflection, refraction, interference, diffraction, polarization, coherence and holography. *Prerequisites: PHYS 260, PHYS 270 and MATH 237.*

**PHYS 446. Electricity and Magnetism II.** 3 credits.

A continuation of PHYS 350. Emphasis will be placed on the solutions of Maxwell's equations in the presence of matter, on solving boundary-value problems and on the theory of electromagnetic radiation. *Prerequisite: PHYS 350.*

**PHYS/CHEM 455. Lasers and Their Applications to Physical Sciences (2, 3).** 3 credits.

An introduction to both the theoretical and practical aspects of lasers and their applications in the physical sciences. *Prerequisite: PHYS 270, CHEM 331 or permission of the instructor.*

**PHYS 460. Quantum Mechanics.** 3 credits.

Principles and applications of quantum mechanics. Topics include wave packets and the uncertainty principle, the Schrodinger equation, one-

dimensional potentials, operators and eigenvectors, three-dimensional motion and angular momentum and the hydrogen atom. *Prerequisite: PHYS 340.*

**PHYS 482. Advanced Theoretical Physics.** 3 Credits.

This course is a continuation of topics from mechanics, thermodynamics and statistical Mechanics, electricity and magnetism, and quantum mechanics. The course may include topics from mechanics (Lagrangian dynamics, rigid body motion), electricity and magnetism (solution of Maxwell's equations in the presence of matter), thermodynamics and statistical mechanics (dynamical statistical mechanics) and quantum mechanics (beyond the hydrogen atom).

**PHYS 491-492. Physics Assessment and Seminar.** 1 credit per year.

Principal course activities are participation in the departmental assessment program and attendance at departmental seminars. *Prerequisite: PHYS 392.*

**PHYS 494. Internship in Physics.** 1-6 credits.

Students participate in research or applied physics outside of the university. A proposal must be approved prior to registration, and a final paper will be completed. *Prerequisites: Physics major with a minimum of 12 physics credit hours and permission of the department head and the instructor.*

**PHYS 497. Topics in Physics.** 1-4 credits each semester.

Topics in physics at the advanced level. May be repeated for credit when course content changes. Topics selected may determine prerequisites. Students should consult instructor prior to enrolling for course. *Prerequisite: Permission of the instructor.*

**PHYS/ASTR 498R. Undergraduate Research in Physics or Astronomy.** 1-4 credits, repeatable to 6 credits.

Research in a selected area of physics as arranged with a faculty research adviser. A student may not earn more than a total of six credits for PHYS/ASTR 498R. *Prerequisite: Proposal for study must be approved prior to registration.*

**PHYS 499. Honors.** 1-3 credits.

Participation in this course must be approved during the second semester of the junior year.

## Political Science

**POSC 200. Global Politics.** 3 credits.

An exploration of political, social and economic issues and structures existing within and between states in the contemporary global community. Students are introduced to alternative approaches to analyzing these issues in diverse cultures and political settings. May be used for general education credit.

**POSC 201. Introduction to Western Political Theory.** 3 credits.

A general survey of Western political theory from Plato to Marx, order and freedom.

**POSC 225. U.S. Government.** 4 credits.

An examination of institutions, processes and intellectual concepts, which structure American political activity. The interaction of the political system with the changing American society and America's changing role in world affairs are also treated. The course provides an introduction to quantitative methodology. May be used for general education credit.

**POSC 230. International Relations.** 3 credits.

A survey of the field of international relations including consideration of the elements of national power, foreign policy, diplomacy, propaganda, foreign aid, war, international law and international organization.

**POSC 240. Comparative Politics.** 3 credits.

A comparative study of selected political systems. Emphasis is on the structure of government, the political process and the conditions which either promote or constrain political change and stability.

**POSC 295. Research Methods.** 4 credits.

Students learn how to conduct original research from theory formulation through data collection and hypothesis testing. Special emphasis on research and computer literacy. *Prerequisite: MATH 220, POSC 225 and one of the following: POSC 230, POSC 240, PPA 200 or PPA 265.*

**POSC 300. Politics and Film.** 3 credits.

This course examines the relationship between politics and film, broadly construed. The ability of film to inform and promote agendas on key political issues, and the way in which films reflect the world of ideas and political culture in which they are created will be explored in substantive areas that may include: social and political change, human rights and justice, the portrayal of political processes and institutions, and foreign policy.

**POSC 301W. The Washington Semester Experience.** 3 credits.

A study of the manner in which the policy making process is conducted on the federal level. The function of political and governmental institutions in

establishing public policy is examined through readings and observation. *Prerequisite: Enrollment in the Washington Semester program.*

**POSC 302. State and Local Government.** 3 credits.

A study of state and local government in the United States with particular focus on Virginia. Emphasis is placed on an understanding of the framework, functions and problems of state and local governments.

**POSC 310. Political Theory: Ancient to Early Modern.** 3 credits.

A study of political theory from Plato and Aristotle through Machiavelli with analysis of such political concepts as the nature of the state, political obligation, natural law and Utopian societies.

**POSC 315. Political Theory: Early Modern to the 19th Century.** 3 credits.

A study of political theory from Hobbes and Locke to Hegel, Green and other 19th-century thinkers. The course will examine such ideas as freedom, political obligation, justice, progress, ethics, and politics and the relationship between the individual and the human polity.

**POSC 316. Contemporary Political Theory.** 3 credits.

An examination of political thinkers and their ideas from the end of the 19th century to the present. Special emphasis will be placed on the writings of Hannah Arendt, Jurgen Habermas, John Rawls and other contemporary thinkers who continue to engage in the pursuit of political inquiry.

**POSC 321. Political Theory and Ideology.** 3 credits.

A study of the relationship between normative political theory and ideology, emphasizing the philosophic foundations of modern political thought and its relationship to the emergence of various ideological positions in the 19th and 20th centuries. Includes a study of liberalism, conservatism, socialism, anarchism, nationalism, fascism, feminism, environmentalism and others.

**POSC 325. Constitutional Law.** 3 credits.

A study of the legal aspects of the American democratic system. The development of the Constitution will be explored and case studies used to portray important events and changes.

**POSC 326. Civil Rights.** 3 credits.

An examination of the judicial interpretation of civil rights in America with emphasis on freedom of speech, due process of law and equal protection under the 14th Amendment.

**POSC 330. American Political Thought.** 3 credits.

A study of the development and significance of political ideas that have influenced American society and government. *Prerequisite: POSC 201.*

**POSC/JUST 331. Human Rights in Theory and Practice.** 3 credits.

This course will explore the nature and value of human rights by investigating some major debates over their status and meaning and by examining some of the ways people have tried to secure human rights in practice. *Prerequisites: JUST, POSC and INTA majors only. For JUST majors: JUST 200.*

**POSC 333. American Political Thought II: Civil War to the Present.** 3 credits.

This course explores American political thought from Reconstruction (ca. 1866) to the present day, drawing largely on primary sources, including writings by political leaders and activists, political theorists, philosophers, public intellectuals and religious thinkers. *Prerequisite: POSC 201.*

**POSC 335. Comparative Politics for Teachers.** 3 credits.

This course examines the core themes, concepts and debates in the subfield of comparative politics and how they apply to politics in selected countries around the world. The course emphasizes those themes and cases of greatest use to students pursuing careers in education and explores approaches to teaching this content in a variety of classroom settings.

**POSC 337. Politics of Russia and the Former Soviet Union.** 3 credits.

The course involves comparative analysis of the development and dynamics of political regimes in Russia and the Former Soviet Union. Attention is given to pre-communist, communist and post-communist politics and to explaining political and economic trends since 1991.

**POSC 340. Political Development in the Third World.** 3 credits.

A comparative study of the processes of political development in the developing nations of the Middle East, Africa, Asia and Latin America. Attention is given to the special problems confronting these nations and their implications for the global systems.

**POSC 344. Politics of the European Union.** 3 credits.

The course offers an in-depth consideration of the political development of the European Union, the EU policy-making process and contemporary issues that confront European leaders and citizens.

**POSC 345. Politics of Western Europe.** 3 credits.

This course involves comparative analysis of the development and dynamics of political regimes in western Europe. Attention is given to political

institutions, political participation, public policy, and political and economic trends since 1945.

**POSC 346. Politics of Central and Eastern Europe.** *3 credits.*

This course involves comparative analysis of the development and dynamics of political regimes in central and eastern Europe. Attention is given to pre-communist, communist, and post-communist politics and to explaining political and economic trends since 1989.

**POSC 347. Comparative Public Policy.** *3 credits.*

A study of public policy formation and implementation in selected advanced industrial and Third World nations.

**POSC 348. The Politics of Cultural Pluralism.** *3 credits.*

This course examines the various manifestations of cultural pluralism, a situation that occurs when multiple ethnic, religious, and/or linguistic groups coexist within a single state. The course considers different institutional and policy approaches to coping with cultural pluralism.

**POSC 349. Comparative Political Behavior.** *3 credits.*

This course familiarizes students with the theoretical and empirical study of political behavior cross-nationally.

**POSC 350. Latin American Politics.** *3 credits.*

A comparative study of the political institutions, processes and current issues in the Latin American states and an analysis of their importance in regional and global relations.

**POSC 351. Topics in American Politics.** *3 credits.*

In-depth exploration of specialized topics in the area of American politics. The topic for each semester will be announced on MyMadison.

**POSC 353. African Politics.** *3 credits.*

A comparative study of the institutions and social, economic, and global processes that affect contemporary African states. Political developments explored include the construction and transformation of post-colonial states, ethnic conflict, economic crisis and reform, and regime change.

**POSC 354. Politics of the Middle East.** *3 credits.*

This course involves comparative analysis of political institutions, social dynamics and economic processes in the contemporary Middle East. The course also focuses on the ways that global developments affect and are affected by Middle Eastern states and peoples.

**POSC 355. East Asian Politics.** *3 credits.*

A study of the political systems of the major countries of East Asia, including Japan, China and Korea. Issues discussed include political development and democratization movements in the People's Republic of China, the Republic of China and the Republic of Korea.

**POSC 356. Politics of China.** *3 credits.*

This undergraduate course provides an introduction to key institutions, transformations, and issues in contemporary Chinese politics.

**POSC 358. Public Policymaking.** *3 credits.*

Study of policymaking institutions and policy processes that convert societal demands through policy into benefits. By considering the impact of institutional and ideational arrangements on policy outcomes, the course provides a framework with which to analyze public policy formation in contemporary America. *Prerequisite: POSC 225 or permission of the instructor.*

**POSC 361. Topics in International Relations.** *3 credits.*

In-depth exploration of specialized topics in the area of international relations. The topic for each semester will be announced on MyMadison.

**POSC 362. Political Behavior.** *3 credits.*

A study of how citizens acquire politically relevant attitudes and how these attitudes influence their political behavior. The effects of the mass media on voting behavior are also considered. Emphasis is placed on U.S. voting behavior, but behavior in other nations is also covered. *Prerequisite: POSC 225.*

**POSC 365. American Political Campaigning.** *3 credits.*

Study of modern day political campaigning with emphasis on campaign structure, strategy and the relationship between candidates and political consultants. The course assesses the consequences of the changing nature of political campaigns for democracy in the United States. *Prerequisite: POSC 225.*

**POSC 367. U.S. Immigration Politics and Policy.** *3 credits.*

An examination of how conceptions of national identity, nativism and assimilation influence public opinion toward immigrants and shape immigration policy in the United States. The perspectives of native-born residents, immigrants and policymakers are considered. The course discusses immigration as a social and political issue, reviews the historical evolution of U.S. immigration policy and public opinion trends, and explores how contemporary immigrants adapt to life in the United States.

**POSC 368. Interest Groups and Public Policy.** *3 credits.*

An analysis of the activities of interest groups in the American system of government with emphasis on their goals and effectiveness in shaping public policy. *Prerequisite: POSC 225.*

**POSC 369. Political Parties and Elections.** *3 credits.*

A study of national political parties and elections. Attention is given to the origin and evolution of the major and important minor parties, nomination and election process, presidential campaign, role and practical working of political parties, influence of public opinion and pressure groups and responsibilities of the individual voter. *Prerequisite: POSC 225.*

**POSC 370. U.S. Foreign Policy.** *3 credits.*

An investigation of the processes for making foreign policy, underlying premises influencing specific policies and substance of American foreign policy. *Prerequisite: POSC 230.*

**POSC 371. Topics in Comparative Politics.** *3 credits.*

In-depth exploration of specialized topics in the area of comparative politics. The topic for each semester will be announced on MyMadison.

**POSC/JUST 372. Ethics and International Politics.** *3 credits.*

This course investigates the significance of ethical questions in the theory and practice of contemporary international politics, introducing a variety of normative approaches that shape the issues of peace and conflict, morality and justice in global affairs. Practical case studies will also be used to address issues of policy relevance, with particular attention paid to the American experience. *Prerequisites: JUST, POSC and INTA majors only. For JUST majors: JUST 235.*

**POSC 380. The U.S. Presidency.** *3 credits.*

A study of the institution of the American presidency focusing on the sources, bases and character of the power required by the president for effective executive action. Relationships of the presidency to foreign affairs, Congress, the public, party structure and the administrative establishment will also be considered. *Prerequisite: POSC 225.*

**POSC 381. Topics in Political Theory.** *3 credits.*

In-depth exploration of specialized topics in the area of political theory. The topic for each semester will be announced on MyMadison.

**POSC 382. The Role of Religion in American Politics.** *3 credits.*

An examination of the role religion has played and continues to play in American politics. Besides providing an overview of how religion has influenced electoral, legislative, and judicial outcomes, the course will provide an in-depth examination of particular aspects of religion's role in political life. *Prerequisite: POSC 225 or permission of the instructor.*

**POSC/WGS 383. Women and Politics in Comparative Perspective.** *3 credits.*

A study of the causes and consequences of women's political marginalization in the United States and abroad. The course examines socioeconomic and political dimensions of gender inequality, exploring how women have worked through social movements, electoral politics, and public policy initiatives to overcome obstacles to their political empowerment.

**POSC 384. Minority Group Politics.** *3 credits.*

This course examines the role of minority groups in American politics. Attention is given to five groups (African-Americans, Asian-Americans, Native Americans, Latinos and women) that for reasons of race or gender have faced institutional discrimination and political domination in the United States.

**POSC 385. The U.S. Congress.** *3 credits.*

Study of the legislative process will concentrate on the operation of Congress with regard to such matters as its rules and procedure; relationships to the presidency, the bureaucracy, pressure groups and the courts; and a discussion of its current problems. *Prerequisite: POSC 225.*

**POSC 386. The U.S. Judiciary.** *3 credits.*

An investigation of the American court system. The course focuses on the role of the judiciary in American politics, the difference between judicial and other political and bureaucratic decision-making processes, the selection of judges, the decisions made by judges and other actors interacting with the courts, and the impact of court decisions on American society.

**POSC 387. The Appellate Process and Practice.** *3 credits.*

An examination of the Supreme Court appellate process in the United States from its beginnings with the lower court opinion through oral argument. Class is conducted as a seminar in which students are expected to engage actively. Students study substantive areas of constitutional law and the common law system of precedent.

**POSC 391. Topics in Public Policy.** *3 credits.*

In-depth exploration of specialized topics in the area of public policy. The topic for each semester will be announced on MyMadison.

**POSC/JUST 392. Peace Studies. 3 credits.**

A study of the evolution, theory and practice of peace studies. The course focuses on how we wage and resolve conflict, affect social change, and provide security through nonviolent means.

**POSC 393. Human Security. 3 credits.**

This course examines the concept of security in a globalized world, paying particular attention to threats to individuals and groups in the post-Cold War international system. Topics include the transition from state security to individual security, human development, human rights, military intervention, responsibility to protect and global governance. *Prerequisite: POSC 230.*

**POSC 394. International Conflict. 3 credits.**

A study of the causes and consequences of violent political conflict between and within states. The course emphasizes the theoretical explanations of conflict initiation, escalation, and termination, with applications to both individual cases and broader patterns of conflictual behavior. *Prerequisite: POSC 230.*

**POSC 395. International Law. 3 credits.**

Examination of the role of international law in world politics. Particular attention will be given to the effects of international law on patterns of international exchange and interaction. Case study and other forms of political analysis will be used.

**POSC 396. International Organizations. 3 credits.**

Study of the evolution and role of contemporary international organizations in the larger context of world politics. Emphasis on the ways in which the changing patterns of political power influence the processes and effectiveness of such organizations.

**POSC 397. The Politics of International Economic Relations. 3 credits.**

A study of the political dynamics and implications of international economic relations.

**POSC 398. Simulations. 3 credits.**

Application of concepts and insights learned in the classroom to contemporary policy problems and practical activities. The topic of this course will vary from offering to offering. The exact courses required will vary with the subject matter of the simulation.

**POSC 430. International Security and Conflict Management. 3 credits.**

This course examines major threats to international security in the post-Cold War world. Topics include the changing global security environment, proliferation of weapons of mass destruction, terrorism and ethnic conflict. The effectiveness of economic sanctions, deterrence, international organizations, preventative war and other tools in dealing with these threats in critically examined.

**POSC 435. International Terrorism. 3 credits.**

Systematic study of political terrorism with emphasis upon the destabilizing effect that it has upon the international community.

**POSC 440. Post-Conflict Societies. 3 credits.**

An examination of the political dynamics of social, economic, security and governance problems faced in rebuilding societies that are emerging from a period of intense conflicts. Emphasis on institutional and behavioral challenges brought about by conflict; strategies employed by domestic and international actors to promote democratic, just and secure societies after conflict; and standards that can be used to assess the success, failure and durability of a newly emerging political system.

**POSC/HIST 457. Comparative Empires. 3 credits.**

Comparative empires is an examination of imperialism from 1450 to the Present. Focusing on no less than four empires, the course will apply a variety of theoretical approaches in a series of case studies with at least one empire from the period of exploration and one from 1919 to the present. Students will employ approaches from history, political science, economics, and geography as they search for a deeper understanding of each case study and the broader concept of empire. *Corequisite: MSSE 470H.*

**POSC 458. International Political Analysis. 3 credits.**

An examination of techniques and principles for the analysis of future political conditions and future government decisions.

**POSC/SCOM/SMAD 472. Media and Politics. 3 credits.**

A study of the media's role in political campaigns, concentrating on past/present election, the media's role in covering political parties and coverage of the governing process. Discussion of electronic and print will occur. Topics to be examined include campaign videos, C-SPAN, political ads, editorial cartoons, TV debates, convention coverage and radio talk show commentary.

**POSC 490. Senior Tutorial in Political Science. 4 credits.**

A research-oriented tutorial designed to integrate student's prior knowledge and strengthen lifelong learning skills. Course may be offered in multiple

sessions (POSC 490A, POSC 490B, etc.). *Prerequisites: Senior standing and permission of the instructor.*

**POSC 492. Senior Seminar in Political Science. 4 credits.**

This research-oriented senior seminar provides an overview of the discipline of political science and the different approaches to research in the field. A major research project will strengthen the research, information access and lifelong learning capacities of the student. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: Senior standing and POSC 295.*

**POSC 493. Political Communication Internship. 4 credits.**

This course will provide students with experiential learning opportunities in policymaking, campaigning, media, legislative politics and lobbying. A research paper relating the internship to the student's academic work will enhance the learning experience. *Prerequisites: Junior or senior standing; POSC 225, SCOM 240, SCOM 241 and one other core PCOM required course.*

**POSC 493W. Political Communication Internship in Washington. 6 credits.**

This course will provide students with experiential learning opportunities in policymaking, campaigning, media, legislative politics, and lobbying. A research paper relating the internship to the student's academic work will enhance the learning experience. *Prerequisites: Junior or senior standing; POSC 225, SCOM 240, SCOM 241 and one other core PCOM required course.*

**POSC 495.\* Internship in Political Science. 4 credits.**

Provides students with opportunities for experiential learning in a legislative, policy making, campaign, constituency, interest group or criminal justice organization. A research paper related to the internship and a presentation based on the experience are required. *Prerequisites: Junior or senior standing, 15 credits of political science, public administration or political communication and permission of the instructor.*

**POSC 495W.\* Washington Semester Internship in Political Science. 6 credits.**

Provides Washington Semester participants with opportunities for experiential learning in a Washington, D.C., based legislative, policy making, campaign, constituency, interest group or criminal justice organization. Requirements include 360 work hours, a research paper related to the internship, a career report, a daily log and regular meetings with faculty-in residence. *Prerequisites: Junior or senior standing, 15 credits of political science, public administration or political communication, and successful application to Washington Semester program.*

**POSC 498. Research in Political Science. 1 credit.**

Research in a selected area of political science as arranged with a faculty sponsor. Research outline must be approved by faculty sponsor and department head the semester before registration. Course may be repeated. *Prerequisites: a Political Science, International Affairs, or Public Policy and Administration GPA of 2.5 or greater.*

**POSC 499. Honors. 6 credits.**

Year course.

\*No more than four credit hours can be counted toward the political science major.

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## Portuguese

**PORT 101. Elementary Portuguese I. 3-4 credits.**

The fundamentals of Portuguese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. Students will receive no credit for the course if he/she has had two or more years of the language in high school.

**PORT 102. Elementary Portuguese II. 3-4 credits.**

The fundamentals of Portuguese through a higher level of listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. Students will receive no credit for the course if he/she has had two or more years of the language in high school. *Prerequisite: PORT 101.*

**PORT 231. Intermediate Portuguese I. 3 credits.**

A thorough review of first year grammar and vocabulary building. Conversation, composition and readings will be chosen to reach competency at the lower intermediate level Portuguese. *Prerequisite: PORT 102 or permission of the instructor.*

**PORT 232. Intermediate Portuguese II. 3 credits.**

A thorough review of PORT 231 grammar and vocabulary building. Conversation, composition and readings will be chosen to reach competency at the advance intermediate level. *Prerequisite: PORT 231 or permission of the instructor.*

**PORT 300. Portuguese Grammar and Communication.** 3 credits.

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Portuguese. Fulfills the College of Arts and Letters writing-intensive requirement for possible International Affairs majors and/or IBUS majors. *Prerequisite:* PORT 232 or permission of the instructor.

**PORT 320. Portuguese Oral and Written Communication.** 3 credits.

Intensive training in the use of modern, everyday Portuguese with emphasis on conversation and composition. Readings in Portuguese will provide a context for discussion and writing. *Prerequisite:* PORT 300.

**PORT 490. Special Topics in Portuguese.** 3 credits.

Special topics or independent studies in Portuguese.

## Psychology

**PSYC 100. Interpersonal Skills for Resident Advisers.** 1 credit.

Designed to give resident adviser trainees understanding of interpersonal relations. Cannot be used as a psychology major elective. May be used for general education credit. *Prerequisite:* Limited to students selected as resident advisers.

**PSYC 101. General Psychology.** 3 credits.

A study of the nervous system, sensation, perception, consciousness, learning, memory, language, intelligence, motivation, emotion, life span development, personality, psychopathology, psychotherapy, social psychology and the scientific method. May be used for general education credit.

**PSYC 122. The Science of Vision and Audition.** 3 credits.

A study of human interaction with light and sound waves. Topics include physiological and perceptual mechanisms for processing light and sound, along with connections to real-world applications (e.g., human factors and careers within vision science and audition). Includes activities designed to provide students with in-depth, hands-on experience with course topics. May be used for general education credit.

**PSYC 160. Life Span Human Development.** 3 credits.

An introduction to human development. Emphasis is on life span processes within physical, emotional, cognitive, psychosexual, social, personality and moral development. May be used for general education credit.

**PSYC 180. Introduction to Behavior Analysis.** 3 credits.

Students will learn the fundamental principles, procedures, and concepts of behavior analysis, how they can be used to explain behavior, and how interventions based on these principles can be used to improve their own lives and the lives of others.

**PSYC 200. Topics in Psychology.** 1-3 credits.

Exploration of an important psychological topic. The topics for each semester will be announced on MyMadison and the departmental website. *Prerequisite:* PSYC 101.

**PSYC 202. Directed Studies in Psychology.** 1-3 credits.

Designed to give capable students an opportunity to complete directed study in an area of psychology under faculty guidance. Experiences may include practica, serving as a teaching assistant, directed readings, or similar experience. Not to be used for psychology major credit. *Prerequisites:* PSYC 101 and a written plan for the directed study must be submitted to the Department Head for approval one week prior to registration.

**PSYC 203. Directed Research in Psychology.** 1-3 credits.

An introductory opportunity to assist a faculty member with a research project. Students may participate in any or all phases of research, including completion of background research, study design, collection of data, data analysis and interpretation. Specific requirements of project are determined by the instructor. Not to be used for psychology major credit. *Prerequisites:* PSYC 101 and a written plan for the directed study must be submitted to the Department Head for approval one week prior to registration.

**PSYC 210. Psychological Measurement and Statistics.** 4 credits.

This course provides an introduction to statistical techniques used by psychologists in measuring behavior. Fundamental measures and theory of descriptive and inferential statistics will be discussed. The use of computers for data analysis will be introduced. *Prerequisites:* PSYC 101 and MATH 205, MATH 220, MATH 231, or MATH 235 with a grade of "C-" or better.

**PSYC 211. Psychological Research Methods (3,2).** 4 credits.

This course provides an introduction to the application of scientific methodology to investigate psychological phenomenon. Through lecture and laboratory, attention is given to choosing research questions, developing hypotheses, designing and conducting research, describing, analyzing and evaluating data and effectively communicating research findings. *Prerequisites:* PSYC 101 and PSYC 210.

**PSYC 212-213. Psychological Research Design and Data Analysis I-II.** 4 credits each semester.

The PSYC 212-213 course sequence introduces the logic of pursuing a scientific approach in psychology and covers descriptive, correlational, experimental and quasi-experimental approaches. It also covers the statistical tools associated with these methods (namely, descriptive statistics, correlation, regression, t-tests and ANOVA), and it introduces the basics of inferential statistics and hypothesis testing. *Prerequisites for PSYC 212:* PSYC 101 and MATH 205, MATH 220, MATH 231, or MATH 235 with a grade of "C-" or better. *Prerequisite for PSYC 213:* PSYC 212 with a grade of "C-" or better.

**PSYC 220. Psychology and Culture.** 3 credits.

The study of human psychology is incomplete without taking into account the cultural, historical, and social factors involved in human functioning. This course considers the ethnic and cultural variations that exist in human behavior, thought, and action. Course meets sociocultural course requirement for the Psychology major. *Prerequisite:* PSYC 101.

**PSYC 235. Psychology of Adjustment.** 3 credits.

A study of the process and dynamics of the well-integrated personality and the practical application of adjustment theories and behavior change techniques to enhance personal awareness and self-development.

**PSYC 250. Introduction to Abnormal Psychology.** 3 credits.

An introduction to the field of abnormal psychology for the non-psychology major. This course will examine methods of defining psychological normality and abnormality and the classification, causes and treatment of abnormal behavior. This course cannot be used for psychology major credit. Students may not earn credit for both PSYC 250 and 335. *Prerequisite:* PSYC 101 or PSYC 160.

**PSYC/JUST 255. Abnormal Psychology for Law Enforcement Personnel.** 3 credits.

This course for students interested in becoming law enforcement professionals critically examines psychological normality and abnormality. The course focuses on description and causes of abnormal behavior likely to be encountered by law enforcement professionals, and on intervention options for police officers. May not be taken by psychology majors or students who have completed PSYC 250 or PSYC 335. *Prerequisites:* PSYC 101 and JUST 200.

**PSYC 270. Foundations of Learning and Cognition for Education.** 3 credits.

This course introduces fundamental principles of cognition and learning as applied to educational practice. It provides a foundation for understanding multiple perspectives and levels of analysis applied to individual learning in educational settings. *Prerequisite:* PSYC 101 or PSYC 160.

**PSYC 275. Psychology of Human Intimacy.** 3 credits.

Theoretical and applied study of human relationships through case analysis and role play.

**PSYC 285. Drugs and Behavior.** 3 credits.

An introduction to the pharmacological effects of psychoactive drugs. This course will examine the neural mechanisms and behavioral effects of common substances such as caffeine and nicotine, drugs of abuse, and pharmaceuticals that are used to treat mental disorders. *Prerequisite:* PSYC 101.

**PSYC 301. Psychology Peer Advising Training I.** 2 credits.

Introductory training in academic advising, career development, and basic counseling techniques. Not to be used for psychology major credit. Application guidelines available on the psychology website and in the Psychology Peer Advising office. *Prerequisites:* PSYC 101, junior-level status and permission of course instructor.

**PSYC 302. Psychology Peer Advising Training II.** 2 credits.

Continued training and supervised experiences in academic advising, career development, and basic counseling techniques. Not to be used for psychology major credit. *Prerequisites:* PSYC 211, PSYC 213 or PSYC 301 and permission of the course coordinator.

**PSYC 304. Death and Dying: Thanatology.** 3 credits.

Psychological theories about death including ways in which individuals and society deal with death. *Prerequisites:* PSYC 101 and junior status.

**PSYC 308. Health Psychology.** 3 credits.

This course deals with personality and its relation to health and illness behaviors. Topics include psychological factors involved in control and helplessness, conflict management, cardiovascular disorders, cancer, pain, substance abuse and other psychophysiological related factors. Course meets sociocultural requirement for the psychology major. *Prerequisites:* PSYC 101 and junior status.

**PSYC 310. The Psychology of Women and Gender.** 3 credits.

An examination of research and theory regarding the abilities and behaviors of women and the changing roles of women. Consideration is given to biological, developmental and societal determinants of sex and gender. Course meets sociocultural requirement for the psychology major. *Prerequisites:* PSYC 101 and junior status.

**PSYC/JUST 314. Police Psychology.** 3 credits.

This course explores the role of psychology in various aspects of police work and examines how psychological research and methods can assist police departments and police officers in reaching law-enforcement goals. *Prerequisites:* PSYC 101 and JUST 200.

**PSYC/JUST 316. Human Development and Crime.** 3 credits.

This course examines how psychological research and theory shed light on the development of criminal careers, the factors that protect children and adolescents from becoming criminals, how being a victim of crime influences well-being, and the efficacy of rehabilitation. Special attention will be paid to the knowledge base on delinquency and childhood/adolescent victimization. *Prerequisite:* PSYC 101.

**PSYC 320. Diversity Issues in Psychology.** 3 credits.

This course addresses issues of diversity and neglected populations in psychology with attention to gender, sexual orientation, race, ethnicity, disability, chronic illness, SES, age and level of indigenous influence. Particular cultural stressors associated with each group or demographic are discussed and attention is given to the issue of privilege. Course meets sociocultural requirement for the psychology major. *Prerequisites:* PSYC 101 and junior-level status.

**PSYC 325. Counseling Psychology.** 3 credits.

A basic counseling theories and skills course designed for students interested in human service and mental health fields. Course meets sociocultural requirement for the psychology major. Credit may not be earned in both PSYC 325 and PSYC 440. *Prerequisites:* PSYC 101 and junior status.

**PSYC 326. Leadership and Personal Growth.** 3 credits.

The purpose of this course is to foster the understanding and practical application of leadership, through the use of affective and cognitive approaches. There is a strong emphasis on personal growth as it relates to leadership concepts. Aspects of developmental, cognitive, humanistic, and personality psychological theories are included. The course also builds on concepts and issues from Industrial/Organizational psychology. *Prerequisites:* PSYC 101 or PSYC 160 and permission of the instructor.

**PSYC 328. The Psychology of Leadership.** 3 credits.

This course focuses on psychological components of leadership behavior and its importance to various situations in culture and society. Students will explore the potential impact of leaders and their influence on individuals and society. Various existential, behavioral and motivational topics related to leadership studies will be explored. Service learning will also be a core component of the course. *Prerequisites:* PSYC 101 and junior standing.

**PSYC 330. Psychology of Personality.** 3 credits.

Essential elements of leading theories of personality with an emphasis on implications of these theories for human behavior. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC 335. Abnormal Psychology.** 3 credits.

This course for the psychology major critically examines psychological normality and abnormality and the classification, causes and treatment of abnormal behavior. Students learn classification and diagnosis, explore social and multicultural issues relating to diagnosis and discuss research in the field. Students may not earn credit for both PSYC 250 and PSYC 335. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC 345. Social Psychology.** 3 credits.

The study of how an individual's behavior, feelings and thoughts are influenced by other people. Topics include attitude formation and change, social perception, attraction, altruistic and antisocial behavior, conformity, leadership and group dynamics, and applications of social psychology to other fields. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC 365. Developmental Psychology.** 3 credits.

Psychological aspects of growth, development and behavior from birth through adolescence. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC/BIO 375. Sensation and Perception.** 3 credits.

Explores the nature and development of human sensory capabilities and processing, and how these affect perception of the environment. A potential list of the variety of systems reviewed includes hearing, vision, smell, taste,

and touch/pain, as well as phenomena such as the perception of balance. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC 380. Cognitive Psychology.** 3 credits.

This course explores the nature and development of human attention, memory, language and thinking processes. An information processing approach to the study of human cognition is emphasized. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC/BIO 385. Biopsychology.** 3 credits.

A survey of the neurological and chemical mechanisms which control behavior. This course examines the brain and how it processes sensation, perception, cognition, movement, motivation, learning, memory and other behavioral processes of interest to psychologists. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC 390. Psychology of Learning.** 3 credits.

Basic principles of learning and conditioning with a consideration of extinction, reinforcement, generalization, discrimination, transfer, concept formation and verbal learning. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC/BIO 395. Comparative Animal Behavior.** 3 credits.

This course covers aspects of the development, function and evolution of the behavior of nonhuman animals. Topics include intraspecies communication, feeding, aggression, territoriality, reproductive behavior and social behavior. *Prerequisite:* PSYC 211 or PSYC 213.

**PSYC 400. Advanced Topics in Psychology.** 1-3 credits.

Exploration of a significant psychological topic in depth. The topics for each semester will be announced on MyMadison and on the departmental website. *Prerequisites:* At least one SS content course and one NS content course.

**PSYC 401. Peer Advising.** 2 credits.

Supervised practicum in academic and career development and peer advising. May be taken twice for up to four credit hours toward the psychology major (400-level elective). *Prerequisites:* PSYC 302, at least one SS content course and one NS content course, and permission of the instructor.

**PSYC 402. Independent Study in Psychology.** 1-4 credits.

An opportunity to apply classroom learning to practical problems and to expand the scope of knowledge in psychology to areas not emphasized in the coursework we offer. May include service learning, internship, directed readings, serving as a teaching assistant, or a combination of these activities. *Prerequisites:* PSYC 211 or PSYC 213, a written plan approved by the project supervisor and Department Head must be submitted prior to registration.

**PSYC 403. Independent Research in Psychology.** 1-4 credits.

An advanced opportunity to conduct research with a faculty member where students apply their knowledge of Psychology to a specific research project or area. Students may work individually with the instructor or as part of a team that includes several students. Student projects include the development of an evaluated product (e.g., poster presentation, presentation). Specific requirements of project are determined by the instructor. *Prerequisites:* PSYC 211 or PSYC 213, a written plan approved by the project supervisor and Department Head must be submitted prior to registration.

**PSYC 410. Psychology of the Workplace.** 3 credits.

This course is a survey of the applications of psychological principles in the workplace. Emphasis is on topics such as research and methods, personnel decisions, training, attitudes, motivation, leadership, teams, and sociocultural issues in the workplace. Other topics of current interest will also be covered. Course will fulfill sociocultural awareness requirement. *Prerequisites:* At least one SS content course and one NS content course.

**PSYC 415. Forensic Psychology.** 3 credits.

The application of psychological principles and techniques to the law, the criminal justice system, law enforcement and criminal behavior. Students may not earn credit in both PSYC 415 and PSYC 312. *Prerequisite:* PSYC 335.

**PSYC 420. Advanced Psychological Statistics.** 3 credits.

This course presents advanced univariate and multivariate statistical techniques that psychology students need for reading research articles and conducting psychological research. *Prerequisites:* At least one SS content course and one NS content course.

**PSYC 425. School Psychology.** 3 credits.

Applications of psychological principles in school settings, including roles and activities of school psychologists, standards, trends and issues of treatment and evaluation. *Prerequisites:* At least one SS content course and one NS content course.

**PSYC 427. Tests and Measurements.** 3 credits.

Standardized psychological tests of mental ability, achievement, aptitude and personality with a review of statistical procedures necessary for interpretation

of test results. *Prerequisites: At least one SS content course and one NS content course.*

**PSYC 428. Educational Psychology.** 3 credits.

The application of the basic psychological principles of development, learning, cognition, measurement and social interactions to education settings. This course examines how psychological theory and research impacts the teaching of reading, writing, science and mathematics. Students may not count both PSYC 270 and PSYC 428 for psychology major credit. *Prerequisites: At least one SS content course and one NS content course.*

**PSYC 430. Clinical Psychology.** 3 credits.

An introduction to the field of clinical psychology including a review of the major theoretical models, psychometrics, psychiatric diagnosis and treatment strategies. *Prerequisites: PSYC 335 and one NS content course.*

**PSYC 435. Community Psychology.** 3 credits.

Focus on emerging trends and models in the application of psychology to community, stress prevention programs, human resources and change. *Prerequisites: At least one SS content course and one NS content course.*

**PSYC 450. Psychology of Child Abuse and Neglect.** 3 credits.

Review of current psychological literature on child abuse and neglect including identification, etiology, treatment, prevention and legal aspects. Family violence issues are also discussed. *Prerequisites: At least one SS content course and one NS content course.*

**PSYC 452. Child Psychopathology.** 3 credits.

The causes, symptoms and classification of childhood psychological disorders. *Prerequisite: PSYC 335 or PSYC 365 (both recommended).*

**PSYC 460. Community Psychology within Developing Societies.** 3 credits.

This course will apply psychology to a critical examination of developing societies around the world. Topics include sociocultural and international contexts, privilege, power, oppressing, terrorism, population growth, and diversity. Consideration is given to developmental and societal determinants of prejudice, discrimination, and inequity. Course meets sociocultural requirement for the psychology major. *Prerequisites: At least one SS content course and one NS content course.*

**PSYC 470. Psychology of the Young Adult.** 3 credits.

Applications of psychological principles to classroom settings. Not open to students who have taken PSYC 270. *Prerequisites: PSYC 160 and at least one course from developmental core (Area III).*

**PSYC 475. Psychology of Adulthood.** 3 credits.

The physical, social and psychological factors faced by adults and their progression through the life span. *Prerequisites: At least one SS content course and one NS content course.*

**PSYC 480. Applied Behavior Analysis.** 3 credits.

This course focuses on how environmental events influence behavior, and behavior analytic strategies by which behavior may be changed. The emphasis of the course is on the knowledge and skills necessary to plan, develop and implement interventions for behavior problems in a variety of settings including, but not limited to, business and industry, education, and health and human services. *Prerequisites: PSYC 180 and PSYC 390.*

**PSYC 492. History of Psychology.** 3 credits.

The history of psychology as reflected through the individuals, theories and experimental investigation of the discipline. Special emphasis is placed upon relating the current state of psychology to its historical development. *Prerequisites: At least two SS content courses and two NS content courses. May be taken as a capstone course or psychology elective.*

**PSYC 493. Laboratory in Psychology.** 3 credits.

A research course designed by a faculty member that studies a particular topic. Topics will change from semester to semester. Students will be guided in a group through a research experience that would include library research of the topic, design of an experiment, gathering and analyzing the data, and writing the results. Only three credit hours of the course can be used for the psychology major. *Prerequisites: At least two SS content courses and two NS content courses. The course meets the requirement as a capstone course or as a psychology elective.*

**PSYC 495. Field Placement in Psychology.** 4 credits.

Supervised practicum in a counseling, industrial or human service agency. Orientation to agency's service, policies, personnel and professional ethics is provided. *Prerequisites: At least two SS content courses and two NS content courses. Guidelines available in the department office. The course meets the requirement as a capstone course or as a psychology elective.*

**PSYC 497. Senior Seminar in Psychology.** 3 credits.

A seminar course that will require students to integrate theories, research and/or methods from several areas of psychology and/or related disciplines. Topics will vary from semester to semester. Up to six credit hours can be used in the psychology major. Topics for each semester are announced on MyMadison and on the departmental website. *Prerequisites: At least two SS content courses and two NS content courses. May be taken as a capstone course or as a psychology elective.*

**PSYC 499. Honors.** 6 credits.

See catalog section "Graduation with Honors." *Prerequisites: At least two SS content courses and two NS content courses.*

## Public Policy and Administration

**PPA 200. Introduction to Public Policy.** 3 credits.

This course introduces students to the nature, dynamics and substance of public policy. Selected policy issues in the United States will be examined through the use of case studies. Foreign and global influences on U.S. policy-making will also be analyzed. Issues will vary across course sections and over time. *Prerequisite: POSC 225.*

**PPA 265. Public Administration.** 3 credits.

An introductory survey of the principles, functions and processes of public administration with specific emphasis on the political aspects and environment of bureaucracies and the how and why of policy-making within an administrative system. Organizational structure, personnel, budgeting, public relations and government values, traditions and objectives are analyzed. *Prerequisite: POSC 225.*

**PPA 325. Regional Planning and Organization.** 3 credits.

Study of trends and issues in the public planning process with focus on regional planning and organization; the relationship of planners and the planning board to their committees. *Prerequisite: PPA 200.*

**PPA 359. Policy Analysis.** 3 credits.

Study of public policy analysis. Delivers to students rational and alternative techniques for analyzing public policy while providing them opportunities to develop analytical skills. *Prerequisite: PPA 200.*

**PPA 381. Budgetary Process.** 3 credits.

An examination of the political planning and strategies of Congress and federal agencies in the budgetary process; politics of budgetary reform; state and local budgetary politics; and intergovernmental impacts on budgeting. *Prerequisites: Junior standing, PPA 265.*

**PPA 412. Seminar in Intergovernmental Relations.** 3 credits.

Study of the relations between the several levels of government in the United States. Political, fiscal, legal, regulatory and administrative relations as they have evolved within federal and state constitutional frameworks will be examined. *Prerequisites: Junior standing, PPA 265.*

**PPA 415. Legal Environment of Public Administration.** 3 credits.

Examination of the basic constitutional framework of American public administration. Examines legal constraints imposed on public administrators by law and judicial oversight. Emphasis placed on legal issues affecting public employees. Also examines the basics of public procurement law. *Prerequisite: PPA 265.*

**PPA 420. Public Management.** 3 credits.

Study of the management of public agencies from the executive viewpoint. Management control of public agencies will be explored including establishment of goals, policies, organizational structure and output of services. Case studies illustrate administrative behavior and managerial operations in local, regional, state and federal agencies. Does not count as part of the political science major or minor. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: Junior standing, PPA 265.*

**PPA 460. Regionalism and Urban Management.** 3 credits.

A study of the problems and management of urbanization and inter-jurisdictional externalities from a regional perspective. Regionalism will be examined as an approach to solve these problems. *Prerequisite: PPA 200.*

**PPA 461. Education and Social Policy.** 3 credits.

A study of the development and implementation of education policy in the United States at the national, state, and local levels. Students will be introduced to major issues in contemporary education policy and the evaluation of alternative policies advanced by subgroups of the population. Educational equity and its links to social and economic goals will be examined. *Prerequisite: PPA 200.*

**PPA 462. Social Welfare and Local Government Policy. 3 credits.**

A study of the interaction of social welfare policy and local governance in theory and in practice. Students examine state and local government and community-based responses to urban problems from a policy and management perspective. Particular attention is paid to interagency and community collaboration as a way to enhance social service delivery. *Prerequisite: PPA 200.*

**PPA 470. Nonprofit Management and Leadership. 3 credits.**

This course is designed to introduce students to the fundamentals of governance, accountability, trusteeship, and executive leadership in nonprofit sector organizations. The course will examine critically the principal models, processes, and practices used in managing nonprofit organizations and the relationships between the governing boards and executive leaders of such organizations. *Prerequisite: PPA 265.*

**PPA 472. Contract Management. 3 credits.**

The purpose of this course is to provide a broad overview of the theory behind and practical application of contract management. As agencies across government (federal, state, and local) expand the use of contracting billions of taxpayer dollars are transferred into the private sector to conduct public business. This trend is not going away; therefore it is essential that public administrators be effective at managing and overseeing contracts. *Prerequisite: PPA 265.*

**PPA 482. Special Topics in Public Policy. 3 credits.**

The course will examine a special topic in public policy. The course may be repeated for credit with a change in the subject matter offered. *Prerequisites: PPA 265.*

**PPA 483. Special Topics in Public Management. 3 credits.**

The course will examine an area of new or emerging interest in the profession of public administration. The course may be repeated for credit with a change in the subject matter. *Prerequisites: PPA 265.*

**PPA 484. Environmental Regulatory Policy and Politics. 3 credits.**

A study of environmental politics and the policies that environmental advocacy has produced. Topics include the dynamics of policy construction, various substantive policy issues and the prospects for environmental justice and sustainability. *Prerequisite: PPA 200.*

**PPA 492. Senior Seminar in Public Policy. 4 credits.**

This research-oriented seminar provides an overview of public policy studies and the different approaches to research in the field. A major research project will strengthen the research, information access and lifelong learning capacities of the students. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: Senior standing, POSC 295 and PPA 359.*

**PPA 494.\* Internship in Public Policy. 4 credits.**

Provides students with opportunities for experiential learning in organizations engaged with public policy formulation and analysis. A research paper related to the internship is required. *Prerequisites: Junior or senior standing; 15 hours of PPA courses and permission of the instructor.*

**PPA 496.\* Internship in Public Management. 4 credits.**

Provides students with opportunities for experiential learning in a governmental or nonprofit organization. A research paper and a presentation based on the experience are required. *Prerequisites: Junior or senior standing, 15 hours of public policy and administration and permission of the instructor.*

**PPA 496W. Public Management Internship in Washington. 6 credits.**

This course provides opportunities for experiential learning in Washington, D.C. in public and nonprofit organizations. Requirements include 360 internship hours, a research paper related to the internship, a career report, and regular meetings with the supervising professor. *Prerequisites: Junior or senior standing, 15 credits of relevant coursework and successful application to the Washington Semester Program.*

\* No more than four semester hours (in any combination of internships) can be counted toward the major.

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## Reading Education

**READ 240. Children's Literature. 3 credits.**

The study of a variety of children's literature and the practices, principles and procedures for selecting and evaluating works for children, giving consideration to their motivational and developmental effects. *Prerequisite: Completion of Cluster One.*

**READ 254. Literature for Adolescents. 3 credits.**

A study of literature which has been written for or appeals to young adults and adolescents, including practices, principles and procedures for evaluating and making literary materials appealing to adolescents. *Prerequisite: Completion of Cluster One.*

**READ 312. Reading and Writing Across the Curriculum in the Middle Grades. 3 credits.**

An introduction for preservice teachers to the foundations of reading and writing development and the elements of balanced literacy instruction in the middle grades. Through reading, writing and field applications across content areas, preservice teachers explore literacy engagement, diversity and special needs. *Corequisites: EDUC 310, EDUC 311 and practicum.*

**READ 366. Early Literacy Development and Acquisition. 3 credits.**

This course provides preservice teachers an understanding of the foundations of early literacy development and instructional strategies and assessment techniques that support the acquisition of literacy.

**READ 414. Reading and Writing in the Content Areas. 1 credit.**

Study of how to use print and media resources to support the acquisition of knowledge and the development of reading and writing skills in all content areas. This course may not be used for credit in minor programs in early and middle education.

**READ 420. Content Area Literacy, K-12. 2 credits.**

This course is designed for preservice teachers and will provide an introduction to the foundations of reading and balanced literacy instruction for students in kindergarten through grade 12. Through reading and writing across content areas, preservice teachers will explore literacy engagement, diversity and special needs.

**READ 430. Development, Assessment and Instruction of Literacy, K-12. 3 credits.**

This course is designed to provide preservice teachers with a foundation of literacy development. Instructional strategies and assessment techniques, which support the acquisition and development of literacy in diverse classrooms across the curriculum in grades K-12.

**READ 435. Literacy Development and Instruction for English Language Learners. 3 credits.**

Prepares for literacy instruction of English Language Learners beyond the emergent stage. Content includes assessment and instruction, particularly comprehension instruction for individuals, small groups, and whole class instruction. Students examine heterogeneous classroom structure and plan instruction for the diversity of abilities, personalities, cultures, languages, and all individual learners in every educational setting. A practicum accompanies this course. *Corequisite: TESL 383.*

**READ 436. Literacy Learning in the Elementary Grades. 3 credits.**

This course will provide preservice teachers with an understanding developmentally appropriate instructional strategies and assessment techniques to help all students in elementary grades become literate using reading, writing, listening and speaking in strategic and authentic ways. *Prerequisite: Grade of "C" or better in READ 366.*

**READ 440. Literacy-Based Learning in Secondary Education. 3 credits.**

This course will provide preservice teachers in secondary education with an understanding of how to create productive contexts for literacy-based learning. Particular areas of emphasis include selecting reading materials, understanding literacy development and facilitating individual student engagement.

**READ 472. Literacy Assessment and Instruction in the Content Areas for the Middle Grades. 3 credits.**

The course will introduce preservice teachers to the relationship between literacy assessment practices and instructional design for teaching reading and writing in content area classrooms. Using case study methodology, preservice teachers will explore individual students' literacy strengths, areas that need development and specific instructional strategies. *Prerequisite: READ 312. Corequisites: MSSE 370, MSSE 371 and practicum.*

**READ 490. Special Studies in Reading Education. 1-3 credits.**

Designed to give capable students, under faculty guidance, an opportunity to engage in the independent study of educational problems. *Prerequisites: Plan for the study must be approved by the faculty adviser and the coordinator of the program in which the student is enrolled.*

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## Religion

**REL 101. Religions of the World. 3 credits.**

An investigation of the world's major religions which will give attention to their origin, history, mythology and doctrines. May be used for general education credit.

**REL 102. God, Meaning and Morality. 3 credits.**

A study of the ways in which various communities perceive and understand the basis of knowledge, reality, meaning and purpose, ethics, and aesthetics. Students will explore religious and nonreligious approaches to these issues.

**REL 200. Exploring Religion. 3 credits.**

An examination of the various components in the study of religion including myths, rituals, mystical experiences, theologues, ethics and current issues. Examples will be taken from the sacred texts, rituals and the lives of religious personalities in traditions around the world.

**REL 201. Introduction to Hebrew Bible/Old Testament. 3 credits.**

A study of ways in which various communities perceive and understand the basis of knowledge, reality, meaning and purpose, ethics, and aesthetics. Students will explore religious and nonreligious approaches to these issues.

**REL 202. Jesus and the Beginnings of Christianity. 3 credits.**

This course discusses the literature of the New Testament in light of the historical, social and religious conditions from which it emerged. Particular attention is given to historical issues related to Jesus and the origins of Christianity.

**REL 210. Religion in America. 3 credits.**

The purpose of this course is to offer students the opportunity to explore the broad contours of the intersection of religion with other important facets of American society, such as politics and law, civic space and social activism, social identities, intellectual life, and the arts and media. It will consider the relationship of religion to the constructing of an American identity rooted in ideas of pluralism, tolerance, equality, freedom of conscience, democracy and secularism.

**REL/PHIL 218. Philosophy of Religion. 3 credits.**

An intensive examination of religion from the standpoint of philosophical thinking with particular emphasis on the way philosophers view such problems as the existence of God, evil, immortality, religious language, etc.

**REL 240. Jesus and the Moral Life. 3 credits.**

An introductory course that focuses on the ways in which the moral teachings of Jesus of Nazareth, explored from both historical and multi-cultural perspectives, informed and continues to inform personal ideals and moral visions of society.

**REL 270. Religious Ethics. 3 credits.**

An investigation of the historical development of religious values and moral concepts in the Western religious traditions of Judaism, Roman Catholicism and Protestantism.

**REL 280. Religion and Science. 3 credits.**

This course will provide a historical survey of the relationship between religion and the sciences; offer overviews of scientific and theological theory; examine the development of theory formation; focus on issues in astronomy, physics and biology; explore the ethical implications of scientific and religious theories; and trace developments.

**REL 288. Introduction to Buddhism. 3 credits.**

This course explores the historical origins of Buddhism, the central tenets of Buddhist thought, the major meditative practices Buddhists employ and the development of Engaged Buddhism in the modern global context.

**REL 300. Selected Topics in Religion. 3 credits.**

Selected topics in religion are studied in depth. See MyMadison for current topic. Course may be repeated for credit when content changes.

**REL 303. Lived Religion: Ritual Practice/Ethnographic Methods. 3 credits.**

Ethnography constitutes one of the most formative methods in the study of religion. This course gives students a foundation in understanding how ethnographic studies of religion augment text-based religious studies with a focus on lived religion. Students explore the cultural dimension of religious practice and develop practical skills through both reading and field work in local religious communities.

**REL 305. Islamic Religious Traditions. 3 credits.**

This course introduces the Islamic religious tradition from its inception to the present. Topics covered include the message and style of the Qur'an, the life and experience of Muhammad, the major beliefs and practices of Islam, and the theological, philosophical and mystical movements in the Islamic empire. Attention is also given to modern Islamic movements and their relation to the modern world inside and outside the Middle East.

**REL 306. Women and Gender in Islam. 3 credits.**

This course investigates how particular gender roles, identities, and relationships become signified as Islamic, and the ways in which Muslim women continually re-negotiate the boundaries of gender in living an authentic religious life. Topics will include Qur'anic revelations, the formation of Islamic jurisprudence, sexual

ethics, representations of Muslim women in colonial discourse, as well as the role of women in ritual practice and feminist movements.

**REL 308. Islam in South Asia. 3 credits.**

This course examines the history and practice of Islam in South Asia. We will look at the historical origins, textual sources, ritual practices and cultural diversity of Islam in light of this distinct regional context. Topics will include Sufism, literary expression, popular devotion, modern social movements, sectarian and cross-communal relations, and religious violence.

**REL 309. Jihad in Islamic Traditions. 3 credits.**

This course examines jihad as it is debated and sanctioned throughout Islamic history. Jihad means 'struggle' and we will look at how that encompasses both violent, militaristic conflict and also the inner, spiritual struggle of an individual to follow God. We will trace how Muslims have interpreted this dual tradition in diverse historical and cultural contexts.

**REL 310. Rethinking Order and Chaos: An Introduction to Hinduism. 3 credits.**

This course introduces Hinduism through the concepts of order (dharma), chaos or disorder (non-dharma), and ethic of responsibility (karma) and their relationships to the pursuits of pleasure and material well being and the quest for liberation. It makes sense of chaos and discovers the lurking irrationality of order, and thereby suggests a creative role of chaos in order. This course also challenges the category of religion and universalism associated with Western religious mythologies.

**REL 312. Religions of East Asia. 3 credits.**

An introduction to the religions of China and Japan, including Confucianism, Taoism, Buddhism, Shinto, folk religions and the "New Religions" of Japan. Attention to the role of religion in the family and the state, classic texts, the importance of nature and expressions of spirituality in the fine arts.

**REL 313. Classical Chinese Thought. 3 credits.**

This course is an introduction to early Chinese thought. The word "thought" is used instead of "philosophy" or "religion" because the Chinese intellectual tradition did not distinguish between philosophy and religion. We will examine how philosophical, religious, and literary elements are all uniquely deployed in texts such as the Analects of Confucius, the Dao De Jing, and other classics. Our approach will involve analysis of language, arguments, cultural context, and authorial intent.

**REL 314. Gandhi. 3 credits.**

Gandhi is unique as a social theorist, a philosopher and an activist. He challenged the dominant world structure of his time and struggled with some of the most significant issues of our time: violence, racism, oppression of women, role of religion, nature of capitalism and conflict between ethnic and religious communities. This course examines his theory and praxis on these and other issues.

**REL 315. Women and Religion. 3 credits.**

Study of women and world religions, historically and today, emphasizing Buddhism, religions of China and Japan, Judaism and Christianity. The variety of women's religious roles and practices are studied in a comparative context. Feminist scholarship's proposals for revising our understanding of religious history and reforming religious traditions.

**REL 316. Topics in Hinduism. 3 credits.**

Study of selected topics in Hinduism. May be repeated for credit when course content changes.

**REL 317. Introduction to Daoism. 3 credits.**

Beginning with the earliest classics and continuing to the present, the course examines Daoism from historical, literary, philosophical and religious perspectives. It explores the difficulties categorizing Daoism as a "philosophy" or "religion," and how it still informs political, philosophical and religious thought in China. First-person exercises in and out of class will yield a holistic and lived understanding of the Daoist tradition.

**REL 319. Introduction to Confucianism. 3 credits.**

Beginning with the earliest classics and continuing to the present, the course examines Confucianism from historical, literary, philosophical and religious perspectives, including analysis of the difficulties categorizing Confucianism as a "philosophy" or "religion," and how it still informs political thought in China. First-person exercises in and out of class will yield a holistic and lived understanding of this complicated tradition.

**REL 320. Judaism. 3 credits.**

An examination of the beliefs, practices and historical development of the various forms of Judaism represented in America today: Orthodox, Reform, Conservative and Reconstructionist.

**REL/SOCI 322. Sociology of Religion.** *3 credits.*

A sociological analysis of religion; how it influences and is influenced by social existence. See cross listing in Department of Sociology and Anthropology.

**REL 323. Ethics East and West.** *3 credits.*

Would Jesus have opposed war? What about Buddha? If both opposed war would they have made the same argument against it? In this course we will think about ethical questions from a crosscultural perspective. Analysis of ethical arguments made in Eastern and Western traditions will bring to light similarities as well as fundamental differences. Case studies will connect the course material to contemporary ethical debates.

**REL 325. Catholicism in the Modern World.** *3 credits.*

Study of the variety of responses by contemporary Catholic theologians and philosophers to key elements in Christian doctrine and practice. Topics include Vatican II; scripture, tradition and modern scholarship; Jesus and Christology; contemporary Catholic spirituality; moral issues in the church; and ecumenism.

**REL 330. Religions of Africa and the African Diaspora.** *3 credits.*

An examination of the character of religious traditions, beliefs and liturgical practices of African and African-Diaspora communities. Both primary (historical and anthropological) and secondary sources are examined.

**REL 332. Born Again Religion.** *3 credits.*

Evangelical Protestantism has played a vital role in shaping American religious history. The religious and social allegiances of evangelicalism are quite diverse, however. Evangelicals also maintain a paradoxical relationship with American society, functioning both as powerful insiders and vocal outsiders. This course is designed to introduce students to the history of evangelicalism, its religious patterns and its negotiations with contemporary American culture.

**REL 333. The Other Bibles: Dead Sea Scrolls, Pseudepigrapha and Apocrypha.** *3 credits.*

This course will familiarize students with a broad range of early Jewish and Christian writings, found outside of the Jewish and Protestant Christian canon, that were held to be Scripture at the time of their production and reception ca. 300 B.C.E. - 200 C.E. Using a broad range of interdisciplinary methodologies drawn from biblical studies, students will study these Scriptures in the context of late Persian, Hellenistic, and Roman cultures, as well as in light of archaeological findings.

**REL 334. New Religious Movements.** *3 credits.*

America has proven to be fertile soil for the development of new religious traditions. It has encouraged religious pluralism, and has allowed hundreds of new communities to establish themselves as important elements of society. This course will consider some of the representative new religions in America by examining their histories, beliefs and practices.

**REL 336. African-American Religion.** *3 credits.*

The purpose of this course is to familiarize the student with the broad contours of the African-American religious experience, and its history, practices, and communities by examining the intersection of race and religion in America. Through the close reading of primary texts and increased familiarity with significant scholarly literature, students will gain a basic understanding of the fundamental categories in African-American religion.

**REL 340. Introduction to Christianity.** *3 credits.*

This course is designed to provide a broad survey of the Christian tradition, from its origins to its contemporary expressions. In addition to its historical development, the course will consider Christian belief, ritual, moral practice and societal engagement. Major intellectual and theological traditions will be addressed through the study of foundational texts. Students will gain a working knowledge of major church communions as well as minor and marginalized movements.

**REL 341. Early Christian Gospels: Origins, History and Conflict.** *3 credits.*

Matthew, Mark, Luke and John are the familiar "canonical" gospels. In the early centuries of Christianity other gospels circulated: the Gospel of Peter, "Q", Infancy Gospels and the so-called Gnostic gospels. This course examines the origins of the canonical and non-canonical gospels, the historical and theological factors at work in the emergence of the canonical gospels to a position of primacy, and the struggles within early Christianity to define its authoritative tradition.

**REL 342. The Historical Jesus Quest.** *3 credits.*

A study of the attempts of scholarship since the Enlightenment to discover the so-called historical Jesus. Includes discussion of historiographical problems raised in past and present scholarly "quests" for the historical Jesus, analysis of the relationship between memory and the Jesus traditions, and practice in situating the Gospel materials in the social and political context of ancient Roman Palestine.

**REL 343. Paul and the Origins of Christianity.** *3 credits.*

Some scholars argue that the Apostle Paul was the "real" founder of Christianity, others that he was the faithful interpreter of the Jesus traditions to the Greco-Roman world. After reconstructing the historical course of Paul's life and journeys from the available sources, the course will analyze selected Pauline epistles, sent to early Christian communities, in order to reconstruct his teaching and ethics and to assess his significance for the origins of Christianity.

**REL 348. Christianity in Global Context.** *3 credits.*

Christianity plays a vital role in many societies around the world. Though often treated as a mostly western or European religion, it was in fact a global religion first and foremost. This course examines Christianity from that global perspective. What does Christianity look like around the world? How have indigenous cultures fashioned their own versions of Christianity in the modern world? Is there unity in the diversity of these global Christianities?

**REL 350. Islamic Law and Society.** *3 credits.*

This course aims to introduce students to the study of Islamic law, the all-embracing sacred law of Islam. In this course we will consider various facets of the historical, doctrinal, institutional and social complexity of Islamic law in the classical and modern periods. Topics to be discussed include medieval Islamic legal theory, gender and sexuality, the just war, and the issue of Islamic law and universal human rights, particularly as they pertain to women.

**REL 360. History of Christian Thought.** *3 credits.*

A survey of the development of Christian thought with primary emphasis on the peoples, ideas and historical events around which the developments took place. Thus, material from Christian origins through to the present will be examined in their historical contexts.

**REL/HIST 362. Introduction to U.S. Religious History.** *3 credits.*

The course introduces the religious history of the colonies and the United States, from native traditions through the 20th century. We examine the historical/social impact of groups ranging from Roman Catholic migrants to evangelical Protestants and Scientologists. Special attention is paid to the extraordinary and persistent levels of religious diversity and adherence throughout U.S. history.

**REL/IA 363. Apocalypticism, Religious Terrorism and Peace.** *3 credits.*

This course traces apocalypticism from its ancient Jewish and Christian roots to its contemporary manifestations in religious groups around the world. Since apocalypticism is a worldview that cuts across religious traditions, the course covers a variety of religious groups. The last half of the course focuses on the complex relationships between apocalyptic thinking and religious terrorism, and entails an independent research project.

**REL 370. Mysticism.** *3 credits.*

An examination of the nature of mysticism and its forms of practice in selected religious communities through the world.

**REL/PHIL 375. The 19th Century: Age of Ideology.** *3 credits.*

A study of selected 19th century philosophers and theologians with special attention to rationalism, romanticism and idealism. Views of Hegel, Schleiermacher, Ritschl, Marx and others are considered.

**REL/PHIL 377. Hermeneutics.** *3 credits.*

This course will examine the main features of hermeneutics with particular emphasis on its contemporary perspectives. Discussion will focus on such themes as human understanding and human finitude, the nature of history and tradition, linguisticity and textuality of experience. Readings may address Gadamer, Ricoeur, Schleiermacher and Dilthey. *Prerequisite: PHIL 101 or permission of the instructor.*

**REL 380. Contemporary Theologies.** *3 credits.*

A survey of one or more of the following contemporary theological movements: continental, North American, African and South American, including Roman Catholic, Orthodox and Protestant approaches, and covering themes such as the conflict between history and faith, Christology, fundamentalism and liberalism, and the emergence of liberation, feminist, black, neo-conservative, secular, pluralist and ecological theologies.

**REL 386. Topics in Buddhist Studies.** *3 credits.*

Study of major issues and thinkers in the Buddhist tradition from ancient times to the present. May be repeated for credit when course content changes. *Prerequisite: PHIL 385 or REL 385.*

**REL 388. Tibetan Buddhism.** *3 credits.*

This course explores the teachings of Tibetan Buddhism as they are practiced and experienced in communities on the Tibetan Plateau. Student research projects investigate the globalization of Tibetan Buddhism, especially through the public life of the Dalai Lama, as well as Tibetan Buddhism's relationship

to topics like nonviolence, compassion, mindfulness, interfaith dialogue, psychology and politics.

**REL 410. Dharma/Adharma: Hindu Ethical Reasoning.** 3 credits.

What values are advanced in Hindu religious and ethical teachings? How do Hindu texts and traditions define and teach the good life and moral responsibility considered by caste, class, gender or other socioeconomic factors? These are some of the questions that will be considered in this study on Hindu modes of moral reasoning. It will give special attention to the concept of moral order (dharma) and try to make sense of chaos (adharma).

**REL 440. Topics in Religion in America.** 3 credits.

This course serves as a senior seminar (capstone) for majors in Religion, centered around the subject of Religion in America. As a capstone course, students will pursue their own advanced research projects after an initial, intensive introduction to the subject. Rotating topics include "Mormonism and American Culture" and "American Evangelicalism," as well as others.

**REL 450. Religion and Society.** 3 credits.

A survey and/or selection of major Western approaches to issues of religion and society, including but not limited to, traditional understanding of church and state issues. Significant figures, texts and methodologies will be critically examined. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: One of the following: REL 240, REL 270, REL 360, REL 380 or permission of the instructor.*

**REL 460. Topics in Ancient Jewish and Early Christian Literature.** 3 credits.

An in-depth examination, using critical academic methods, of the historical, literary and cultural dimensions of selected texts from the literatures of Ancient Judaism and Early Christianity. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: REL 201, REL 202 or permission of the instructor.*

**REL 475. Inter-Religious Dialogue.** 3 credits.

Dialogue is, today, the most important response of the world's religions to the diversity of world religions. It is a vehicle for mutual understanding, mutual challenge and joint response to contemporary problems. Students will study the theory and practice of dialogue and then engage in dialogue. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: Familiarity with two world religions or permission of the instructor.*

**REL 490. Special Studies in Religion.** 3 credits.

Designed to give capable students an opportunity to complete an independent study in religion under faculty supervision. *Prerequisite: Permission of the department head. May be repeated for credit*

**REL 493. Religion Course Assistantship.** 3 credits.

Students participate as course assistants in religion. Assistantships provide students with a sense of what it is like to teach a religion course by allowing them to work closely with faculty members through different phases of course preparation, presentation and evaluation. Assistantships may also provide opportunities for student assistants to lead discussion and to help their peers review the material outside the classroom. *Prerequisite: Senior status or permission of the department head.*

**REL 495. Religion Internship.** 3 credits.

Gives the structured opportunity to gain practical knowledge and experience while serving the community. *Prerequisites: Philosophy and Religion Major or Minor (Religion Concentration), and junior or senior standing.*

**REL 499. Honors.** 6 credits.

Year course.

## Russian

**RUS 101. Elementary Russian I (4, 1).** 3-4 credits.

The fundamentals of Russian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course.

**RUS 102. Elementary Russian II (4, 1).** 3-4 credits.

The fundamentals of Russian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite: RUS 101.*

**RUS 111. Intensive Russian I (6, 1).** 6 credits.

The fundamentals of Russian through listening, speaking, reading and writing. The four-week course is the equivalent of RUS 101-102.

**RUS 212. Intensive Russian II (6, 1).** 6 credits.

The fundamentals of Russian through listening, speaking, reading and writing. The four-week course is the equivalent of RUS 231-232. *Prerequisite: RUS 102 or RUS 111 or sufficient score on the Foreign Language Placement Exam.*

**RUS 231. Intermediate Russian I.** 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: RUS 102 or RUS 111 or sufficient score on the Foreign Language Placement Exam.*

**RUS 232. Intermediate Russian II.** 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: RUS 231 or sufficient score on the Foreign Language Placement Exam.*

**RUS 300. Grammar and Communication.** 3 credits.

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Russian. Fulfills the College of Arts and Letters writing-intensive requirement for international affairs major. *Prerequisite: RUS 212 or RUS 232 or sufficient score on the Foreign Language Placement Exam.*

**RUS 308. Introduction to Russian Civilization.** 3 credits.

A study of Russian life and culture and the outstanding contributions of Russian-speaking peoples. Instruction is in English. *Prerequisite: RUS 300.*

**RUS 315. Russian Phonetics.** 3 credits.

Intensive drill in Russian sounds and intonation patterns. Continued emphasis on conversation. Instruction is in Russian. *Prerequisite: RUS 232 or equivalent.*

**RUS 320. Russian Oral and Written Communication.** 3 credits.

Intensive training in the use of modern, everyday Russian with emphasis on conversation and composition. Readings in Russian will provide a context for discussion and writing. *Prerequisite: RUS 300.*

**RUS 400. Advanced Conversation.** 3 credits.

Discussions deal with topics of current interest. Instruction is in Russian. *Prerequisite: RUS 300 or equivalent.*

**RUS 405. Russian Literature of the 19th Century.** 3 credits.

Readings and analyses of poetry, prose and drama by such writers as Pushkin, Lermontov, Gogol, Turgenev, Tolstoy, Dostoevsky and Chekhov. Instruction is in Russian. *Prerequisite: RUS 300 or permission of the instructor.*

**RUS 406. Russian Literature of the 20th Century.** 3 credits.

A study of the works of major Russian writers of the 20th century. Instruction is in Russian. *Prerequisite: RUS 300 or permission of the instructor.*

**RUS/ENG 438. Studies in Russian Literature.** 3 credits.

A study of selected works of Russian literature. Instruction is in English. May be repeated for credit when course content changes.

## Social Work

**SOWK 287. Introduction to Social Work.** 3 credits.

Overview of social work as a profession with emphasis on various settings and diverse populations as distinguished by age, class, race, ethnicity, culture, spirituality, family structure, marital status, gender, gender identity, sex, sexual orientation, physical or mental ability, socio-economic status, and national origin and the implications to social work practice. Focuses on practical experiences designed to enable students to gain familiarity with the dynamics of the profession. *Corequisite: 20 hours community service-learning.*

**SOWK 288. Social Welfare.** 3 credits.

Introduces societal responses through history to basic human needs with an emphasis on social welfare policies. Focuses on socio-economic realities across diverse segments of U.S. society within a global context. Explores professional, societal and personal values in the development of responses to human needs.

**SOWK 301. Workshops in Social Work.** 0-3 credits. Credit/no credit; Non-graded; Offered on a rotating basis.

Detailed study of a topic of interest in social work. May be repeated for credit.

**SOWK 302. Workshops in Social Work.** 1-3 credits. Offered on a rotating basis.

Detailed study of a topic of interest in social work. May be repeated for credit.

**SOWK 305. Social Work Research Methods.** 3 credits.

Study of qualitative and quantitative methods in social work research. Demonstrating scientific and ethical research processes including formulation of research questions, selecting a design, collecting data, analysis and interpretation of data, and exposure to evaluation of practice. Diversity and inclusion are highlighted in the research process. *Prerequisites: MATH 220 or SOCI 231; SOWK 287; SOWK 288.*

**SOWK/HTH/IPE/NSG 314. Rural Health: An Interdisciplinary Approach. 3 credits.**

Students study, observe and participate in interdisciplinary assessment, planning and delivery of community-based primary health care in partnership with residents and agencies of a host rural county. Learning activities will emphasize rural culture, rural health care and interdisciplinary practice.

**SOWK 317. Skills for Generalist Social Work. 3 credits.**

Developing self-awareness of students' own value and culture systems, differentiating between their own systems and those of clients, and how these differences impact on communication. Understanding of empathy, engagement and other interpersonal skills. Developing skills in communication and interviewing within a strengths-based generalist framework with individuals, families, groups and communities. *Prerequisites: SOWK 287; SOWK 288 or departmental permission.*

**SOWK 320. Human Behavior in the Social Environment. 3 credits.**

Integrates and expands prerequisite knowledge in biological, psychological, and socio-cultural sciences to assessment of individuals, groups, families, organizations, and communities in a pluralistic society. Application and critique of theoretical frameworks related to impact of race, age, gender, sexual orientation, family form and region. *Prerequisites: SOCI 101 or SOCI 110; SOCI 304 or PSYC 250; ANTH 195, SOCI 336 or SOCI 354; PSYC 101; PSYC 160; SOWK 287; SOWK 288.*

**SOWK 332. Community Mental Health Practice. 3 credits.**

Provides a basis for understanding mental health policy and services. Focus is on the needs of the deinstitutionalized mentally ill patient including psychosocial treatment and case management services. Outpatient services for the general public are also covered. Course contains a community service-learning component.

**SOWK 335. Social Policy. 3 credits.**

Study of the formulation and consequences of social policy in the context of contemporary social, cultural, racial, ethnic, political and economic conditions. Skill development in creation of a proposal, policy evaluation and change advocacy in U.S. society with emphasis on agency, local, state and national levels. *Prerequisites: POSC 225 or POSC 302; SOWK 287; SOWK 288.*

**SOWK 338. Issues and Policies in Family Services. 3 credits.**

Examination of historical and philosophical approaches to family policy. Evolution of family-related social policies in the United States is contrasted with those of selected foreign countries with the view toward a national family policy.

**SOWK 340. Violence in Families. 3 credits.**

Examination of violence in the family, including spouse, sibling, elder and child abuse. Studies the social and cultural patterns and etiology of family violence. Examines programs and services for the abused and the abuser including shelters, support systems and counseling.

**SOWK 342. Child Welfare Services. 3 credits.**

Study of the basic child welfare services – day care, homemakers, services to unwed parents, protective, foster care and adoption services – and the principle income maintenance programs as they affect children and their families. Analysis of legal framework and court services and such current issues as guardianship, educational and protective services.

**SOWK/SOCI 348. Introduction to Developing Societies. 3 credits.**

This course examines economic development and social and political changes in developing countries. The historical experiences of developing societies will be analyzed within the context of the global system and from the perspective of competing and complementary theoretical perspectives.

**SOWK 350. Social Work Policies and Practices: A European Perspective. 3 credits.**

The study of the formulation and consequences of social policy and methods of social work practices in a selected European country within the context of contemporary social, political, cultural and economic conditions. Comparisons and linkages will be made with current U.S. social policies and social work practices. Students will work with both U.S. and European social work faculty. *Prerequisite: SOWK 288 or permission of the instructor.*

**SOWK 352. Culture and Human Services in Dominica. 3 credits.**

Study of the culture and formulation of social policy and methods of social work/human service practices in Dominica within the context of contemporary social, political, cultural and economic conditions. Comparisons and linkages will be made with current U.S. social policies and social work practices and theory. Students will work with both U.S. and Dominican professionals. Faculty approval required.

**SOWK 372. Social Work Practice with the Aged. 3 credits.**

An examination of America's response to aged Americans from a historical and current perspective. Social problems and social work skills will be examined in light of individual, group and community needs and those affected by social policies.

**SOWK/FAM/GERN/NPS 375. Grant Writing for Agencies. 3 credits.**

Emphasizing active learning, this course teaches the basics of grant and proposal writing. Efficient research, persuasive prose and the importance of relationships are stressed. Private and corporate philanthropy and government grants are examined.

**SOWK/FAM 386. Youth Empowerment Strategies (YES). 3 credits.**

Students learn to use group activities that include the creative arts, low ropes and self-discovery in youth empowerment. The goal is to help youth build life skills and make informed decisions. Prior to beginning work with youth, students complete 25 hours of training.

**SOWK 387. Working with Teenagers. 3 credits.**

Survey of physical, psychological and social theories of adolescent development. Examination of service delivery issues in working with teenagers. Investigation of topical areas of particular relevance to work with adolescents including sexuality, abuse and neglect, runaways, depression and suicide, and substance abuse.

**SOWK 442. Social Work in Health Care. 3 credits.**

The impact of illness and disability on the person, family and community is studied. The social responses currently provided and those being developed are emphasized. Explores psychosocial assessment methods; prevention, crisis intervention and rehabilitation strategies; and interdisciplinary teamwork in health care.

**SOWK 465. Social Work Practice in Mezzo Systems. 3 credits.**

Application of social work values, knowledge and methods with small groups is emphasized. Assessment, planning intervention strategies, resource utilization and evaluation are examined. Role play and group processing are utilized. *Prerequisites: SOWK 305, SOWK 317, SOWK 320, SOWK 335 and admission to the Social Work Program. Senior Standing. Corequisites: SOWK 466 and SOWK 467.*

**SOWK 466. Social Work Practice in Micro Systems. 3 credits.**

Application of social work values, knowledge and methods with individuals and family systems is emphasized. Case assessment, planning intervention strategies, resource utilization and evaluation are examined. Role play and videotaping are utilized. *Prerequisites: SOWK 305, SOWK 317, SOWK 320, SOWK 335 and admission to the Social Work Program. Senior Standing. Corequisites: SOWK 465 and SOWK 467.*

**SOWK 467. Social Work Practice in Macro Systems. 3 credits.**

Application of knowledge, skills, and methods to the macro systems of professional practice, including neighborhoods, communities and organizations. Attention is given to the impact of racial, ethnic, cultural conditions and geographic factors. *Prerequisites: SOWK 305, SOWK 317, SOWK 320, SOWK 335 and admission to the Social Work Program. Senior Standing. Corequisites: SOWK 465 and SOWK 466.*

**SOWK 481. Social Work Field Practicum I (Block Plan). 6 credits.**

Promotes professional competence and identification with the purposes, values and ethics of social work through agency-based work with diverse client systems at multiple levels of practice. The field experience is the application knowledge and skill components drawn from previous courses. *Prerequisites: Admission to the field practicum. Social Work majors only. Senior standing.*

**SOWK 482. Social Work Field Practicum II (Block Plan). 6 credits.**

Offers students an opportunity to build upon previous field experience by having more responsibility and tasks designed to expand their practice skills in social work. *Prerequisites: SOWK 481. Social work majors only.*

**SOWK 487. Special Topics in Social Work. 3 credits.**

Examination of selected topics of social work practice that are of current importance in the social work profession. Course may be repeated for credit.

**SOWK 490. Special Studies in Social Work. 3 credits.**

This course is restricted to majors in social work. The course provides capable students an opportunity to complete independent studies under faculty supervision. Course may be repeated for credit. *Prerequisites: Recommendation of the instructor and permission of the department head.*

**SOWK 494. Professional Forum II: Transition to Professional Practice. 3 credits.**

Synthesis of field practicum and course work throughout the curriculum to promote student identity as beginning-level social workers and to facilitate their transition to professional practice. Critical thinking and reflection will be

emphasized as students identify and evaluate the empirical and theoretical foundations or practice specific to the field practicum. Senior outcome assessment is integral to this course. *Prerequisite: Social work majors only. Corequisites: SOWK 481 and SOWK 482 field practicum.*

**SOWK 499. Honors. 6 credits. Year course.**

Independent research topic initiated and completed by qualified second semester junior social work majors.

## Sociology

**SOCI 101. Introductory Sociology. 3 credits.**

Provides students with an understanding of the structure and processes of modern societies and their historical antecedents. Explores the universality of the social experience by addressing such topics as culture, socialization, social interaction, bureaucracy, norms and diversity, social inequality, social institutions, modernization, technology and social change, world views, values and behavior.

**SOCI 110. Social Issues in a Global Context. 3 credits.**

This course introduces the discipline of sociology from a macrosociological perspective, emphasizing large-scale changes in social organization and institutions. We examine the global forces that shape societies, and the historical, political, social, cultural and economic origins of contemporary social problems. We consider competing theoretical models used in the study of social change as well as the conceptual and methodological challenges in analyzing societies different from one's own. May be used for general education credit.

**SOCI 140. Microsociology: Individual in Society. 3 credits.**

This course introduces the discipline of sociology and the subfield of microsociology. We examine the mutually constitutive relationship between the individual and society. Questions addressed include: How does society influence how we think, feel, believe, act and interact with others? What influences the self, social identity, shared social meanings, social roles and one's position in society? How do we, as individuals and as members of social groups, recreate, contest and change society? May be used for general education credit.

**SOCI 200. Development of Sociological Thought and Methods. 3 credits.**

This course is a foundation course for sociology majors. Topics will include the historical development of the discipline with an emphasis on the social and philosophical forces that influenced the development of sociology. Main sociological traditions will be introduced including the critical, naturalistic and interpretive paradigms, and sociological analysis from these perspectives. *Prerequisites: SOCI 101, SOCI 110, SOCI 140, or permission of the instructor.*

**SOCI 231. Social Statistics. 3 credits.**

Introduction to the techniques for collecting, describing, analyzing and presenting sociological data.

**SOCI/GERN 280. Social Gerontology. 3 credits.**

An interdisciplinary introduction to the study of aging. The course provides an overview of issues surrounding aging in contemporary society: personal, familial, communal and societal. *Corequisite: 20 hours of community service-learning.*

**SOCI 300. Sociological Inquiry. 3 credits.**

A systematic introduction to various modes of sociological investigation, including positivism, interpretivism and critical analysis. Students learn to evaluate, critique and design original sociological inquiries with special attention to how sociological inquiry is guided by different philosophical and theoretical commitments. *Prerequisites: SOCI 200 and SOCI 231 or equivalent.*

**SOCI 304. Social Deviance. 3 credits.**

Course offers students a wide range of explanations of deviance. Topics considered are the functions, social definitions, societal reactions and political aspects of deviance as characteristic of all societies. Deviant attributes as well as acts are considered.

**SOCI/ANTH 306. Japanese Society and Culture. 3 credits.**

This introductory course takes a critical and interdisciplinary approach to exploring Japan. We will apply sociological, anthropological and demographic perspectives to comparatively understand, analyze, and discuss Japanese society and culture. Students will read and discuss issues related to history, socio-demographic change, gender, work, social class, race/ethnicity, family, health care and aging in Japanese society.

**SOCI 311. Sociology of the Environment. 3 credits.**

This course will introduce students to the central debates that currently preoccupy environmental sociology and political ecology. Emphasis is placed on the importance of sociological, historical and cultural modes of inquiry for

understanding: socio-ecological change/crisis, environmental justice/injustice, eco-technological changes and politics of "nature."

**SOCI 315. Science, Technology and Society. 3 credits.**

Through an analysis of various issues, problems and case studies, this course will explore the interactions between science, technology and society. The course will examine connections of specific technologies to science, cultural values, social and economic interests and questions regarding progress.

**SOCI 318. Sociology of Immigration. 3 credits.**

This course explores the patterns and processes defining immigration around the world – the reasons for migration, the types of migration, and the way it affects the sending and receiving societies. The course investigates the social forces that affect immigrants and the traits that impact their relocation experience; and how immigration creates new identities for those successful in their quest, contributing to greater cultural diversity of receiving societies.

**SOCI 321. Politics in Society. 3 credits.**

The relationship between society and politics, the nature of distribution of social power, political participation, political thought, and politics as a vehicle for social change are explored.

**SOCI/REL 322. Sociology of Religion. 3 credits.**

This course is a sociological analysis of the nature, function and structure of religion. The course is a survey of the relationship between religion and society: the social nature of religious phenomena, the interaction between religious beliefs and practices and other arenas of secular societies, the social functions of religions, and the way religion changes and is changed by secular society.

**SOCI/CRJU 325. Criminology. 3 credits.**

Study of the extent, causes and possible deterrents to crime including murder, assault, white-collar offenses and organized crime with attention to the role of the victim and policy implications. *Prerequisites: CRJU 215 and CRJU 225.*

**SOCI 327. Juvenile Delinquency. 3 credits.**

Study of youth gangs, deviation and youth culture standards as well as the treatment used. Recent research reports will be emphasized.

**SOCI 334. Socialization and Society. 3 credits.**

This course examines socialization in society. Biography, narratives and socialization are examined in relation to issues of personal power, justice, culture, politics, social relations and other social formations.

**SOCI 335. Disability and Society. 3 credits.**

This class focuses on the social and cultural aspects of disability in the U.S. and around the world. It explores the meaning of the concept "disability," its relation to other social markers such as race, gender and sexual orientation; how it is experienced by those occupying the category; and major policy approaches to dealing with disability.

**SOCI 336. Race and Ethnicity. 3 credits.**

This course examines the social construction of race and ethnicity around the world and how they influence social processes, institutions, change and ideology. The course will include discussions concerning the intersection of race and ethnicity with other aspects of social inequality such as class, gender, sexuality and nationality in contemporary society.

**SOCI/WGS 337. Sociology of Gender. 3 credits.**

Examination of theories of sex role development, the roles of men and women in society and gender as a social construction.

**SOCI 341. Sociology of Education. 3 credits.**

Examination of sociological theories and research on education, emphasizing stratification, socialization, organization and relationship between schooling, family, community and work. Focus on cross cultural approaches to education.

**SOCI 342. Social Movements in the Middle East. 3 credits.**

This course is designed to provide a basic knowledge of current Islamic movements in the Middle East. The primary emphasis is on social movements in Iran, Iraq, Egypt, Algeria, Lebanon, Palestine and Afghanistan.

**SOCI 344. Work and Society. 3 credits.**

This course examines the nature and meaning of work under various social and historical conditions. This includes such things as the relationship of work organization to life chances and personal experience, the place of work in social theory, the organization of occupations, occupational socialization and commitment, and how the nature of work changes in relation to local and global contexts.

**SOCI 346. Leisure in Contemporary Society. 3 credits.**

Sociological analysis of leisure or non-work in contemporary society with particular emphasis upon conceptual and human problems and the potentials of leisure in a context of social change.

**SOCI/SOWK 348. Introduction to Developing Societies. 3 credits.**

This course examines economic development and social and political changes in developing countries. The historical experiences of developing societies will

be analyzed within the context of the global system and from the perspective of competing and complementary theoretical perspectives.

**SOCI/ANTH 352. Birth, Death, Sex: Exploring Demography.** 3 credits.

Fertility (birth) and mortality (death) and their biological and social determinants in cross-cultural and evolutionary/ historical frameworks. Exploration of the dynamic between the material constraints on and symbolic significance of, reproduction, sexuality and death within a cultural context. Critical examination of population growth as a global "problem." Basic demographic methods. *Prerequisite: Any lower level course in anthropology or sociology or permission of the instructor.*

**SOCI 354. Social Inequality.** 3 credits.

Course covers the systems of stratification and inequality in the United States including race, class, gender, religion, sexuality, ethnicity and nationality. Discussion will center on their role in providing rationales for oppression and discrimination in society and their relationship to the distribution of power and ideological control.

**SOCI 357. Sociology of Disasters.** 3 credits.

This course aims to familiarize students with the sociological study of the causes and consequences of disasters. The course takes a broad view of the social science literature on disasters, but largely employs a case study approach. In keeping with sociology's focus on the causes and consequences of social stratification, the relationship between disasters and patterns of inequality will be a central theme throughout the course.

**SOCI 358. Sociology of Consumption.** 3 credits.

This course encompasses themes that range from identity construction to the macro processes of cultural globalization. As consumption becomes more integral to society, it is becoming more central to various disciplines. This course situates scholarly work from this nascent interdisciplinary field of consumption studies within the context of contemporary social, cultural and economic issues.

**SOCI 360. Social Movements.** 3 credits.

Introduction to the study and analysis of social movements in the United States as agents of social and ideological change. Emphasis is given to movements which have goals of extending and/or protecting rights of individuals and groups in the face of increasing industrialization, urbanization and centralization of power.

**SOCI 361. Sociology of Organizations.** 3 credits.

Study of formal organizations primarily in contemporary society. Emphasis is given to the social-historical context that has given rise to and perpetuates the bureaucracy as a form of social organization, and to the study of the structure and dynamics of contemporary formal organizations such as business, universities, governments, etc.

**SOCI 363. Sociology of Culture.** 3 credits.

This course examines sociological perspectives about values, norms, symbols, rituals and expressions. Course content includes classic perspectives on the relation between culture and institutions as well as the work of contemporary analysts who have developed, revised and/or challenged these classic positions. Students will learn to apply these perspectives to their own analyses of culture.

**SOCI 366. Sociology of Knowledge.** 3 credits.

This course explores sociological understandings of the social sources, bases and effects of knowledge, including scientific knowledge. This includes explorations of various knowledge systems, knowledge generating institutions, competing knowledge claims, and the links between knowledge and social power. *Prerequisite: SOCI 200 or instructor permission.*

**SOCI 367. Sociology of Sexuality.** 3 credits.

This course examines sociological theory and research on sexual behaviors, identities, cultures and social movements, investigating how sexuality is shaped by society and its social institutions. In addition, the course examines how sociological research on sexuality is conducted, how society shapes the sociological study of sexuality, the unique ethical concerns and methodological challenges in researching sexuality, and the place of sociology in shaping public discourse and social policy on relevant social issues.

**SOCI/ANTH 368. Contemporary American Culture.** 3 credits.

This course analyzes contemporary American society in relation to popular cultural formations and representations. Cultural expressions found in music, literature, theatre, film, television, cyberspace and sports will be examined with respect to the values, sentiments, identity constructions and lived experiences of differentially situated social actors.

**SOCI 369. Law and Society.** 3 credits.

The history and functions of law as a form of social control; the social forces in the creation and practice of the law. The nature of law as a catalyst for and the product of social change.

**SOCI 372. Sociology of the Community.** 3 credits.

This course examines the community as a social form. Considered are its function, social definitions, formative processes, development and systems of change. This survey may include, but not be limited to, examination of community studies research and community advocacy for social justice.

**SOCI 374. Sociology of Families.** 3 credits.

Covers the basic concepts and theories in marriage and the family; looks at basic issues in modern family life; examines changes in family functions and in the various stages of the family life cycle; and discusses the future of the family in contemporary society.

**SOCI 375. Medical Sociology.** 3 credits.

An introduction to the field of medical sociology that examines the salient issues in the field and related theoretical perspectives. These two focuses are important in understanding the ability of humans to live to capacity. Attention is given to health care programs in developing countries as well as modern industrial societies.

**SOCI 382. Qualitative Sociology.** 3 credits.

This course introduces students to qualitative research methods, including participant observation, interviewing, and content analysis. Students will read examples of qualitative sociology and learn how to design and conduct a qualitative research study. In addition to reviewing methodological, theoretical, and ethical issues, students will produce an independent qualitative research project. *Prerequisite: SOCI 200.*

**SOCI 385. Madness and Society: The Sociology of Mental Health and Illness.** 3 credits.

This course will explore the role that social and cultural factors play in the occurrence, diagnosis, experience and treatment of mental illness. It will compare sociological perspectives to those of biology and psychology. The course will examine the intersection of mental health systems with other systems, such as the broader health care and the criminal justice systems. Finally, it will critically analyze psychiatry, policy and popular culture depictions of the mentally ill.

**SOCI/ANTH 388. Prisons, Punishment and the State.** 3 credits

The course investigates the nature of punishment and the particular forms of punishment meted out by the state. Questions include: What is the purpose of punishment? Why does the state choose incarceration as its standard punishment? What forms of punishment exist in other cultures? We focus on the contexts in which prisons emerged in the US and what they say about our society. Discussions center on power, race, class, gender, age and the political economics of the criminal justice system. *Prerequisite: ANTH 195 permission of the instructor.*

**SOCI/ANTH 390. Topics in Cultural Studies.** 3 credits.

This course explores contemporary culture through a "cultural studies" lens, an interdisciplinary perspective interested in using empirical knowledge to encourage more just human relations. Specific topics of investigation will vary by semester, but each course will cover cultural studies' intellectual history and its application to cultural expressions found in everyday life, film, music and text.

**SOCI 391. Study Abroad.** 1-6 credits.

Designed to encourage students to enhance their academic programs through studying abroad. Arrangements must be made with a faculty member who will direct the study with preparatory instructions and final requirements. May be repeated for up to 12 credits.

**SOCI 395. Special Topics in Sociology.** 3 credits.

Examination of selected topics that are of current importance in sociology. May be repeated for credit when course content changes.

**SOCI 480. Senior Seminar in Sociology.** 3 credits.

The integration of previous class experience the student has had during the undergraduate years. Fulfills the College of Arts and Letters writing-intensive requirement for the major. Can be repeated as course content changes. *Prerequisite: SOCI 300.*

**SOCI 485. Sociology Course Assistantship.** 1-3 credits.

Assistantships provide students with a sense of what it is like to teach a sociology course by allowing them to work closely with faculty members through different phases of course preparation, presentation and evaluation. Assistantships also allow for a deeper understanding of course material by providing opportunities for student assistants to lead discussion and to help their peers review the material outside of the classroom. *Prerequisites: Students must have junior/senior standing, must have earned a grade of "B" or better in the course for which he/she will serve as assistant, and may register by faculty invitation only. May be repeated up to six credits; only three credits can count toward the major. A student may only serve as a course assistant to the same course twice.*

**SOCI 490. Independent Study in Sociology.** 1-3 credits.

Designed to give capable students in sociology an opportunity to complete independent study under supervision. *Prerequisites: Recommendation of the instructor. More than one repeat requires department head approval.*

**SOCI 492. Internship in Sociology.** 1-3 credits.

Provides the student with practical experience in employing and refining sociological skills in a public or private agency under faculty supervision. May be repeated up to six credits.

**SOCI 499 A, B, C. Honors.** 6 credits. Three semesters.

An independent research topic initiated and completed by qualified senior majors who want to graduate with distinction.

## Spanish

**SPAN 101. Elementary Spanish I (4, 1).** 3-4 credits.

The fundamentals of Spanish through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course.

**SPAN 102. Elementary Spanish II (4, 1).** 3-4 credits.

The fundamentals of Spanish through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course. *Prerequisite: SPAN 101.*

**SPAN 109. Accelerated Review of Elementary Spanish (3,1).** 3 credits.

Reviews elementary Spanish grammar, reading, writing, speaking and listening skills in Spanish. One hour of work a week in the language laboratory. For students who have had no more than two or three years of Spanish in high school and qualify through the placement exam. *Prerequisite: Permission of the department head or sufficient score on the Foreign Language Placement Exam.*

**SPAN 111. Intensive Spanish I (6, 1).** 6 credits each semester.

The fundamentals of Spanish through listening, speaking, reading and writing. The four-week course is the equivalent to SPAN 101-102.

**SPAN 212. Intensive Spanish II (6, 1).** 6 credits each semester.

The fundamentals of Spanish through listening, speaking, reading and writing. The four-week course is the equivalent to SPAN 231-232. *Prerequisite: SPAN 102, SPAN 109 or SPAN 111, or per placement exam score.*

**SPAN 231. Intermediate Spanish I.** 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: SPAN 102, SPAN 109 or SPAN 111, or per placement exam score.*

**SPAN 232. Intermediate Spanish II.** 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: SPAN 231 or sufficient score on the Foreign Language Placement Exam.*

**SPAN 300. Grammar and Communication.** 3 credits.

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Spanish. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: SPAN 212 or SPAN 232 or sufficient score on the Foreign Language Placement Exam.*

**SPAN 307. Spanish Civilization.** 3 credits.

A study of Spanish life and culture from ancient times to the present. Instruction is in Spanish. *Prerequisite: SPAN 300.*

**SPAN 308. Latin American Civilization.** 3 credits.

A study of the geographical, historical and cultural development of Latin America from pre-Columbian times to the present. Instruction is in Spanish. *Prerequisite: SPAN 300.*

**SPAN 310. Introduction to Spanish Linguistics.** 3 credits.

This course will introduce students to the fundamental components of linguistics (phonology, morphology, syntax, pragmatics, and semantics) using data from the Spanish language. The topics and approach of this course consider the social and dialectal varieties of Spanish and the change of Spanish over time, including the present use of Spanish in the United States. The course requires no previous knowledge of linguistics, but presupposes familiarity with Spanish at the 300 credit level or higher.

**SPAN 311. Contrastive Linguistics.** 3 credits.

This course analyzes the main grammatical differences between Spanish and English with the aim of producing accurate and idiomatic translations into both languages. Instruction is given in English and Spanish. *Prerequisite: SPAN 300.*

**SPAN 312. Translation Competencies.** 3 credits.

This course develops several linguistic competencies required in translation, including reading comprehension, summary writing, text analysis, and the use of thesauruses and mono- and bilingual dictionaries. Students practice several types of translation, including direct translation, inverse translation and back translation. Instruction is given in English and Spanish. *Prerequisite: SPAN 300.*

**SPAN 315. Spanish Phonetics.** 3 credits.

Intensive drill in Spanish sounds and intonation patterns. Instruction is in Spanish. *Prerequisite: SPAN 300 or equivalent.*

**SPAN 320. Oral and Written Communication.** 3 credits.

Intensive training in the use of modern, everyday Spanish with emphasis on conversation and composition. Readings in Spanish will provide a context for discussion and writing. *Prerequisite: SPAN 300.*

**SPAN 330. Business Spanish.** 3 credits.

This course presents basic business and commercial Spanish vocabulary and terminology. It focuses on trade customs and commercial communication, including interviews, letter writing and simultaneous interpretation. Instruction is in Spanish. *Prerequisite: SPAN 300.*

**SPAN 335. Introduction to Spanish Literature.** 3 credits.

This course is designed to prepare students in literary analysis of the novel as well as short stories, poetry and drama. All necessary terminology will be studied. Mandatory for all Spanish majors before taking any other literature class. Instruction in Spanish. *Prerequisite: SPAN 300.*

**SPAN 360. Spanish for Public Safety.** 3 credits.

This course presents basic Spanish legal vocabulary and terminology. It emphasizes the practical application of the Spanish language in routine and high-risk law enforcement situations and explores cultural issues that are important for law enforcement personnel. *Prerequisite: SPAN 300.*

**SPAN 365. Medical Spanish.** 3 credits.

This course focuses on the basic Spanish language and vocabulary required in the field of Medicine and Health Sciences. Students practice their oral Spanish skills in various simulated medical situations in preparation for future professional application in the medical environment. *Prerequisite: SPAN 300.*

**SPAN 370. Legal Spanish.** 3 credits.

This course presents basic Spanish legal vocabulary and terminology in various contexts and develops basic skills in reading and writing legal documents in Spanish. It focuses on Latin American and Spanish legal systems and discusses related cultural contexts. *Prerequisite: SPAN 300.*

**SPAN 385. Latin American Drama and Short Stories.** 3 credits.

Reading and analysis of representative plays and short stories from Latin America. Student reports on selected authors. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 390. Spanish Poetry of the 20th Century.** 3 credits.

The course will cover poets such as Antonio Machado, Luis Cernuda, Pedro Salinas and Federico Garcia Lorca. A complete study of the chronology, historical situation, social context and cultural impact of the poets and their works. *Prerequisite: SPAN 335.*

**SPAN 395. Latin American Poetry of the 20th Century.** 3 credits.

This course will study poets such as Jose Juan Tablada, Ramon Lopez Velarde, Gabriela Mistral, Pablo Neruda and Cesar Vallejo. Life, works, chronology, historical situation, social context and influences, tendencies, and valuations. Instruction in Spanish. *Prerequisite: SPAN 335.*

**SPAN 400. Advanced Conversation.** 3 credits.

Discussions deal with topics of current interest. Instruction is in Spanish. *Prerequisite: SPAN 320.*

**SPAN 401. Cinema for Spanish Conversation.** 3 credits.

This course is an advanced conversation course that is designed to develop fluency and accuracy in film and cultural analysis, speaking, and writing. Students explore several aspects of life and culture in the Spanish-speaking world and the U.S. including identity, history, politics, class issues, gender roles, regional language and arts. *Prerequisite: SPAN 320.*

**SPAN 402. Spanish for Heritage Speakers.** 3 credits.

This course provides heritage Spanish students with the opportunity to continue their study of Spanish. It provides those students with the opportunity to expand their existing proficiency and to develop more formal language skills. Emphasis will be placed on reading, writing and presenting at a professional level. Online course.

**SPAN 404. Spanish in the United States.** 3 credits.

This course will study the present situation of Spanish in the United States, how Spanish has been shaped by social forces in the US and how Spanish, in turn, shapes these forces. *Prerequisite: SPAN 320.*

**SPAN 405. Spanish Novels of the 19th and 20th Centuries. 3 credits.**

The development of the Spanish novel from the "costumbristas" through the realism of Galdós and from the writers of the Generation of 1898 to the present. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 406. Spanish Drama of the 19th and 20th Centuries. 3 credits.**

Readings and discussions of representative works of Spanish drama from the Romantic period to the present. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 407. Aspects of Spanish Civilization. 3 credits.**

This course will study the history, culture and society of Spain during the 20th and 21st centuries. Emphasis will be placed on the changes in Spain after Franco. Instruction in Spanish. *Prerequisite: SPAN 300.*

**SPAN 408. Aspects of Latin American Civilization. 3 credits.**

The development of countries like Argentina, Colombia, Peru, Mexico and others from pre-Columbian times to the present. Emphasis on the indigenous and European cultures and their influences on contemporary traditions. Focus on Central America, political developments and revolutions and wars within the last two decades. Instruction is in Spanish. *Prerequisite: SPAN 300.*

**SPAN 415. The Spanish-American Novel. 3 credits.**

Reading and analysis of representative works of Spanish-American novelists of the 19th and 20th centuries. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 424. Spanish Picaresque Novel. 3 credits.**

A study of the Spanish Picaresque Novel, including Lazarillo de Tormes, Quevedo's El Buscón and Alonso de Castillo Solorzano's Las harpías en Madrid, culminating in the connections of Cervantes work with the picaresque. *Prerequisite: SPAN 335 or permission of instructor.*

**SPAN 425. Prose of the Golden Age. 3 credits.**

A study of the chivalric, sentimental, pastoral and picaresque genres of prose literature and of their development through the Golden Age, culminating in Cervantes. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 426. Drama of the Golden Age. 3 credits.**

A study of the "comedia" of the Golden Age including works of Lope de Vega, Calderón de la Barca, Tirso de Molina and Ruiz de Alarcón. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 427. Poetry of the Golden Age. 3 credits.**

Lecture and analysis of Spanish poetry beginning with the Renaissance through the end of the 17th century. The course will cover poets such as Garcilaso de la Vega, Fray Luis de León and San Juan da la Cruz. Instruction in Spanish. *Prerequisite: SPAN 335.*

**SPAN 428. Don Quixote. 3 credits.**

Examination of Cervantes's two-part novel, which some have named the first modern novel or the greatest novel of all times. Includes study of the book's, literary and social context, analysis of narrative techniques and levels of fiction, and major critical approaches to the work across the centuries. Instruction is in Spanish. *Prerequisite: SPAN 335 or permission of the instructor.*

**SPAN 430. Advanced Business Spanish. 3 credits.**

This course presents advanced business and commercial Spanish vocabulary and terminology. By focusing on topics such as the origin of business and companies, company constitution and organization, human resources, labor law and commercial law, marketing, products, services, and the sale of consumer goods, students compare the business environment of Latin America with that of the United States. *Prerequisite: SPAN 330.*

**SPAN/ENG 434. Latin American Literature in Translation. 3 credits.**

This course will study Latin American literature in translation. The course will focus on the work of major Spanish-American authors.

**SPAN 435. Translation Strategies. 3 credits.**

This course discusses aspects of translation theory such as skopos, translation loss, translation gain, and language bias. Students learn several translation strategies at the phrase and sentence levels and practice these strategies thoroughly before investigating terminology, terminology mining and terminology management. Instruction is in English and Spanish. *Prerequisite: SPAN 300.*

**SPAN/TR 436. Introduction to Interpretation. 3 credits.**

This course presents an overview of the interpreting profession. It introduces students to the main techniques they need to become competent interpreters in the various sectors of interpreting. Instruction is given in English and Spanish. *Prerequisite: SPAN 300.*

**SPAN/ENG 439. Major Authors of Literature in Spanish in Translation. 3 credits.**

This course will study the work of both Peninsular and Latin American authors in translation. The course will focus on major Spanish-speaking authors and their work, both in Latin America and in Spain.

**SPAN 445. Women in Hispanic Literatures. 3 credits.**

Study of women in literature in the Hispanic world. Focus on women authors, female characters in literature or both. The courses may include works from Spain or Latin America from any time period. Examination of feminist literary criticism, canon formation and other critical topics. Emphasis may vary according to the instructor. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 446. Special Topics in Spanish Literature. 3 credits.**

Study of a particular topic in Spanish literature. It may cover all or specific Spanish literature genre. Course may be repeated if content varies. *Prerequisite: SPAN 335.*

**SPAN 447. Special Topics in Spanish Civilization and Culture. 3 credits.**

Students will study a particular topic in the civilization and/or culture of Hispanic countries. Course may be repeated if content varies. *Prerequisite: SPAN 320.*

**SPAN 448. Special Topics in Spanish Linguistics. 3 credits.**

Students will study a particular topic of Spanish linguistics. Topics could include an introduction to Spanish sociolinguistics and psycholinguistics. Course may be repeated if content varies. *Prerequisite: SPAN 320.*

**SPAN/WGS 455. Women in Hispanic Literatures. 3 credits.**

Study of women in literature in the Hispanic world. Focus on women authors, female characters in literature or both. The course may include works from Spain or Latin America from any time period. Examination of feminist literary criticism, canon formation and other critical topics. Emphasis may vary according to the instructor. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 461. Post War Literature in Spain. 3 credits.**

Reading and analysis of representative works of Spanish novelists and their development after the Civil War in Spain. Emphasis on Spanish history and society under the influence of Franco's Regime. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 462. Spanish Comic Theatre of the 20th Century. 3 credits.**

The course will study the work of the main playwrights of the comic theater of 20th century Spain and their type of humor: Carlos Arniches, the brothers Alvarez Quintero, Pedro Muñoz Seca, Enrique Jardiel Poncela and Miguel Mihura. Instruction is in Spanish. *Prerequisite: SPAN 335.*

**SPAN 465. Cinema and Literature. 3 credits.**

Studies of the structure of the cinema and its relation to literature. Comparison between different literary works and their interpretation in cinema. The course will cover topics in Spain and Latin America. Instruction in Spanish. *Prerequisite: SPAN 335.*

**SPAN 470. Advanced Legal Topics. 3 credits.**

This course will study the difference between national and international law and legal systems, as well as law and its origins and moral and justice concepts in society and among legislators. Intergovernmental organizations such as United Nations, International Labor Organization and International Court of Justice will be examined. Human rights and related violations and government actions in conflict resolutions will be discussed. Instruction in Spanish. *Prerequisite: SPAN 300.*

**SPAN 475. Advanced Medical Spanish. 3 credits.**

This course provides future medical professionals with further practice in Spanish in the medical context. Students learn advanced medical vocabulary and anatomical terminology, develop their reading comprehension skills, and acquire greater fluency through student presentations and classroom discussions on the latest medical techniques and advances. *Prerequisite: SPAN 365.*

**SPAN 476. Culture and Medicine in Latin America. 3 credits.**

This course enables students to acquire greater linguistic proficiency and cultural competence in the medical context through classroom discussions and reading comprehension. Students analyze historical and contemporary medical discoveries, discuss holistic and indigenous medicine, and examine popular and religious beliefs applied to medicine in Latin America. *Prerequisite: SPAN 300.*

**SPAN 477. Culture and Medicine in Spain. 3 credits.**

This course enables students to acquire greater linguistic proficiency and cultural competence in the medical context through classroom discussions and reading comprehension. Students analyze historical and contemporary medical discoveries, discuss alternative and popular medicine applied to medicine in Spain. *Prerequisite: SPAN 300.*

**SPAN 485. Business and Society in Latin America. 3 credits.**

This course explores the development of Latin American society in the business and economic contexts and investigates areas such as importation and exportation, the health and education systems, banking and financial institutions, agriculture, and the textile, fashion, wine, motion picture, music, and media industries. *Prerequisite: SPAN 300.*

**SPAN 486. Business and Society in Spain. 3 credits.**

This course investigates several sectors of the Spanish economy, including the food industry, industrial port activity, importation and exportation, the petrochemical industry, the leisure industry, and the wine making industry. Students tour several important multinational companies in Salamanca, Spain, and attend presentations given in Spanish by staff of those companies. This course is taught in Salamanca, Spain. *Prerequisite:* SPAN 300.

**SPAN 490. Special Studies in Spanish. 1-4 credits.**

Allows students an opportunity to complete independent studies under faculty supervision. *Prerequisite:* Permission of the department head

**SPAN 492. Practical Spanish. 3 credits.**

This course gives students the opportunity to collaborate with the local Spanish-speaking community through semester placements in schools or service agencies. Students will develop a better understanding of the Hispanic culture as well as immigration issues affecting the community. *Prerequisite:* SPAN 320.

**SPAN 494. Practical Medical Spanish. 3 credits.**

This course enables JMU medical Spanish students to interact with Spanish students at the Universitat Rovira i Virgili in Tarragona, Spain, to practice Spanish in real-life medical situations at local hospitals, clinics or primary care centers in collaboration with Spanish health science professionals, and to observe the differences between the medical cultures of Spain and the United States. *Prerequisite:* SPAN 365.

**SPAN 495. Practical Spanish for Public Safety/Legal Spanish. 3 credits.**

This course focuses on Spanish for public safety, law enforcement, and the judicial/legal system in collaboration with local and state agencies and the Spanish-speaking community. Students consolidate their theoretical knowledge, gain confidence in the language, and observe both the direct impact of their learning and the critical role of language proficiency in today's increasingly diverse society. *Prerequisite:* SPAN 300.

**SPAN/TR 496. Translation/Interpreting Internship. 3 credits.**

Practical experience in translation or interpreting within a public agency, non-profit or private business. Periodical reports and a final paper are required for the course. The student will be supervised by a faculty member. *Prerequisites:* SPAN/TR 435 or SPAN/TR 436.

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## Sports and Recreation Management

**SRM/HM 201. Foundations of Hospitality, Sport and Recreation Management. 3 credits.**

An introduction to the basis for the professions that make up the School of Hospitality, Sport and Recreation Management. A focus on these professions in governmental, voluntary, private and commercial settings is incorporated. Finally both the economical significance and the professional preparation for success in the industry is both introduced and practiced. *Prerequisite:* HM or SRM major or permission of director.

**SRM/HM 202. Foundations of Leadership in Hospitality, Sport and Recreation Management. 3 credits.**

An introduction to the basis for the professions that make up the School of Hospitality, Sport and Recreation Management. A focus on these professions in governmental, voluntary, private and commercial settings is incorporated. Finally both the economical significance and the professional preparation for success in the industry is both introduced and practiced. *Prerequisite:* HM or SRM major or permission of director.

**SRM/HM 203. Foundations of Ethics and Law in Hospitality, Sport and Recreation Management. 3 credits.**

An introduction to ethics and law within the Sport, Hospitality and Recreation (HSRM) industry. The ethical portion introduces students to select theories of ethics, ethical issues and an ethical decision making model; and the legal portion introduces students to basic legal terminology and concepts while concentrating on negligence and employment issues. *Prerequisite:* HM or SRM major or permission of director.

**SRM 241. Introduction to Sport and Recreation Management. 3 credits.**

Introduces the sport and recreation management professions in governmental, voluntary, private, public, and commercial settings. Outlines development of sport and recreation and the evolution of the mega-leisure industry. Overviews professional preparation in sport and recreation management. *Prerequisite:* SRM 201 or permission of director.

**SRM 242. Sociology and Psychology of Sport and Recreation Management. 3 credits.**

The primary purpose of this course is to investigate sport and recreation related activities and services from a sociological and psychological perspective. The focus

will be on activity through the lifespan and using theory and current issues from both disciplines to aid the practitioner in their interactions with participants and constituents and with the development and management of sport and recreation related activities and services. *Prerequisite:* SRM 201 or permission of director.

**SRM 282. Practicum in Sport and Recreation. 3 credits.**

A sequence of selected experiences which provides the student with supervised practicum experience in Sport and Recreation Management. *Prerequisite:* SRM 241.

**SRM 333. Management in Sport and Recreation. 3 credits.**

This course will provide students with the knowledge to apply the management principles and theories to specific professional organizations in the sport and recreation industry. Sport and recreation management applications covered include administration principles for specific organizations, human resource management, fiscal management, marketing and risk management. *Prerequisite:* SRM 241.

**SRM 334. Introduction to Sport Media. 3 credits.**

Examination of the knowledge and skills required for the business of sports communications, including strategic and personal communications, leadership, publishing, advertising, public relation and crisis management. The course also examines sport communications from a sociological and legal perspective and the emergence of online sport communication and the new sport media. *Prerequisite:* SRM 241.

**SRM 335. Cognitive Processes and Current Issues. 3 credits.**

This class begins with the basic question as to how we think and why, and then expands into an introduction of the different of cognitive processes used in sport and recreation management settings. These different processes include: creative thinking, critical thinking, problem solving, decision making and logical thinking. The class will then apply those processes in addressing various current issues facing the sport and recreation industries. *Prerequisite:* SRM 241.

**SRM 337. Programming and Assessment in Sport and Recreation Management. 3 credits.**

This course will examine the basics of sport and recreation programming and assessment. Students will be presented with tools and strategies for developing and assessing programs and evaluating their outcomes. Students will learn how to program for agencies of various sizes with an understanding of the importance of recognizing service population needs. *Prerequisite:* SRM 241.

**SRM 434. Ethical and Legal Issues in Sport and Recreation Management. 3 credits.**

This course is designed to introduce students to current ethical and legal issues of concern to professionals in sport, recreation and leisure studies. Students will examine the impact of these issues on organizational and managerial policies and decision-making. *Prerequisite:* SRM 333.

**SRM 435. Sport Marketing and Sales. 3 credits.**

This course will examine how promotional activities and sales efforts are closely intertwined and impact upon the success or failure of the sport and leisure industry. Particular emphasis will be placed on ticket sales and sport sponsorship. *Prerequisites:* SRM 333 and MKTG 380.

**SRM 436. Facilities and Events in Sport and Recreation Management. 3 credits.**

This course is designed to explore the principles of planning, design, and management of selected sport, recreation, and exercise facilities. The course will also cover the planning and management of special events. This will include budgeting, design, staffing, evaluation/assessment, crowd management and relative human resource management. *Prerequisite:* SRM 333.

**SRM 438. Human Resources in Sport and Recreation Management. 3 credits.**

An overview of human resource management in sport and recreation environments. The course will provide an introduction to administrative practices involving employer and employee relationships and apply these concepts to the day to day practices and skills required of a manager in a sport or recreation setting. The content focus will be on areas such as human resource policies, recruiting, hiring, job analysis, creating position descriptions, performance evaluation, training, career development and supervision of staff members and volunteers. *Prerequisite:* SRM 333.

**SRM 482. Internship in Sport and Recreation Management. 6 credits.**

A full-time professional experience which affords the opportunity to apply theory and methodology under qualified supervision from the cooperating agency and the university. Students may take only one additional course (three or four credits) while enrolled in this course. The additional course must be approved in advance by the site supervisor and the director of SRM. *Prerequisites:* SRM 282, SRM 333, and 72 credit hours complete.

**SRM 490. Special Studies in Sport and Recreation Management. 3 credits.**

Designed to give capable students in sport and recreation management an opportunity to complete independent study under faculty supervision. *Prerequisites: SRM major and permission of director.*

**SRM 498. Special Topics in Sport and Recreation Management. 3 credits.**

This course is designed to allow explorations of areas of current topical concern, or to exploit special situations. Course content will vary. For current course content consult your adviser or the SHSRM director. *Prerequisites: SRM major and permission of director.*

**SRM 499. Honors. 6 credits.**

Year course. See catalog description entitled "Graduation with Distinction" and "Graduation with Honors." *Prerequisite: Permission of director.*

## Studies Abroad

### Semester in Antwerp

**COB 300A. Integrative Business: Management. 3 credits.**

COB 300A is the management component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites: Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.*

**COB 300B. Integrative Business: Finance. 3 credits.**

COB 300B is the finance component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites: Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.*

**COB 300C. Integrative Business: Operations. 3 credits.**

COB 300C is the operations component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites: Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and admission to the College of Business.*

**COB 300D. Integrative Business: Marketing. 3 credits.**

COB 300D is the marketing component of an integrated learning experience consisting of four courses, taken concurrently, which introduces the fundamental conceptual tools of management, finance, operation and marketing in such a way as to establish their mutual relevance and interdependence. Students work in small project teams on tasks designed to require the application in concert of conceptual tools from each of the function areas. *Prerequisites: Completion of all required 100- and 200-level B.B.A. core courses, junior standing (56 hours) and formal admission to the College of Business.*

**COB 301. European Integration, Culture and History. 3 credits.**

This course is designed to complement COB 300 A-D when taught as part of the semester in Antwerp, Belgium program. COB 301 will only be offered as part of the semester in Antwerp program. Students will study European Integration in the classroom and visit governmental institutions, historical places and cultural events associated with course content. *Prerequisite: Requires acceptance to the Semester in Antwerp program. Cannot be used as an elective to fulfill any COB major or COB minor.*

### Semester in Florence

**ARTH 313. Masterpieces of Italian Renaissance Art. 3 credits.**

Exploration of the invention of perspective and techniques of Renaissance realism including masterpieces by major artists such as Giotto, Donatello and Michaelangelo. Weekly visits to museums and churches. Taught in English. Counts towards the Modern European Studies (MES) minor. May be used for general education credit.

**ENG 302F. Dante's Commedia, Selections from Inferno, Purgatorio and Paradiso. 3 credits.**

Dante's Commedia, a vision of the other-world, the account of a journey through Hell, Purgatory and Paradise, is one of the world's greatest poems, an achievement of the poetic imagination. Students will also see how the Commedia inspired the work of later British and American writers and will see how the forms of literature Dante shaped have endured to modern times. Taught in English; Italian majors and minors may receive Italian credit by completing all written assignments in Italian. May be used for general education credit.

**ITAL 101F. Elementary Italian. 3 credits.**

The fundamentals of Italian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension.

**ITAL 102F. Elementary Italian. 3 credits.**

The fundamentals of Italian through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension.

**ITAL 231F. Intermediate Italian. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Italian or equivalent.*

**ITAL 232F. Intermediate Italian. 3 credits.**

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Italian or equivalent.*

**ITAL 300F. Italian Grammar and Communication. 3 credits.**

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Italian. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: ITAL 232.*

**ITAL 320F. Italian Oral and Written Communication. 3 credits.**

Intensive training in the use of modern, everyday Italian with emphasis on conversation and composition. Readings in Italian will provide a context for discussion and writing. *Prerequisite: ITAL 300.*

**ITAL 490F/HM 361. Exploration of Wine Culture in Italy. 3 credits.**

This course will study the historical value of wine, together with its cultural, economic and social meaning in Italy and, more specifically, in Tuscany. Taught in English. Course may count for HTM major credit with the approval of the head of the HTM department.

**HM 362. Wine and Food Pairing. 3 credits.**

This course is designed to teach students the applied approach to matching wine and food from different parts of the world using flavors, textures, and components present in food and wine in complementing strategies. Emphasis will be placed on menu planning, cooking methods, and tasting wines with food in a formal dining room. Taught in English. Course may count for HTM major credit with the approval of the head of the HTM department.

**HUM 250F. Foundations of Western Culture. 3 credits.**

This course is a study of the roots of our Western tradition in Greek, Roman, Medieval or Renaissance culture. Students examine the interrelationships among history and literary works; the fine arts; philosophical and religious thought and intellectual contexts. Content will vary depending on section and instructor. May be used for general education credit.

**MKTG 380. Principles of Marketing. 3 credits.**

Deals with fundamentals involved in the marketing process; concerned with the functions, institutions and channels used to distribute goods and services from producer to consumer. Involves case studies of Italian firms and systematic comparisons between prevalent Italian/European and American marketing practices. Taught in English.

**ITAL 490F/IDLS 486. Internship and Field Experience. 3 credits.**

ITAL or IDLS credit for academically grounded field experience. Students interact with Florentine middle school students taking English classes and engage in systematic comparisons of educational institutions and experiences in Italy and the United States.

**POSC 344. Politics of the European Union. 3 credits.**

This course offers an in-depth consideration of the political development of the European Union, the EU policy-making process and contemporary issues that confront European leaders and citizens. Taught in English.

### Semester in London

**ARTH 316. Masterpieces of British Art. 3 credits.**

Survey of painting and sculpture in Britain from 1530 to 1860 concentrating on 18th-19th century painting. British art is viewed in the context of European civilization. Weekly visits to London museums including the Portrait Gallery, Sir John Sloane's House, the Wallace Collection and the Tate Gallery. May be used for general education credit.

**HUM 200L/THEA 449/ENG 412L. The London Theatre. 3 credits.**

Study of London theatre. Consideration given to current productions of classic and contemporary works. Emphasis on production elements including acting, directing, design, writing and economic considerations. May be used for general education credit. HUM 200 may be used for general education credit.

**HIST 382. Europe in the 20th Century. 3 credits.**

An examination of European history following WWII, from a British perspective. Weekly outings to museums and sites of historic interest.

**IDLS 486. Internship and Field Experience. 3 or 6 credits.**

An internship class combining practical work experience with a class providing perspective and cultural appreciation.

**POSC 371L. Topics in Comparative Politics: British Media and Politics/SCOM/SMAD 472L. British Media and Politics. 3 credits.**

A study of the media's role in political campaigns, concentrating on past/present election, the media's role in covering political parties and coverage of the governing process in the United Kingdom. Discussion of electronic and print will occur. Topics to be examined include campaign videos, political ads, editorial cartoons, TV debates, convention coverage and radio talk show commentary.

**SCOM 347L. Communication, Diversity, and Popular Culture. 3 credits.**

Study of the rhetorical dimension of communication practices and texts found in British popular culture. Emphasis on issues of diversity as they are manifested in the communication practices found in British popular culture. Emphasis on strategic communication choices in a diverse, multicultural world. Emphasis on critical thinking, self-reflexivity and communication analysis.

**SCOM/SMAD/WRTC 360L/HUM 251L. British Media and Society. 3 credits.**

Study the history, nature, and impact of mass media in the United Kingdom. Emphasis on the impact modern media has on society, and society has on media. Consideration of similarities and differences in mass media in the United States and Great Britain. Consideration of the relationship between mass media and the arts. Focus on 20th century mass media in London, one of the world's pre-eminent and most influential media centers. HUM 251 may be used for general education credit.

**SMAD 301L/SCOM/WRTC 351/ARTH 389. Culture by Design (Visual Rhetoric). 3 credits.**

Study of how mediated communication molds perception and influences cultural change. Emphasis on how language and imagery, sound and music are combined in current media to create meaning. Consideration of emerging media and their implications for cultural design. Focus on British media and culture.

**SMAD 463L/ENG 463L/SCOM 395. Film Adaptations: British Literature and Film. 3 credits.**

The study of the process of adapting British literature into feature films. Consideration is given to the original literary work, as well as to the changes undergone in its adaptation to film.

**Semester in Salamanca****ARTH 314/SPAN 490T. Masterpieces of Spanish Art. 3 credits.**

A study of the art and architecture of Spain from medieval times through present. Concentration on specific artists, as well as general movements in the history of Spanish art. ARTH 314 may be used for general education credit. *Prerequisite: SPAN 300 or equivalent.*

**POSC 371S. Comparative Politics: Spain/United States. 3 credits.**

A comparative study of political systems in Spain and the United States. Emphasis on historical and contemporary issues. Taught in Spanish; Spanish credit may also be given. *Prerequisite: SPAN 300 or equivalent.*

**SPAN 300S. Spanish Grammar and Communication. 3 credits.**

Intensive training in grammatical structures and their application to oral and written conversation. Instruction is in Spanish. *Prerequisite: SPAN 232 or equivalent.*

**SPAN 307S. History of Spanish Civilization. 3 credits.**

Study of Spanish life and culture from ancient times to the present. *Prerequisite: SPAN 300 or equivalent.*

**SPAN 308S. Latin American Civilization. 3 credits.**

A study of the geographical, historical and cultural development of Latin America from pre-Columbian times to the present. Instruction is in Spanish. May be used for general education credit. *Prerequisite: SPAN 300 or equivalent.*

**SPAN 320S. Spanish Oral and Written Communication. 3 credits.**

Intensive training in the use of modern, everyday Spanish with emphasis on conversation and composition. Readings in Spanish will provide a context for discussion and writing. Instruction is in Spanish. *Prerequisite: SPAN 300.*

**SPAN 330S. Business Spanish. 3 credits.**

Study of commercial and technical vocabulary and trade customs in conjunction with practice in the art of commercial communication including interviews, letter writing and simultaneous interpretation. *Prerequisite: SPAN 300 or equivalent.*

**SPAN 335S. Introduction to Spanish Literature. 3 credits.**

This course is designed to prepare students in literary analysis of the novel as well as short stories, poetry and drama. All necessary terminology will be studied. Mandatory for all Spanish majors before taking any other literature class. Instruction in Spanish. *Prerequisite: SPAN 300.*

**SPAN 365S. Medical Spanish. 3 credits.**

This course focuses on the concepts, vocabulary and linguistic use of Spanish in the applied field of medicine for future practical application in the professional and volunteered contexts. Students will learn the cultural differences between the medical environment in the U.S. and the Hispanic countries. *Prerequisite: SPAN 232 or equivalent.*

**SPAN 385S. Latin American Drama and Short Stories. 3 credits.**

Readings and analysis of representative plays and short stories from Latin America. Student reports on selected authors. Instruction is in Spanish. May be used for general education credit. *Corequisite or prerequisite: SPAN 335.*

**SPAN 400S. Advanced Conversation and Composition. 3 credits.**

Discussions deal with topics of current interest. Instruction is in Spanish. *Prerequisite: SPAN 300 or equivalent.*

**SPAN 446S. Special Topics in Spanish Literature: Trabajos dirigidos. 3 credits.**

Students work on any aspect of Spanish literature under the supervision of USAL faculty. Topics and work vary, ranging from the case study of a work, the treatment of a given topic in Spanish literature, the analysis of a literary movement, the systematic study of the author's work, or a comparative analysis of several writers.

**SPAN 465S. Spanish Cinema and Literature. 3 credits.**

Comparative studies between cinema and literature. May be used for general education credit. *Corequisite or prerequisite: SPAN 335.*

**SPAN 477. Culture and Medicine in Spain. 3 credits.**

This course enables students to acquire greater linguistic proficiency and cultural competence in the medical context through classroom discussions and reading comprehensions. Students analyze historical and contemporary medical discoveries and examine popular and religious beliefs applied to medicine in Spanish cultures. *Corequisite or prerequisite: SPAN 300.*

**SPAN 486S. Business and Society in Spain. 3 credits.**

This course investigates several sectors of the Spanish economy, including the food industry, industrial port activity, importation and exportation, the petrochemical industry, the leisure industry, and the wine making industry. Students tour several important multinational companies in Salamanca, Spain, and attend presentations given in Spanish by staff of those companies. This course is taught in Salamanca, Spain. *Prerequisite: SPAN 300.*

**SPAN 490S/IDLS 486. Internship and Field Experience. 3 credits.**

This course gives student the opportunity to integrate in the Spanish society through a JMU sponsored internship/field experience. Students will have the chance to work in local schools and businesses. The experience will allow students to interact with the community through conversation and their assigned responsibilities.

**Swahili****SWA 101. Elementary Swahili I. 3-4 credits.**

The fundamentals of Swahili through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in language laboratory. Student will receive no credit for course if he/she has had two or more years of the language in high school.

**SWA 102. Elementary Swahili II. 3-4 credits.**

The fundamentals of Swahili through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour's work a week in the language laboratory. If student has had two or more years of the language in high school he/she will not receive credit for the course.

**SWA 111. Intensive Swahili I. 6 credits.**

The fundamentals of Swahili through listening, speaking, reading and writing. The 4-week course is the equivalent of SWA 101-SWA 102.

**SWA 212. Intensive Swahili II. 6 credits.**

The fundamentals of Swahili through listening, speaking, reading and writing. The 4-week course is the equivalent of SWA 231-SWA 232. *Prerequisite: SWA 102 or SWA 111.*

**SWA 231. Intermediate Swahili I. 3 credits.**

A thorough review of first year grammar and vocabulary building. Conversation, composition and readings will be chosen to reach competency at the lower intermediate level Swahili. *Prerequisite: SWA 102 or SWA 111 or permission of the instructor.*

**SWA 232. Intermediate Swahili II. 3 credits.**

A thorough review of Swahili grammar and vocabulary building. Conversation, composition and readings will be chosen to reach competency at the advance intermediate level. *Prerequisite: SWA 231 or permission of the instructor.*

**SWA 300. Grammar and Communication. 3 credits.**

Intensive training in grammatical structures and their application to oral and written communication. Instruction is in Swahili. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite: SWA 232 or permission of the instructor.*

**SWA 320. Swahili Oral and Written Communication. 3 credits.**

Intensive training in the use of modern, everyday Swahili with emphasis on conversation and composition. Readings in Swahili will provide a context for discussion and writing. *Prerequisite: SWA 300.*

**SWA 490. Special Studies in Swahili. 3 credits.**

Special topics or independent studies in Swahili.

## Teaching English as a Second Language

**TESL 381. Practicum in TESOL Instructional Strategies. 3 credits.**

The course provides supervised field experiences in working with English as a Second Language students, NK-12. Preservice teachers will demonstrate competencies developed in the English as a Second Language endorsement program and in consultation with a field supervisor. *Prerequisites: Completion of ESL minor requirements.*

**TESL 382. Practicum in TESOL First/2nd Language Acquisition. 1 credit.**

This one credit practicum provides an opportunity for students to work directly with English language learners under the supervision of a mentor teacher and a University Supervisor to identify and recognize principles of first and second language acquisition as evident in classroom contexts. Content of the practicum will directly correlate with topics covered in TESL 426. *Corequisite: TESL 426.*

**TESL 383. Practicum in TESOL Literacy Development. 1 credit.**

This one credit practicum provides an opportunity for students to work directly with English language learners to plan and implement oral language, reading, and writing strategies in language arts and content instruction that are directly related to topics covered in the READ 435 course. *Corequisite: READ 435. Prerequisite: READ 366.*

**TESL 384. Practicum in Literacy Development. 1 credit.**

This one credit practicum provides for pre-service teachers to work directly with students in grades PreK-12 (as determined by the READ 366 instructor) on literacy development under the supervision of a mentor teacher and a University Supervisor. They plan and implement literacy strategies in language arts and content instruction directly related to READ 366 course material. Most pre-service teachers will assist Prek-5 students. *Corequisite: READ 366.*

**TESL 425. Cross-Cultural Education. 3 credits.**

The course provides students with knowledge of the effects of socio-cultural variables in an instructional setting.

**TESL 426. Concepts in First and Second Language Acquisition. 3 credits.**

This course is designed to help students gain familiarity with first and second language acquisition. In understanding the process of language acquisition, students will be better equipped to design instructional strategies that facilitate English Language Learners' language acquisition and to create supportive environments.

**TESL 428. Assessment for Curriculum Development in English as a Second Language. 3 credits.**

The course provides students with a variety of assessment practices for assessing English language learners' abilities. Students will examine ways to use assessment results in the development of appropriate curriculum. *Prerequisites: TESL 426; TESOL minors only.*

**TESL 470. Instructional Strategies for Teaching English as a Second Language. 3 credits.**

This course is designed to provide preservice ESL teachers with experiences in designing and implementing instructional strategies to meet the linguistic needs of English Language Learners and utilizing assessment instruments to evaluate student progress.

**TESL 480. Student Teaching/Internship. 6-12 credits.**

Enables students to apply skills and attitudes acquired in all components of their professional education preparation. Students design and implement instructional activities under the guidance of teaching professionals. *Prerequisites: PSYC 160, EDUC 300, EDUC 310, pre-professional studies, TESOL core courses.*

## Technical Translation

**TR 300. Introduction to Translation. 3 credits.**

An intensive course that focuses on fundamental principles, general methods, and the use and development of lexical materials in translation. *Prerequisite: 300-level course in a foreign language or equivalent (foreign literature/civilization courses taught in English do not count).*

**TR 301. Introduction to Translation Theory. 3 credits.**

The course introduces students to translation theory starting with historical thinkers to contemporary scholars. Students learn the importance of translation in the development of languages and cultures as well as the role of the translator in shaping cultures. Course is taught in English. *Prerequisite: Permission of the instructor.*

**TR/SPAN 312. Translation Competencies. 3 credits.**

In this course, students will develop linguistic competencies required in translation, including reading comprehension, summary writing, text analysis, and use of mono- and bilingual dictionaries. Students will learn some basic electronic tools and word processing skills for translators, and practice several types of translation, including direct translation, inverse translation and back translation. *Prerequisites: SPAN 300.*

**TR 321. English-Spanish Technical/Commercial Translation. 3 credits.**

English-Spanish translation applied in several commercial (i.e., marketing, finance) and technical (i.e., electricity and electronics, software, hardware) fields. Focus will be on the acquisition of specialized knowledge (both linguistic and extralinguistic) and the delivery of professional documents in real-market conditions. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: TR 300 and SPAN 330 or permission of the instructor.*

**TR 331. French-English Technical/Commercial Translation. 3 credits.**

French-English translation applied in several commercial (i.e., marketing, finance) and technical (i.e., electricity and electronics, software, hardware) fields. Focus will be on the acquisition of specialized knowledge (both linguistic and extralinguistic) and the delivery of professional documents in real-market conditions. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: TR 300 and FR 330, or permission of the instructor.*

**TR 341. German-English Technical/Commercial Translation. 3 credits.**

German-English translation applied in several commercial (i.e., marketing, finance) and technical (i.e., electricity and electronics, software, hardware) fields. Focus will be on the acquisition of specialized knowledge (both linguistic and extralinguistic) and the delivery of professional documents in real-market conditions. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: TR 300 and GER 330 or permission of the instructor.*

**TR 361. Russian-English Technical/Commercial Translation. 3 credits.**

Russian-English translation applied in several commercial (i.e., marketing, finance) and technical (i.e., electricity and electronics, software, hardware) fields. Focus will be on the acquisition of specialized knowledge (both linguistic and extralinguistic) and the delivery of professional documents in real-market conditions. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisites: TR 300 and RUS 330 or permission of the instructor.*

**TR 400. Text Revision. 3 credits.**

Text revision focuses on the principles of linguistic revision applied to texts translated into English or written in English. It also involves the relationship between the translator and the reviser. Texts are evaluated and corrected on several levels: spelling, punctuation, syntax, semantics, stylistics, pragmatics. *Prerequisite: TR 300.*

**TR 402. Theory and Practice in Terminology and Lexicography. 3 credits.**

Terminology is the study and compilation of specialized terms used in LSPs (Languages for Special Purposes). This course addresses theories of terminology and terminology management, including computer applications designed to support the work of translators, technical writers and information specialists. *Prerequisite: TR 300.*

**TR 404. Computer Tools for Translators. 3 credits. Offered fall and spring.**

Modern translation involves numerous computer applications. This course addresses the main components of the translator's workstation. Students will gain hands-on experience of advanced work-processes features, machine-aided translation tools and statistical linguistics software. *Prerequisite: TR 300.*

**TR 406. Website and Software Localization. 3 credits.**

This course addresses the business, technical, cultural and linguistic issues involved in the complex process of localizing websites and software for foreign markets. Internet will be used as the forum through which to present and discuss class material. *Prerequisite: TR 300 or permission of the instructor.*

**TR 408. Project/Workflow Management. 3 credits.**

Management, business, technical, and computer-related issues involved in localizing websites and software for foreign markets. Budgeting, negotiations and relationships with translators and clients will be simulate. *Prerequisites: TR 300 or permission of the instructor.*

**TR/SPAN 411. Translation Strategy. 3 credits.**

This course in Spanish-English translation is intended for students who are interested in a possible future career in translation. *Prerequisite: SPAN 300.*

**TR 429. Spanish-English Text Revision. 3 credits.**

Text revision focuses on the principles of linguistic revision applied to texts translated from Spanish into English or written in English. It also involves the relationship between the translator and the reviser. Texts are evaluated and corrected on several levels: spelling, punctuation, syntax, semantics, stylistics, pragmatics. *Prerequisite: TR 300.*

**TR/SPAN 435. Translation Strategies. 3 credits.**

Students discuss aspects of translation theory such as skopos, translation loss, translation gain and language bias. They learn several translation techniques at phrase and sentence levels and practice these techniques thoroughly. They also investigate aspects of terminology, terminology mining and terminology management. *Prerequisite: SPAN 300.*

**TR/SPAN 436. Introduction to Interpretation. 3 credits.**

Students learn the techniques needed to become competent community interpreters in various contexts. This course may include practice interpreting in the Hispanic community. *Prerequisite: SPAN 300.*

**TR 439. Song Translation, French into English. 3 credits.**

Analysis of famous French songs at the lexical, sociolinguistic and semantic levels, and their translations. Emphasis will be placed on prosodic translation and the meaning of the lyrics. *Prerequisite: FR 300.*

**TR 495. Internship in Translation, Interpreting or Terminology. 3 credits.**

Real experience in a translation bureau, an in-house translation department, or any other business/government entity needing translation services. The internship leads to a report, which is evaluated by a panel. *Prerequisites: TR 300 and at least one specialized translation class. Permission of the instructor.*

**TR/SPAN 496. Translation/Interpreting Internship. 3 credits.**

Practical experience in translation or interpreting within a public agency, non-profit or private business. Periodical reports and a final paper are required for the course. The student will be supervised by a faculty member. *Prerequisites: TR/SPAN 435 or TR/SPAN 436.*

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## Theatre

**THEA/DANC 100. Theatre and Dance Colloquium. 0 credits.**

Weekly department colloquium; work in progress presented, viewed and discussed by student body, faculty and guests. Professionals in the field frequently hold master classes. All majors in the School of Theatre and Dance are required to enroll in and pass two semesters in the freshman/first transfer year and two additional semesters during the student's progression in their major. *Prerequisite: Admission to the School of Theatre and Dance.*

**THEA/DANC 171. Performance Production. 3 credits.**

An introduction to the methods of the production of scenery, properties, costumes, lighting, sound and performance management for theatre and dance performance. Instruction in the skills required for the operation of associated tools and equipment and instruction in the skills required for the operation of lighting and sound equipment will be taught. Students are required to complete a main stage running crew assignment as a component of this course.

**THEA 190. Topics in Theatre. 1-3 credits, repeatable to 6 credits.**

Study of the practice of the various aspects of theatre. Emphasis on applied projects structured to provide technical and performance experience. Offered in summer session only with the consent of the director and the instructor. Will not count as credit toward major.

**THEA 200. Theatre Practicum. 1 credit.**

Students will complete practical theatre assignments on main stage productions in the areas of scenery, lighting, costumes, management or performance. Repeatable. Prior approval required. No student may enroll in more than one THEA 200 per block. Majors may apply a maximum of four credit hours of THEA 200 or THEA 300 in combination toward meeting major requirements.

**THEA 204. Theatre Practicum: Scenery. 1 credit.**

Students will complete practical theatre assignments on main stage productions in the area of scenery. Repeatable. Prior approval required. No student may enroll in more than one THEA 204-208 course per block. Majors may apply a maximum of one THEA 204 credit toward meeting major requirements and a maximum of four credit hours of THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 205. Theatre Practicum: Lights. 1 credit.**

Students will complete practical theatre assignments on main stage productions in the area of lighting. Repeatable. Prior approval required. No student may enroll in more than one THEA 204-208 per block. Majors may apply a maximum of one THEA 205 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 206. Theatre Practicum: Costumes. 1 credit.**

Students will complete practical theatre assignments on main stage productions in the area of costumes. Repeatable. Prior approval required. No student may enroll in more than one THEA 204-208 per block. Majors may apply a maximum of one THEA 206 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 207. Theatre Practicum: Management. 1 credit.**

Students will complete practical theatre assignments on main stage productions in the area of management. Repeatable. Prior approval required. No student may enroll in more than one THEA 204-208 per block. Majors may apply a maximum of one THEA 207 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 208. Theatre Practicum: Performance. 1 credit.**

Students will complete practical theatre assignments on main stage productions in the area of performance. Repeatable. Prior approval required. No student may enroll in more than one THEA 204-208 per block. Majors may apply a maximum of one THEA 208 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 210. Introduction to Theatre. 3 credits.**

Study of the theatre as an art form. Emphasis on introducing students to a broad spectrum of theatrical activity and opinion. Consideration of the components that comprise a theatre event including acting, directing, design, costuming, lighting and playwriting. May be used for general education credit. May not be used for major credit.

**THEA 211. Performance Analysis. 3 credits.**

Plays are examined as texts for performance. Theories of performance and methods for the analysis of performances in and out of the theatre are studied.

**THEA/DANC 250. The Collaborative Artist: Sophomore Studio. 3 credits.**

The course explores the creative and collaborative processes within the development of performance events. Emphasis is placed upon the role of the artist as a social and artistic force in society. Studio-based creative explorations along with the viewing and discussion of live and recorded performances are integral to the course in order for students to investigate, experience, and devise collaboratively within the context of various performance forms across multiple disciplines and cultures. *Prerequisite: Sophomore standing.*

**THEA 251. Acting I: Basic Acting. 3 credits.**

A study of basic acting as a performance experience. Emphasis on fundamentals of performance including concentration, transitions, interaction and the structuring of action.

**THEA 253. Musical Theatre Laboratory. 1 credit.**

Introduction to issues related to musical theatre through music and text analysis, vocal technique and practice of the repertoire. Topics relating to vocal and physical health, professional practice and musical theatre resources will also be covered. May be repeated once for credit. *Prerequisite: Admission to the musical theatre major.*

**THEA 261. Voice for the Stage. 3 credits.**

Theories and exercises designed to equip the student with proper speech for the stage through a fundamental understanding of phonetics and articulation.

**THEA 271. Technical Theatre. 3 credits.**

Study of the technical aspects of stage production. Emphasis upon practical experience in the use of stage and shop facilities. Consideration of the physical theatre and stage, construction, painting and rigging of scenery as applied to theatrical production.

**THEA 273. Design Aspects of Performance.** *3 credits.*

Study of the interrelationship between the playwright, director and actor with the scenic, lighting and costume designers; introduction of the basic documents of the design process; survey of current and historical trends in theatrical design; no artistic or technical skills necessary.

**THEA 281. Movement for the Actor.** *3 credits.* Students in this course develop and refine movement skills for stage performance. Through a study of various approaches, such as Viewpoints, Animal Work, and Laban Techniques, students develop methods of artistic expression using their whole body. Through movement, students discover new connections to speech and text and improve the condition, flexibility, and responsiveness of their physical instrument. Students also develop the means for making effective physical choices in the creation of a performance.

**THEA 300. Theatre Practicum.** *1 credit.*

Students will complete practical theatre assignments on main stage productions in the areas of scenery, lighting, costumes, management or performance. Repeatable. Prior approval required. No student may enroll in more than one THEA 300 per semester. Majors may apply a maximum of four credit hours of THEA 200 or THEA 300 in combination toward meeting major requirements.

**THEA 303. Topics in Theatre.** *1-3 credits, repeatable to 6 credits.*

Study of current topics and issues in theatre. Emphasis on contemporary themes of immediate concern. *Prerequisite: Permission of the instructor.*

**THEA 304. Theatre Practicum: Scenery.** *1 credit.*

Students will complete practical theatre assignments on main stage productions in the area of scenery. Repeatable. Prior approval required. No student may enroll in more than one THEA 304-308 course per semester. Majors may apply a maximum of one THEA 304 credit toward meeting major requirements and a maximum of four credit hours of THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 305. Theatre Practicum: Lights.** *1 credit.*

Students will complete practical theatre assignments on main stage productions in the area of lights. Repeatable. Prior approval required. No student may enroll in more than one THEA 305 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 305 in combination toward meeting major requirements.

**THEA 306. Theatre Practicum: Costumes.** *1 credit.*

Students will complete practical theatre assignments on main stage productions in the area of costumes. Repeatable. Prior approval required. No student may enroll in more than one THEA 304-308 course per semester. Majors may apply a maximum of one THEA 306 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 307. Theatre Practicum: Management.** *1 credit.*

Students will complete practical theatre assignments on main stage productions in the area of management. Repeatable. Prior approval required. No student may enroll in more than one THEA 304-308 course per semester. Majors may apply a maximum of one THEA 307 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 308. Theatre Practicum: Performance.** *1 credit.*

Students will complete practical theatre assignments on main stage productions in the area of performance. Repeatable. Prior approval required. No student may enroll in more than one 304-308 course per semester. Majors may apply a maximum of one THEA 308 credit toward the major requirements and a maximum of four credit hours THEA 204-208 or THEA 304-308 in combination toward meeting major requirements.

**THEA 310. Theatre for Young Audiences.** *3 credits.*

Study of the principles, contemporary trends and practical techniques involving the production of theatrical materials for young audiences.

**THEA 315. The European Theatre Tradition to 1800.** *3 credits.*

The history of the European theatre tradition from its beginning in Athens to the 18th century is studied with respect to theatre architecture, scene and costume design, political and social context, intellectual climate, and the theory and history of acting. *Prerequisite: THEA 211.*

**THEA 316. The European Theatre Tradition from 1800.** *3 credits.*

The history of the European theatre tradition from the 18th century to the present is studied with respect to theatre architecture, scene and costume design, political and social context, intellectual climate, and the theory and history of acting. *Prerequisite: THEA 211.*

**THEA 320. Theatre Teaching Methods – Primary Level.** *3 credits.*

An exploration of teaching theatre in the primary grades. Topics include effective theatrical pedagogy, ways of using theatre to enhance and reinforce the core curriculum, behavior management and strategies for adapting instruction according to age, ability, and cultural diversities. Critical selection of teaching materials and modes of self and student assessment are also highlighted. Finally, this course addresses practical strategies for mounting school-based theatrical productions.

**THEA 321. Theatre Teaching Methods – Secondary Level.** *3 credits.*

An exploration of teaching theatre in the secondary grades. Topics include effective theatrical pedagogy, ways of using theatre to enhance and reinforce the core curriculum, behavior management and strategies for adapting instruction according to age, ability, and cultural diversities. Critical selection of teaching materials and modes of self and student assessment are also highlighted. Finally, this course addresses practical strategies for mounting school-based theatrical productions.

**THEA 325. Theatre Teaching Practicum.** *3 credits.*

The pre-service theatre teacher's introduction to the classroom prior to full-time student teaching. The goal is to develop competencies in creating classroom climate, classroom management, lesson planning, instructional strategies, and professionalism. Practicum students complete 40 hours in the classroom observing certified mentor teachers, participating in co-teaching, and design, teach, and reflect on at least one lesson independent of the mentor teacher. *Prerequisites: THEA 320 and THEA 321.*

**THEA 331. Technical Costuming.** *3 credits.*

Introduction to the technical aspects involved in building complete costume ensembles for the stage, screen and dance. Emphasis placed on experiencing unique problems in production situations, including specialized costume and accessory construction, ornamentation, fabric treatment, difficulties, and alternatives in presenting historical clothing and renovating and exploiting available materials. *Prerequisites: THEA 171 and THEA 206 or THEA 306, or permission of the instructor.*

**THEA 332. Costume and Fashion History.** *3 credits.*

A survey of Western world costume from 4000 B.C. to the present as it reflects the sociocultural and socioeconomic aspects of the times. Emphasis on the evaluation of historic costume and fashion in relation to architecture, sculpture, painting and other art forms.

**THEA 333. Costume Design.** *3 credits.*

The study of basic costume design techniques for performance. Emphasis on costuming in terms of the total production concept including directorial approach, setting and lighting design. Consideration of the process of costuming a production from first production meetings to opening.

**THEA 336. History, Theory and Practice of Stage Makeup.** *3 credits.*

Study of the history and practice of makeup for ceremonial and theatrical presentations of selected major cultures, from ancient Egypt to the present. Consideration given to makeup as a reflection of the social organization of each culture. Emphasis on makeup as an important element in the history of design aesthetics as well as a vital part of the performing arts.

**THEA/ENG 347. Playwriting.** *3 credits.*

Study of the process of writing plays. Consideration of plot, character, thematic material, conflict and dramatic structure. Emphasis on individual writing assignments.

**THEA 351. Acting II: Intermediate Acting.** *3 credits.*

Study of the fundamental theories and methods of acting. Emphasis on laboratory experience in the preparation of scenes. Consideration of various acting techniques through performance with maximum individual on-stage instruction. *Prerequisite: THEA 251 or permission of the instructor.*

**THEA 353. Music Theatre Performance.** *2 credits.*

Introductory course exploring the fundamentals of song analysis technique in the preparation of music theatre repertory for performance. Emphasis on solo song preparation. Basic music skills and singing ability are highly recommended. *Prerequisite: THEA 251 or permission of the instructor. Audition may be required.*

**THEA 354. Music Theatre Workshop.** *1 credit.*

The preparation of Musical Theatre repertory for public performance. Emphasis on the application of the tools acquired in THEA 251, THEA 353, and other theatre, music and dance skill classes. Students may participate as a performer, or as a member of the production/artistic team. *Prerequisite: Admission is by audition/interview only.*

**THEA 355. Directing for the Theatre. 3 credits.**

Study of the principles, problems and techniques of play direction. Emphasis on historical and modern theories. Techniques of direction considered as applied to the stage and cinematography. *Prerequisites: THEA 251 and either THEA 210 or THEA 211.*

**THEA/MUS 357. Music Theatre History and Analysis. 3 credits.**

Survey of musical theatre genres, composers, lyricists, performers, directors and choreographers in America from 1750 to the present. Includes practical study of the format of the libretto and musical score in relationship to the major musical theatre genres. Consideration of how music theatre developed from and reflected the cultural, social and political landscape of its time.

**THEA 371. Advanced Technical Theatre. 3 credits.**

Advanced study of the technical aspects of stage production. Emphasis upon contemporary scenographic techniques. Consideration of construction, decoration, rigging and touring problems in theatre production. *Prerequisite: THEA 171 or permission of the instructor.*

**THEA 372. Scene Painting. 3 credits.**

An introduction to the foundational techniques of scene painting, presented through a series of practical projects designed to provide students with the skills to achieve the core processes of scene painting.

**THEA 373. Drafting for the Stage. 3 credits.**

An introduction to the foundational techniques of drafting for the stage, presented through a series of 8 practical drafting projects designed to provide students the skills to produce ground plans, elevations and sections in both pencil and CAD drafting environments. *Prerequisites: THEA 171 and THEA 273, or permission of instructor.*

**THEA 374. Stage Lighting. 3 credits.**

Study and analysis of stage lighting. Consideration given to basic elements of electricity, electrical control and circuitry, reflection, refraction and color. Emphasis on the lighting design and aesthetics of a theatrical production.

**THEA 375. Sound Design. 3 credits.**

Study and analysis of the aural environment for theatre. Emphasis placed on sound design process and the methods and tools available to sound designers. Consideration given to the various mediums of sound design through in-class projects.

**THEA 376. Scene Design. 3 credits.**

Study and analysis of the visual elements of theatrical production. Emphasis on the principles and elements of design, drafting and rendering. Consideration of the aesthetics of stage design through specific applied projects.

**THEA 382. Contemporary Theatre. 3 credits.**

Study of post-1968 world theatre with particular attention to English and American drama. Emphasis is placed on significant drama of the last 25 years with discussion of trends in theatrical production and dramatic writing in recent decades.

**THEA 390. Directed Projects. 1-3 credits, repeatable to 6 credits.**

Supervised projects related to the study of theatre. Credit given for original, individual or group programs beyond the usual course offerings in theatre. A suitable completed project or report is required before credit can be awarded. *Prerequisite: Permission of the director.*

**THEA 441. Senior Seminar in Theatre. 3 credits.**

A capstone course covering career preparation, practices in the professional theatre, and other theatre related topics of interest. Students will spend the semester developing a research project related to their study in the major. *Prerequisites: Senior standing and admission to the major.*

**THEA 442. Senior Seminar. 1 credit.**

A capstone course covering career preparation, practices in the professional theatre and other theatre related topics of interest. This is a single semester seminar for students in the Honors Program to be taken concurrently with THEA 499C. *Prerequisites: Senior standing and admission to the major.*

**THEA/ENG 447. Advanced Playwriting. 3 credits.**

An advanced workshop with emphasis on developing full-length dramatic material.

**THEA 449. London Theatre. 3 credits.**

Study of London theatre. Consideration given to current productions of classic and contemporary works. Emphasis on production elements including acting, directing, design, writing and economic considerations. *Prerequisite: Semester-in-London students only.*

**THEA 450. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits.**

Introduction to the interdisciplinary studio through discussion of the history of interdisciplinary art and exposure to contemporary examples from dance, theatre, music, creative writing, visual art, film and video. Emphasis on production of original work that evidences the use of another media or collaborative work by artists from different disciplines. *Prerequisites: Permission of the instructor(s) and advanced skill level in one or more of the creative arts.*

**THEA 451. Meisner Technique Intensive. 3 credits.**

Intensive study and practice of the Meisner Technique. Emphasis on the foundational steps of the technique to develop advanced listening, imaginative, and interactive skills as a means for fostering effective habits for creative freedom and improvisational spontaneity. Practice in fully doing, truthful personal investment, and honest availability to oneself and a partner within heightened circumstances. *Prerequisites: THEA 351 and permission of the instructor.*

**THEA 452. Acting III: Contemporary Scene Study. 3 credits.**

Study of advanced acting technique through the analysis, discussion and presentation of contemporary scenes. Emphasis on developing tools to improve the pursuit of an intention, partnering and moment-to-moment work. *Prerequisites: THEA 351 and permission of the instructor.*

**THEA 453. Acting IV: Approaches to Heightened Language. 3 credits.**

Advanced study of script analysis and performance technique in multiple genres exploring heightened dramatic text. Exploration will be through individual and group assignments. Emphasis on practical tools including scansion, imagery work and the translation of text into active physical choices. *Prerequisites: THEA 452 and permission of the instructor.*

Continuation of THEA 353 emphasizing more complex problems in music theatre performance including duets, trios, musical scenes. *Prerequisite: THEA 353. Audition may be required.*

**THEA 455. Auditioning for Musical Theatre. 2 credits.**

Advanced study of auditioning technique for the professional musical theatre. Emphasis on developing appropriate musical theatre audition repertory. Unions, audition formats, performance opportunities, routes to a professional career, agents and managers will also be covered. *Prerequisite: THEA 353. Audition may be required.*

**THEA 460. Auditioning and Professional Issues. 3 credits.**

Study of advanced audition techniques for the stage. Emphasis on the selection, scoring and performance of monologues. Consideration of professional issues in regard to graduate-level study or professional work in performance. *Prerequisites: THEA 453 and permission of the instructor.*

**THEA 466. Media Performance. 3 credits.**

Study of the principles and techniques of dramatic performance for the camera and microphone. Emphasis on the adaptation of each student's performance and production skills to the recording and filming of narrative works. Consideration of the differing problems and potentials of stage, video and film presentations. *Prerequisites: THEA 452 and permission of the instructor.*

**THEA/DANC 471. Stage Management. 3 credits.**

Study and analysis of stage management. Consideration given to the methods and strategies for successful stage management for theatre, dance and other performances. Emphasis on developing management and organizational skills. *Prerequisite: THEA 171.*

**THEA 473. Advanced Design and Rendering. 3 credits.**

Advanced study in design for performance through theoretical production planning. Instruction in illustration and presentation methods necessary to communicate scenery, costume and lighting designs for performance. Emphasis is placed on the collaborative interaction between the production designers and the director or choreographer toward the creation of unified design.

**THEA 480. Student Teaching. 3-12 credits.**

Enables students to apply, in the public school classrooms and the comprehensive child development programs, those skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors, students are provided activities designed to familiarize them with the classroom teacher's role. *Prerequisites: PSYC 160, EDUC 300 or EDUC 360, appropriate methods courses, and permission of the coordinator of field experiences.*

**THEA 481. Theory and Performance Studies. 3 credits.**

Twentieth and 21st century theories and performance are studied and performance traditions outside of Europe are examined. *Prerequisite: THEA 211.*

**THEA 485. American Theatre. 3 credits.**

Study and analysis of the American theatre experience as presented in the dramatic literature of the country. Emphasis on basic American themes. Consideration of plays, playwrights and performers significant to the development of American theatre.

**THEA 488. Experimental Theatre. 3 credits.**

Focus on key figures of avant-garde and experimental theatre from the late 20th and early 21st centuries. Explores the motivations, concepts, and creative techniques behind innovations in post-dramatic and devised theatre. As part of developing theoretical and historical understanding, students practice different methods of devising, collaborating, and conceptualizing theatrical performance, culminating in an original presentation of student work.

**THEA 490. Special Studies in Theatre. 1-3 credits.**

An independent study for students to pursue individual research under the guidance of a faculty adviser. *Prerequisites: Senior theatre majors in good standing and permission of the director.*

**THEA 495. Internship in Theatre. 3-6 credits.**

A faculty-arranged, prepared and monitored off-campus internship program designed to provide practical experience in theatre for students preparing for careers in those areas. *Prerequisite: Permission of the director.*

**THEA 499. Honors in Theatre. 1-3 credits.**

Repeatable to a maximum of six credits. Offered fall and spring.

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## University Studies

**UNST 102. Career and Academic Planning. 1 credit.**

A course designed to prepare students for career and academic planning. Specific content includes accessing career and academic resources, career decision-making skills and self-awareness.

**UNST 150. Global Learning and Living: Madison International. 1 credit.**

This course provides an opportunity for a diverse cohort of international and U.S. students to learn from and about each other through stimulating discussions, intercultural residence hall programs and the opportunity to participate in service learning. *Prerequisite: Participation in the Madison International Learning Community or permission of the instructor.*

**UNST 151. Making Sense of Beliefs and Values: A Guided Tour for Global Citizens. 3 credits.**

This course explores the origin and nature of beliefs and values and how they are linked to actions, policies and practices around the world. These processes are examined through a range of big picture issues (e.g., religious, political, environmental, gender-based, cultural) that are relevant to all global citizens. Through dynamic speakers, discussions, readings, activities and lectures, this course helps students develop a deeper understanding of self, others and the larger world. *Prerequisite: Participation in the Madison International Learning Community.*

**UNST 250. Alternative Break Leadership Training. 1 credit.**

A leadership training curriculum that covers a broad range of topics essential to leading an Alternative Break trip. This course incorporates service learning pedagogy. This will be accomplished through the use of affective and cognitive approaches. Personal growth as it relates to core concepts of leadership will be prominent. Emphasis is also placed on peer interaction, active participation, extensive reading, case work and a range of guest speakers. Attendance is required. *Prerequisite: Permission of the instructor.*

**UNST 251. Alternative Break Leadership Practicum. 1 credit.**

Hands-on practicum of leadership strategies and techniques. Collaborative learning is enhanced when students apply what they learn in class by describing relevant lessons learned through experiences outside the classroom. The focus of this course is to provide students with the opportunity to lead in an observed setting and receive constant feedback and mentoring on their demonstrated leadership skills, critical reflection, inquiry, dialogue and group interaction. *Prerequisite: UNST 250.*

**UNST 307. Health Education Facilitation and Synthesis. 2 credits.**

UNST 307 is a two-credit course designed to provide students with skills and knowledge to be effective peer health educators. Students will receive health content knowledge while increasing their group facilitation, presentation and processing skills.

**UNST 389. Campus Health Communication. 2 credits.**

This course provides students an opportunity to learn about, create and communicate messages about health and wellness topics. Students develop the content produced in the campus publication Potty Mouth. Students develop skills in media literacy, self-directed learning and systems thinking, and they

create media products. Through group discussion and interviews, students learn how to effectively communicate health behaviors to their peers.

**UNST 390. Special Studies in University Studies. 1-3 credits.**

Designed to give students an opportunity to complete independent study and/or research under faculty supervision in university studies. *Prerequisite: Permission of the instructor.*

**UNST 398. Practicum in University Studies. 1-3 credits.**

Selected practicum experiences, which provide students with supervised practicum experiences. *Prerequisite: Permission of the instructor.*

**UNST 475. Dollars and Sense. 3 credits.**

This practical course will review the affect a personal philosophy on money, and management of personal finances, has on all aspects of life when it comes to securing the American Dream. Students will learn real life skills in the areas of eliminating debt, creating a budget, understanding investments and insurance, saving money, planning for retirement, shopping for a house and other topics dealing with financial issues faced in daily life.

**UNST 480. Internship Preparation, Participation and Professionalism. 1-3 credits.**

This course provides preparation, support during and reflection after internship experiences in a variety of disciplines. It will cover the internship experience, professionalism, networking and reflection. Open to all majors for elective credit. *Prerequisite: Permission of the instructor.*

**UNST 490. Advanced Special Studies in University Studies. 1-3 credits.**

Exploration of a significant topic in depth. *Prerequisite: Permission of the instructor.*

**UNST 498. Internship in University Studies. 1-6 credits.**

The course allows students to receive academic credit for work experienced in an agency or organization related to university studies. *Prerequisite: Permission of the instructor.*

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## Vocational Education

**VOED 383. Curriculum and Instructional Procedures in Vocational Education. 3 credits.**

The study and development of techniques and methods to provide vocational education instruction to secondary school students. Competencies to be developed will include planning for instruction, applying different methodologies and assessing student performance and progress. The relationship of vocational education to other curricular areas will also be addressed.

**VOED 490. Special Studies in Vocational Education. 1-3 credits.**

In-depth examination of selected topics that are current and relevant in the field of vocational education. Offered with the approval of the program director. Course may be repeated for credit when the content included changes.

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## Women's and Gender Studies

**WGS 200. Introduction to Women's and Gender Studies. 3 credits.**

Cross disciplinary introduction to theories and scholarship in Women's and Gender Studies. Examines the social construction of gender, how gender affects access to opportunity, and the experiences and contributions of women throughout history. Provides a foundation for subsequent work in the women's and gender studies minor.

**WGS 300. Special Topics in Women's and Gender Studies. 3 credits.**

Examination of selected topics of importance to the field of women's and gender studies.

**WGS/SCOM 302. Third Wave Ecofeminism. 3 credits.**

This course explores the historically strong association between women and nature, in which the image of Mother Earth is central, and critiques the power-as-domination assumption of our culture shown in the exploitation of women and of the earth itself. Religious, psychological, social, historical and scientific manifestations of this assumption will be examined, along with alternative models of power and responsibility. Students will explore the considerable research on ecofeminism.

**WGS 325. Gender and Violence. 3 credits.**

This course explores the public nature of private violence, specifically violence committed against women in U.S. culture. Students will investigate the social, political and personal meaning of violence within a gendered context. Throughout the course students will analyze the ways in which demographic, social, cultural, economic and political factors teach us to think about women in violent terms as well as help perpetuate violence against women. Students will consider violence not only in its physical dimension, but also in its symbolic and structural

manifestations. Students will also examine the ways in which ideas about race, ethnicity, class, and sexuality affect the degree and types of violence committed against women.

**WGS/SOCI 337. Sociology of Gender.** *3 credits.*

Examination of theories of sex role development, the roles of men and women in society and gender as a social construction.

**WGS/JUST 341. Gender and Justice.** *3 credits.*

This course is an interdisciplinary examination of the causes, structure and consequences of gender oppression. Consistent with the social justice track of the major, notions of fairness, justice and equality with respect to gendered social, political and economic relations will be examined.

**WGS/SCOM 348. Communication and Gender.** *3 credits.*

Study of theories and research regarding the influence of gender in various human communication contexts, both public and private. Emphasis on the critical analysis of existing theory and empirical research and the potential competent uses of communication for social change. *Prerequisite:* SCOM 121, SCOM 122, or SCOM 123.

**WGS/PHIL 350. The Philosophy of Feminism.** *3 credits.*

An intermediate-level examination of philosophical problems in feminist theory and feminist contributions to philosophy.

**WGS 355/MSCI. American Women at War.** *3 credits.*

This course invites students to engage a series of issues about the role of women in the US military. This course will examine the contributions & experiences of women who served during the American Revolution, the U.S. Civil War, WW I & II, Korea, Vietnam and the Persian Gulf War(s). Also included in this course is an examination of how women in military service both past and present are an instrument for societal change in America specifically in promoting the cause of women's rights.

**WGS/ENG 368. Women's Literature.** *3 credits.*

A study of literature by women.

**WGS/ENG 369. Feminist Literary Theory.** *3 credits.*

An intensive study of a variety of feminist critical approaches and their applications to literature.

**WGS/ENG 370. Queer Literature.** *3 credits.*

An exploration of texts and issues in literature written by and about gay and lesbian writers, including critical and theoretical issues as well as questions of canon. Text studied may include fiction, poetry, drama, essays and memoirs written primarily, but not exclusively, in the 20th century.

**WGS/ANTH 376. Anthropology of Reproduction.** *3 credits.*

This course provides students with a critical and cross-cultural perspective on human reproduction. Examining how individuals draw on social and symbolic resources to sort out complicated private decisions, we will discuss how reproductive experiences are embedded in local, national and transnational politics. Topics covered may include: cross-cultural perspectives on childbearing and childlessness, kinship, and the globalization of new reproductive technologies such as in vitro fertilization. *Prerequisites:* ANTH 195 or permission of the instructor.

**WGS/POSC 383. Women and Politics in Comparative Perspective.** *3 credits.*

A study of the causes and consequences of women's political marginalization in the United States and abroad. The course examines socioeconomic and political dimensions of gender inequality, exploring how women have worked through social movements, electoral politics, and public policy initiatives to overcome obstacles to their political empowerment.

**WGS 400. Issues and Research in Women's and Gender Studies.** *3 credits.*

The capstone seminar for the Women's and Gender Studies minor. Focuses on readings in feminist philosophy, history and literature. Students will engage in research in critical issues affecting women's lives. *Prerequisites:* WGS 200 and nine hours in the Women's and Gender Studies minor.

**WGS/HTH/NSG 417. Women's Global Health and Human Rights.** *3 credits.*

An international and human rights approach providing an overview of health issues within the context of a woman's life cycle. Attention will be given to critical issues of women's health such as access to health care and gender based violence. Such issues as sexuality, nutrition, diseases affecting women, violence, harmful traditional practices, and sex trafficking will be discussed.

**WGS/SCOM/WRTC 420. Feminist Rhetorics.** *3 credits.*

Surveys key women figures in classical and contemporary rhetorical traditions and challenges the strategies used to historicize this tradition from feminist perspectives. Explores diverse feminist rhetorical discourses informed by race, sexual orientation, ethnicity and social class. *Prerequisite:* Junior or senior standing.

**WGS/ENG 466. Studies in Women's Literature.** *3 credits.*

Advanced study of women's literary achievements in several cultural and historical contexts. May be focused by theme. *Prerequisite:* ENG 367 or ENG 368.

**WGS/ISAT 485. Gender Studies in Science.** *3 credits.*

An interdisciplinary course that looks at the scientific process, science practitioners and science students through the lens of gender analysis. Students read literature, lead discussions, perform experiments and analyze both data and processes to address the effects of educational systems on the preparation and careers of scientists, the influence of politics and culture on scientific inquiry, and the effects of critiques grounded in gender analyses on understanding the scientific process.

**WGS 490. Independent Studies in Women's and Gender Studies.** *3 credits.*

Designed to give capable students in women's and gender studies an opportunity to complete independent study under faculty supervision. *Prerequisites:* Admission by recommendation of the instructor and permission of the program coordinator.

**WGS 492. Internship in Women's and Gender Studies.** *1-3 credits.*

Provides the student with practical experience in employing and refining women's and gender studies concepts in a public or private agency, under faculty supervision. *Prerequisites:* Nine hours of Women's and Gender Studies courses, including WGS 200.

**WGS 495. Special Topics in Women's and Gender Studies.** *3 credits.*

In-depth examination of selected topics of current importance to the field of women's and gender studies. Offered only with approval of the program coordinator and dean of the College of Arts and Letters. May be repeated for credit when course content changes. *Prerequisite:* WGS 200 or consent of instructor.

## Writing, Rhetoric and Technical Communication

**WRTC 103. Critical Reading and Writing.** *3 credits.*

Fosters reflective, critical reading, writing and research in public discourse, culture, humanities, technology, and science. Challenges students to consider cross-disciplinary modes of inquiry through multiple genres with an attention to enlightened, global citizenship. Emphasizes revising for rhetorical effectiveness. WRTC 103 fulfills the General Education Cluster One writing requirement and is a prerequisite for all WRTC courses numbered 200 or above. May be used for general education credit. May not be used for major credit.

**WRTC 200. Introduction to Studies in Writing, Rhetoric and Technical Communication.** *3 credits.*

Initial core course and portal of entry into the School of Writing, Rhetoric and Technical Communication. Students will read and discuss foundational articles, undertake course projects and explore the roles that writers, rhetoricians and technical communicators are called upon to fill in their internships and jobs. *Prerequisite:* WRTC 103 or equivalent.

**WRTC 201. Theory and Methods in Writing, Rhetoric and Technical Communication.** *3 credits.*

Introduction to the theories and methodologies employed by practitioners in writing, rhetoric and technical communication. Emphasis is placed on methods of inquiry in the discipline. Primary topics include major theoretical perspectives and theorists; the relationship of research to disciplinary knowledge; and the dynamic nature of language and communication. *Prerequisite or corequisite:* WRTC 200 or permission of the instructor.

**WRTC 300. Professional Editing.** *3 credits.*

Introduction to the conceptual and technical editing of a wide range of documents for diverse audiences and different purposes. Consideration of genre, tone, style and syntax. Students will learn to interact with authors and clients and will practice both hard copy and electronic editing. Course topics allow students to encounter a wide range of editorial experiences to prepare them for the workplace. *Prerequisites:* WRTC 200 and WRTC 201 or permission of the instructor.

**WRTC 301. Language, Law and Ethics.** *3 credits.*

Broad examination of the nexus of law, ethics and language. Exploration of a variety of genres in legal writing, providing a background in the role of law and ethics in society and helping students understand how language operates in the construction of legal and moral codes. Primary topics include intellectual property, privacy, legal issues in communication, the history of legal language and the ownership and ethical use of information. *Prerequisites:* WRTC 200 and WRTC 201 or permission of the instructor.

**WRTC 310. Semiotics. 3 credits.**

Systematic approach to the production of meaning and interpretation with analytical examination of semiotic signs as aggregates of information management and communication. Complexity of meaning in communication conduits, speech, texts, images, symbols, codes, icons, media designs, gestures, music and objects are investigated. Also explored is the relationship between semiotic sign systems and ecosocial systems as they impact information management and production in society. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 312. Studies in Literacy. 3 credits.**

Advanced research and writing course designed to explore the important roles that literacy plays in society. Students will examine the concept of literacy through historical, political, sociological, educational and cross-cultural lenses. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 314. Writing in the Public Sphere. 3 credits.**

Introduction to the concept of the public sphere and an examination of a variety of texts and media that illustrate the function of the public sphere. Students apply theoretical knowledge to the analysis of public discourse and present their analyses in oral and written formats. Students gain important insights into their own roles and responsibilities as citizens within the public sphere and learn to use language effectively in multiple rhetorical situations. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 316. Research Methodologies in WRTC. 3 credits.**

Introduction to the process of conducting research grounded in inquiry. Students use a variety of research methodologies to gather information from secondary and primary sources. Students evaluate information for accuracy and usability and interpret information for the audience and rhetorical context they have defined. Students in this course design a research study, carry it out and write a subject appropriate report. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 318. Intercultural Professional Communication. 3 credits.**

Focus on the importance of culture to professional communication, both in print and online, by using an intercultural perspective to examine audience, purpose, persona, context, language, page and screen design, graphics and color. Includes a consideration of basic models of culture developed in professional environments, incorporating management, teamwork and translation issues, as well as how American culture differs from other cultures worldwide. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 326/SCOM 354. Environmental Communication and Advocacy. 3 credits.**

An exploration of the multifaceted aspects of environmental controversies including the rhetoric, advocacy campaigns and decision-making processes that produce and attempt to manage environmental conflict. Emphasis on persuasive efforts by, interest groups, corporations, resource managers, government agencies, scientific experts, politicians and citizens to influence public understanding of environmental issues, adoption of sustainable behavior and lifestyles, and public policy outcomes. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 328. Practicum. 1-3 credits per semester, repeatable up to 6 credits.**

Allows students to engage in practical experience opportunities in the field of Writing, Rhetoric and Technical Communication. Students may apply no more than three practicum credit hours toward completion of WRTC major or minor requirements. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 330. Rhetorical Analysis and Criticism. 3 credits.**

Survey and application of a range of rhetorical approaches to analyze print, oral, visual and multimodal forms of everyday communicative practices. Primary topics include the origins of rhetoric, the manifestations of contemporary forms of communication, the rhetorical theories used to explain those forms and the criticisms developed to respond to them. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 332. Computers and Writing. 3 credits.**

Introduction to the interrelationship between composing practices and technology. Emphasis is placed on the importance of the computer and related technologies to the practice of reading and writing. Primary topics include major theoretical perspectives on computers and writing, implications of the computer and digital technologies for the teaching of writing and the nature of the interaction between language and technology. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 334. Introduction to Popular Writing. 3 credits.**

A theoretical and practical overview of the growing field of popular writing. Students will analyze a broad range of genres – including reviews, commentaries, profiles, blogs and ads – from a broad range of publications, including newspapers, magazines and the Web, with the goal of acquiring a critical understanding of the rhetorical aims and practices of popular writing. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 336. Tutoring Writing. 3 credits.**

Integrates the theory and practice of tutoring writing in academic settings and is suited for developing tutors, teachers, consultants and editors. The course includes mentorship and practice in the University Writing Center, and it provides students opportunities to develop as writers, scholars and professionals. Upon completion of the course, students will be eligible for, but not guaranteed, employment in the University Writing Center. *Prerequisites: WRTC 103 and permission of the instructor.*

**WRTC 338. Genre Theory. 3 credits.**

Introduction to key concepts and principles of genre theory, specifically as taken up by scholars and practitioners of writing, rhetoric and technical communication. Students will investigate both academic and nonacademic genres and explore different purposes for writing in a range of appropriate genres. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 340. Writing as Leading. 3 credits.**

Investigation of contemporary leadership theories as they apply to writing; students will apply these principles and techniques to their own writing. The course will explore how writers lead readers and how leaders employ writing and use writers to influence their audiences. Students will gain experience writing in typical leadership genres, such as the position paper and the op-ed piece. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 342. Writing Place. 3 credits.**

Examines the relationship between language and location by analyzing print and virtual rhetorics of the social and natural environment. Students will learn about the rhetorical tradition of place-centered expression and the importance of place in society. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 350. Foundations of Technical Communication. 3 credits.**

Introduction to the major theories, issues and contributors in the field of technical and scientific communication. Students explore global print and electronic communication, ethical and legal issues and the project cycle. Starting with rhetorical analyses of audiences and progressing through deliverables students learn to problem solve through a variety of technical communication projects and develop their career interests in chosen technical communication fields. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 352. Online Design I. 3 credits.**

Introduction to the most recent versions of HTML/CSS coding and industry-standard programs for creating web-friendly images, both vector and pixel based. Students will become familiar with elementary JavaScript coding and responsive web design, and explore app-based possibilities. Assignments are project-based and lead to the creation of online deliverables for various purposes. Emphasis on electronic tools and portfolio projects to prepare students for careers in digital communication. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 354. Document Design. 3 credits.**

Examination of the principles of design and the importance of the project cycle in designing documents. Students use layout and graphics programs to create professional brochures, flyers, posters, newsletters and manuals. Students work individually and collaboratively on their projects, producing excellent portfolio pieces. This course gives students flexibility for a wide variety of career opportunities in business and industry, the non-profit sector and government. *Prerequisite: WRTC 300 or permission of the instructor.*

**WRTC 356. Web Theory and Design. 3 credits.**

Introduction to Web design, emphasizing audience, purpose, structure, accessibility, content and usability. Students analyze, create and redesign effective websites and graphic pieces. Students will also learn how to create Web teams, negotiate contracts and manage large-scale Web projects, adhering to copyright regulations. Using industry accepted applications for Web and graphic design, students in this course have the opportunity to develop several professional portfolio pieces. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 358. Writing About Science and Technology. 3 credits.**

Focus on the development and application of rhetorical strategies and tools used in writing about science and technology for a contemporary, general audience. As citizen-interpreters, students analyze and produce writing designed to make even "hard" science and technology accessible, with particular attention to narrative, to the framing of policy issues and to establishing relevance. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC/SCOM/SMAD 359. Digital Communications Consulting.**

This class will train students to become effective tutors of digital communication. The class will frame that expertise with the training of the best strategies for college tutors, via theory, research and practice. Tutors for the Learning Centers develop vital professional skills: pedagogical aptitude, professional interpersonal communication, and experience with cross-disciplinary perspective on digital texts. *Prerequisites: Admission to the WRTC, SCOM, SMAD major.*

**WRTC 410. Sociolinguistics. 3 credits.**

Exploration of the role of language in society and an in-depth examination of the theoretical discourse and analytical paradigms within which questions of language are premised, analyzed and debated. Course emphasizes two important fields – micro- and macro-sociolinguistics – in dealing with choices in language use and preferences in communication strategy. Focusing on applied linguistics, students learn how to apply their skills in the social engineering of language to their career development. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 412. Language and Information Management. 3 credits.**

Focus on language as the nuclear component of communication and information management. Course presents language as a problem-solving device explored through various fields of language and communication studies. It provides students with management skills in efficient information organization and packaging; innovative approach and delivery; effective analyses of audiences; appropriate choice of media; productive marketing of professional skills; and professional networking. *Prerequisite: WRTC 103 or equivalent.*

**WRTC 414. Major Theorists in WRTC. 3 credits.**

Focused, in-depth study of a specific theorist or scholarly tradition in the discipline. It situates the theorist and his/her work in historical, political, rhetorical and linguistic contexts. Students engage in original research that investigates, converses with and/or builds upon the selected theorist's scholarship. Subject matter varies with each offering. *Prerequisites: WRTC 103 or equivalent and junior/senior standing or permission of the instructor.*

**WRTC 416/SCOM 465. Rhetoric of Environmental Science and Technology. 3 credits.**

An advanced study of the way the public receives, makes sense of, and influences scientific and technical information about environmental issues. Implications of these processes on environmental policy will be analyzed. Readings and assignments will concentrate on the interactions between technical and public spheres of communication, with an in-depth examination of the way the media facilitates the transfer of information between scientific communities and public audiences. *Prerequisites: WRTC 103 or equivalent and junior or senior standing, or permission of the instructor.*

**WRTC/WGS/SCOM 420. Feminist Rhetorics. 3 credits.**

Survey of key women figures in classical and contemporary rhetorical traditions and challenges the strategies used to historicize this tradition from feminist perspectives. Explores diverse feminist rhetorical discourses informed by race, sexual orientation, ethnicity and social class. *Prerequisites: WRTC 103 or equivalent and junior/senior status, or permission of the instructor.*

**WRTC 426. Special Topics in Writing, Rhetoric and Technical Communication. 3 credits.**

Focused, in-depth study of specific areas or subjects in Writing, Rhetoric and Technical Communication. Topics may pertain to issues relevant to the discipline, to the study of particular theories and practices, or to the study of significant figures in the field. Seminars may be repeated for credit when course content changes. *Prerequisites: WRTC 103 or equivalent and junior/senior status, or permission of the instructor.*

**WRTC 430/SCOM 343. Contemporary Rhetorical Theory and Practice. 3 credits.**

Examines contemporary rhetorical theory and practice in relation to specific social, economic and technological changes in the 20th century, with particular emphasis on theoretical frameworks. Students learn about the changing needs of postmodern communicators and how new rhetorical theories have developed to anticipate, respond to, and shape those changes. Also explored is the value of contemporary rhetorical theories for communicative and performative events. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 432. Rhetoric of the Personal Narrative. 3 credits.**

Examination of the rhetorical elements of personal narrative. Students will read examples of personal narratives ranging from essays to longer memoirs and autobiographies, in order to examine questions related to purpose, audience, voice and style. Discussion will include what makes a piece of writing personal, what makes it a narrative and what makes it effective. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 434. Advanced Popular Writing. 3 credits.**

Advanced focus on a particular genre in popular writing, such as reviews, commentaries, opinion pieces, profiles, blogs, or ads. Students will engage with a specific genre to acquire both a critical understanding of its rhetorical aims and practices as well as the skills to practice writing within that genre. Students in this course have the opportunity to develop several professional portfolio pieces. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 436. Teaching Writing. 3 credits.**

Introduces students to the major philosophies, theories and pedagogies of teaching writing. Special attention is devoted to such practical matters as understanding and developing effective writing assignments, methods of responding to student texts-in-progress and evaluating writing. *Prerequisite: WRTC 300 or permission of the instructor.*

**WRTC 450. Digital Rhetoric. 3 credits.**

Introduces the rhetoric of digital design in a variety of contexts. Students learn what makes for effective static and interactive digital designs and practice analyzing and creating digital designs. Student will compose technical documents within diverse traditions, which include digital rhetoric, mixed media and visual rhetoric. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 452. Online Design II. 3 credits.**

Introduction to data basing and adding animation to a website. Students create interactive, professional websites that can include forms, animated buttons, searchable catalogs and splash pages. Students also have the opportunity to work with additional tools for developing creative portfolio pieces. *Prerequisite: WRTC 352 or permission of the instructor.*

**WRTC 454. Publication Management. 3 credits.**

Exploration of the publication production process that addresses the theory and practice of project management for professional print and electronic documents. Students work collaboratively to examine managerial and editorial responsibilities. Topics include defining editorial policy, defining management roles, working with project teams, creating document publication schedules, reviewing and editing submissions for publication and collaborating with authors. *Prerequisite: WRTC 300 or permission of the instructor.*

**WRTC 456. Usability Testing. 3 credits.**

Theoretical and practical study of the product testing of documents and interfaces in a variety of media environments. Students design, plan and conduct tests; code data from the tests; interpret the results and write reports. Students also research and analyze various tests as they learn about the rhetorical aims of document and interface assessment. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 458. Scientific and Medical Communication. 3 credits.**

Introduction to the context and use of language in scientific and medical disciplines. Emphasis is placed on understanding the rhetorical nature of scientific discourse. Primary topics include examining different forms of scientific and medical writing in traditional and digital contexts; the nature of communication within professional communities; and composing texts for general readers. *Prerequisites: WRTC 200 and WRTC 201 or permission of the instructor.*

**WRTC 478. Writing in the Legal Professions. 3 credits.**

Introduction to issues of ethics and law through a community-based learning model. Emphasis is placed on the use of language in legal settings. Primary topics include intellectual-property and fair use; the interrelationship of morals, ethics and laws; and the creation of genre-relevant documents, including briefs and legal summaries. *Prerequisites: WRTC 300 and WRTC 301 and either WRTC 330 or WRTC 350, or permission of the instructor.*

**WRTC 480. Writing for Business and Industry.** *3 credits.*

Introduction to the communication and discourse practices of the business community through a community-based learning model. Emphasis is placed on working directly with a business organization. Primary topics include language and ethics in business; the understanding of audience for business communication; and the creation of business documents, including proposals and business plans. *Prerequisites: WRTC 300 and WRTC 301 and either WRTC 330 or WRTC 350, or permission of the instructor.*

**WRTC 482. Writing for Government.** *3 credits.*

Introduction to the communication and discourse practices of government through a community-based learning model. Emphasis is placed on working directly with a local, state or federal government agency. Primary topics include language and government; interagency communication; and developing typical governmental documents, including white papers, proposals and grants. *Prerequisites: WRTC 300 and WRTC 301 and either WRTC 330 or WRTC 350, or permission of the instructor.*

**WRTC 484. Writing for Nonprofits.** *3 credits.*

Introduction to the nonprofit sector through a community-based learning model. Emphasis is placed on working directly with a nonprofit agency in the local community. Primary topics include the role of the nonprofit in society, especially as an organization for change; creation of internal and public documents, including proposals, grants and publicity materials; and the legal requirements for nonprofit status. *Prerequisites: WRTC 300 and WRTC 301 and either WRTC 330 or WRTC 350, or permission of the instructor.*

**WRTC 486. Writing in the Community.** *3 credits.*

Introduction to political and social engagement at the community level using multiple texts and a community-based learning model. Emphasis is placed on writing, reflection and hands-on service projects with community agencies. Primary topics include an examination of the central role of rhetoric in citizenship, leadership, social justice and social change. *Prerequisites: WRTC 300 and WRTC 301 and either WRTC 330 or WRTC 350, or permission of the instructor.*

**WRTC 488. Writing in the Health Sciences.** *3 credits.*

Introduction to the medical field through a community-based learning model. Emphasis is placed on communication within the medical field and the translation of medical language for lay audiences. Primary topics include the roles of the practitioner and audience in medical communication; power relationships among clinicians and patients; and the creation of medical documents, including reports, proposals and technical articles. *Prerequisites: WRTC 300 and WRTC 301 and either WRTC 330 or WRTC 350, or permission of the instructor.*

**WRTC 490. Independent Study in Writing, Rhetoric and Technical Communication.** *3 credits.*

Individualized projects in Writing, Rhetoric and Technical Communication. Available only to junior or senior majors, though exceptions may be made at the director's discretion. May be repeated with the director's approval when course content changes. *Prerequisites: WRTC 103 or equivalent and junior/senior status and permission of the director.*

**WRTC 495. Internship in Writing, Rhetoric and Technical Communication.** *3 credits.*

Allows students to incorporate field experience with WRTC course work through internships in government, business, industry, or education where they can observe communication processes and apply effective written, interpersonal and public communication skills. Students must complete an application process and be approved before receiving a permission number to enroll in the course (see Internship page on WRTC website for requirements and forms). *Prerequisites: WRTC 300 and WRTC 301, junior/senior status and permission of the instructor.*

**WRTC 496. Capstone in Writing, Rhetoric and Technical Communication.** *1 credit.*

Creation of a portfolio containing the best work of students from their previous WRTC class projects, internships and independent assignments. Through individual consultations with an instructor, students will determine the form and purpose of their portfolios, which will emphasize their range of writing and editing skills as well as the breadth and depth of their rhetorical and technical knowledge. *Prerequisite or corequisite: WRTC 495 or permission of the instructor.*

**WRTC 499. Honors.** *6 credits.*

Year course.

# University Faculty

## Jonathan R. Alger, President, Professor.

B.A., Swarthmore College; J.D., Harvard Law School.

## Linwood H. Rose, President Emeritus, University Professor.

B.A., Virginia Polytechnic Institute and State University; M.S., University of Tennessee; Ed.D., University of Virginia.

## Ronald E. Carrier, President Emeritus, Professor.

B.S., East Tennessee State University; M.S., Ph.D., University of Illinois.

## Mohamed S. Aboutabl, Associate Professor of Computer Science.

B.S., M.S., University of Alexandria (Egypt); M.S. Ph.D., University of Maryland, College Park.

## Thomas R. Adajian, Associate Professor of Philosophy.

B.S., University of Wisconsin, Madison; Ph.D., University of North Carolina at Chapel Hill.

## Andrea H. Adams, Director, Faculty Development and eLearning Programs,;

Assistant Professor, Libraries and Educational Technologies.

B.S., Virginia Polytechnic Institute and State University; M.Ed., James Madison University.

## Melinda J. Adams, Professor of Political Science.

B.A., Emory University; M.A., Ph.D., University of Wisconsin, Madison.

## Regina Adams, Transfer Advising Coordinator, University Advising.

B.A. State University of New York, College at Oswego; M.S. University of Southern Mississippi.

## Aderonke A. Adesanya, Associate Professor of Art History.

B.A.Ed., Obafemi Awolowo University (Nigeria); M.A., Ph.D., University of Ibadan (Nigeria).

## Yonathan Admassu, Assistant Professor of Geology and Environmental Science.

B.S., Addis Ababa University (Ethiopia); M.S., University of Akron; Ph.D., Kent State University.

## Jessica Adolino, Professor of Political Science.

B.A., Fairfield University; Ph.D., The Ohio State University.

## Ehsan Ahmed, Head, Department of Economics; Professor of Economics.

B.A., Punjab University, Lahore (Pakistan); M.A., Government College, Lahore (Pakistan); M.A., Roosevelt University; Ph.D., Michigan State University.

## Jeremy D. Akers, Associate Professor of Health Professions.

B.S., Radford University; M.S., James Madison University; Ph.D., Virginia Polytechnic Institute and State University.

## Geary E. Albright, Assistant Professor of Physics and Astronomy.

B.A., Bates College; M.Ed., M.A., Ph.D., University of Virginia.

## Carlos Galvan Alemán, Associate Professor of Communication Studies.

B.A., M.A., California State University, Fresno; Ph.D., The University of Iowa.

## Melissa Wood Alemán, Professor of Communication Studies.

B.S., New York University; M.A., Ph.D., The University of Iowa.

## Robert W. Alexander, Associate Professor of Political Science.

B.S., Duke University; M.S., M.P.A., Indiana University; Ph.D., Syracuse University.

## Shelley Aley, Associate Professor of Writing, Rhetoric and Technical

Communication.

B.S.Ed., M.A., Southwest Missouri State University; Ph.D., Texas Christian University.

## Cynthia J. Allen, Instructor of Writing, Rhetoric and Technical Communication.

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## 466 James Madison University 2017-2018 Undergraduate Catalog: University Faculty

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## 470 James Madison University 2017-2018 Undergraduate Catalog: University Faculty

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B.S., Seton Hill College; M.S., Ph.D., Virginia Polytechnic Institute and State University.
- Megan E. Tracy**, Associate Professor of Anthropology.  
B.A., Middlebury College; M.A., Syracuse University; Ph.D., University of Pennsylvania.
- Katherine Trammell**, Professor of Dance.  
B.S., James Madison University; M.A., The Ohio State University; M.F.A., Temple University.
- Donna Trimm**, Associate Professor of Nursing.  
B.S.N., Southern Missionary College; M.S.N., University of South Alabama; D.N.S., Louisiana State University.
- David A. Trouille**, Assistant Professor of Sociology.  
B.A., Dartmouth College; M.A., University of Chicago; Ph.D., University of California.
- Laura H. Trull**, Assistant Professor of Social Work.  
B.S.W., James Madison University; M.S.W., University of Minnesota; Ph.D. James Madison University.
- Lisa Tubach**, Professor of Art.  
B.A., Macalester College, M.F.A. Michigan State University.
- Carl J. Ullrich**, Associate Professor of Finance.  
B.S., University of Florida; M.B.A., University of South Florida; Ph.D., University of Maryland.
- Adam Usman**, Assistant Professor of Finance and Business Law.  
B.A., M.B.A. Texas Tech University; Ph.D., Oklahoma State University.
- Anne van Leeuwen**, Assistant Professor of Philosophy.  
B.A. University of Western Ontario; M.A. Queen's University; Ph.D. New School for Social Research.
- William C. Van Norman**, Associate Professor of History.  
B.A., Arizona State University; M.A., Ph.D., University of North Carolina at Chapel Hill.
- Leonard A. Van Wyk**, Professor of Mathematics and Statistics.  
B.A., State University of New York at Potsdam; M.A., University of California, Berkeley; Ph.D., State University of New York at Binghamton.
- Pradeep Vasudevan**, Assistant Professor of Biology.  
M.V.Sc., D.V.M., Kerala Agricultural University; Ph.D., University of Connecticut.
- Jo-Anne van der Vat-Chromy**, Associate Professor of Music.  
B.A., St. Mary's College of Maryland; M.M., Bowling Green State University; Ph.D., Florida State University.
- K. T. Vaughan**, Associate Professor, Libraries and Educational Technologies.  
M.A., Harvard University; M.S.L.S., University of North Carolina at Chapel Hill School of Information and Library Science.
- Bobby Vaziri**, Assistant Professor of Computer Information Systems and Business Analytics.  
B.S.E., University of Michigan; Ph.D., Purdue University.
- Bisi Velayudhan**, Assistant Professor of Biology.  
M.S., University of Connecticut; D.V.M., Kerala Agricultural University; Ph.D., Virginia Polytechnic and State University.
- Andrea L. Veltman**, Professor of Philosophy.  
B.A., Eastern Illinois University; M.A., Ph.D., University of Wisconsin, Madison.
- David S. Vess**, Assistant Professor, Libraries and Educational Technologies.  
B.A., Virginia Commonwealth University; M.L.I.S., University of Illinois at Urbana-Champaign.
- George Vidal**, Assistant Professor of Biology.  
A.B., Harvard University; Ph.D., Stanford University.
- Alexandra M. Vilela**, Associate Professor of Media Arts and Design.  
B.A., Universidade Federal de Minas Gerais; M.B.A., Universidade Federal de Minas Gerais; M.A., Michigan State University; Ph.D., University of Wisconsin-Madison.
- Shanil N. Virani**, Director, John C. Wells Planetarium; Assistant Professor of Physics and Astronomy.  
B.A., B.S., University of Waterloo; M.S., M.Phil., Yale University.
- Johnathan Walker**, Assistant Professor of Interdisciplinary Liberal Studies.  
A.B., University of California, Berkeley; M.A., Syracuse University; Ph.D., University of Georgia.
- Ann H. Wallace**, Associate Professor of Middle, Secondary, and Mathematics Education.  
B.S., University of Georgia; M.S., Portland State University; Ph.D., University of Maryland, College Park.
- Jennifer R. Walsh**, Assistant Professor of Health Professions.  
B.S., M.S., Ph.D., University of Maine.
- Jana R. Walters**, Instructor of Kinesiology.  
B.S., Radford University; M.S., James Madison University.
- D. Brian Walton**, Professor of Mathematics and Statistics.  
B.S., Brigham Young University; M.S., Ph.D., The University of Arizona, Tucson
- Timothy R. Walton**, Associate Professor of Integrated Science and Technology.  
B.A., College of William and Mary; Ph.D., University of Virginia.
- David Wang**, Assistant Professor of Media Arts and Design.  
B.F.A., Drake University; M.F.A. Louisiana Tech University.
- Ping Wang**, Associate Professor of Computer Information Systems and Business Analytics.  
B.S., Northeast University of Technology; M.B.A., Appalachian State University; Ph.D., University of Georgia.
- Xunhua Steve Wang**, Professor of Computer Science.  
B.S., M.E., University of Science and Technology of China; Ph.D., George Mason University.
- Elizabeth Ben Ward**, Assistant Professor of Mathematics and Statistics.  
B.S., Massachusetts Institute of Technology; M.S. George Washington University; Ph.D., University of California at Irvine.
- Lee Ward**, Director, University Health Center; Assistant Professor of Integrated Science and Technology.  
B.S., M.Ed., Salisbury University; M.S. James Madison University; Ed.D., North Carolina State University.
- Beate Warden**, Lecturer of Foreign Languages, Literatures and Cultures.  
B.A., M.A., University of Cologne (Germany).
- Stefanie E. Warlick**, Associate Professor, Professional Librarian, Libraries and Educational Technologies.  
B.A., University of Kansas; M.S.L.S., University of North Carolina at Chapel Hill.
- Deborah L. Warnaar**, Lecturer of Chemistry and Biochemistry.  
B.A., Hope College; Ph.D., Virginia Commonwealth University.
- Debra Polignone Warne**, Professor of Mathematics and Statistics.  
B.S., University of Pittsburgh; M.S., Ph.D., University of Virginia.
- Paul G. Warne**, Professor of Mathematics and Statistics.  
B.A., Ashland University; M.S., James Madison University; Ph.D., University of Virginia.
- Mark J. Warner**, Senior Vice President for Student Affairs and University Planning; Professor of Health Sciences.  
B.A., M.A., Ed.S., James Madison University; Ed.D., University of Virginia.
- Stephanie A. Wasta**, Professor of Educational Foundations and Exceptionalities.  
B.A., Cornell College; M.A., Ph.D., The University of Iowa.

- Linette M. Watkins**, Head, Department of Chemistry and Biochemistry;  
Professor of Chemistry and Biochemistry.  
B.S., Trinity University; Ph.D., University of Notre Dame.
- Colleen Watson**, Instructor of Mathematics and Statistics.  
B.S., M.S., Georgia Institute of Technology.
- Henry Way**, Interim Associate Dean, College of Integrated Science and Engineering; Associate Professor of Integrated Science and Technology.  
B.A., (Hons.) University of Oxford; M.Phil., University of Cambridge; Ph.D., University of Kansas.
- John J.B. Webb**, Assistant Professor of Mathematics and Statistics.  
B.A., Dartmouth College; Ph.D., University of South Carolina.
- Karen Weeks**, Instructor of Nursing.  
B.S.N., Cedar Crest College; M.S.N., University of Phoenix.
- Xuebin Wei**, Assistant Professor of Integrated Science and Technology.  
B.S., Wuhan University (China); M.S., University of Twente (Netherlands); Ph.D., University of Georgia.
- Dee A. B. Weikle**, Associate Professor of Computer Science.  
B.S., Rice University; M.S., Ph.D., University of Virginia.
- Cole H. Welter**, Professor of Art.  
B.F.A., M.F.A., University of Texas at Austin; Ph.D., Texas Tech University.
- Gerald R. Weniger**, Assistant Professor of Health Professions.  
B.S., Lock Haven University of Pennsylvania; M.Ed., University of Virginia; M.P.A.S., James Madison University.
- David L. Wenos**, Professor of Health Professions.  
B.S., Utah State University; M.S., Ph.D., Indiana University.
- Jeanne Z. Wenos**, Assistant Professor of Health Professions.  
B.S., Wheaton College; M.S., P.E.D., Indiana University.
- Maria Theresa Wessel**, Professor of Health Sciences.  
B.S., M.S.Ed., James Madison University; Ed.D., University of Virginia.
- James R. West**, Director, Classroom Technology Services; Assistant Professor Libraries and Educational Technologies.  
M.Ed., James Madison University.
- Emily Westkaemper**, Associate Professor of History.  
B.A., University of Virginia; Ph.D., Rutgers the State University of New Jersey.
- Susan L. Wheeler**, University Counsel; Senior Assistant Attorney General and Special Counsel.  
B.A., M.A., J.D., University of Texas at Austin.
- Marion M. White**, Director, Program of International Business; Associate Professor of International Business; Associate Professor of Management.  
B.A., Ealing Technical College; M.B.A., Marshall University; Ph.D., University of Houston.
- Siân E. White**, Associate Professor of English.  
B.A., University of California, Los Angeles; M.A., Loyola Marymount University; Ph.D., University of Notre Dame.
- William L. White**, Head, Department of Educational Foundations and Exceptionalities.  
B.A., University of Virginia; M.A., Ed.D., West Virginia University.
- Toni S. Whitfield**, Assistant Director, School of Communication Studies; Professor of Communication Studies.  
B.A., M.A., Ed.D., University of West Florida.
- Shelley Whitmeyer**, Instructor of Geology and Environmental Science.  
B.S., University of Rhode Island; M.S., State University of New York at Stony Brook; Ph.D., Boston University.
- Steven Whitmeyer**, Professor of Geology and Environmental Science.  
B.S., University of New Hampshire; Ph.D., Boston University.
- Bruce A. Wiggins**, Professor of Biology.  
B.S., Pennsylvania State University; M.S., Ph.D., Cornell University.
- William H. K. Wightman**, Professor of Art Education.  
B.A., Virginia Wesleyan College; M.F.A., Radford University; Ph.D., The Ohio State University.
- Diane M. Wilcox**, Interim Head and Professor, Department of Learning, Technology and Leadership Education.  
B.B.A., The College of William & Mary; M.A., Ph.D., University of North Carolina at Chapel Hill.
- Anne McCoy Wiles**, Professor of Philosophy.  
B.S.S.S., M.A., Loyola College; Ph.D., University of Virginia.
- Malia Willey**, Assistant Professor, Professional Librarian, Libraries and Educational Technologies.  
B.A., Assumption College; M.A., University of Maine; M.L.S., Indiana University.
- Cassie L. Williams**, Assistant Professor of Mathematics and Statistics.  
B.A., Adams State College; M.S., Ph.D., Colorado State University.
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- Jacqueline A. Williams**, Professor of Kinesiology.  
B.S., M.S., State University of New York at Cortland; Ed.D., University of Massachusetts.
- Mira Cole Williams**, Assistant Professor of Educational Foundations and Exceptionalities.  
B.A., M.T., Ph.D., University of Virginia.
- Stephanie Williams**, Assistant Professor of Art, Design and Art History.  
B.F.A., James Madison University; M.F.A., Rhode Island School of Design.
- J. Christopher Willingham**, Assistant Professor of Mathematics and Statistics.  
B.S.N., University of North Alabama; B.E., M.Ed., Vanderbilt University; Ph.D., Middle Tennessee State University.
- David L. Wilson Jr.**, Lecturer of Chemistry and Biochemistry.  
B.S., University of Southern Mississippi; M.S., McNeese University.
- R. Nicole Wilson**, Instructional Designer; Assistant Professor, Libraries and Educational Technologies.  
B.A., M.S.Ed., James Madison University.
- Reece Wilson**, Assistant Professor of Early, Elementary and Reading Education.  
B.S., M.S., Clarion University; Ed.D., University of Pittsburgh.
- Phillip M. Wishon**, Dean, College of Education; Professor of Education.  
B.Sc., M.A., Ph.D., The Ohio State University.
- Andrew Witmer**, Associate Professor of History.  
B.A., Taylor University; M.A., Ph.D., University of Virginia.
- Christopher J. Womack**, Professor of Kinesiology.  
B.S., James Madison University; M.Ed., Ph.D., University of Virginia.
- Chang Wan (Isaac) Woo**, Associate Professor of Communication Studies.  
B.S., Illinois State University; M.A., Indiana State University; Ph.D., University of Alabama.
- John "Andy" Wood**, Head, Department of Marketing; Professor of Marketing; Wardinski Family Foundation Fellow.  
B.B.A., University of Florida; M.B.A., University of North Florida; Ph.D., Georgia State University.
- William C. Wood**, J. W. and Alice S. Marriott Faculty Fellow; Director, Center for Economic Education; Professor of Economics.  
B.A., Auburn University; Ph.D., University of Virginia.
- Celestine A. Woodruff**, Assistant Professor of Mathematics and Statistics.  
B.S., M.A., Appalachian State University; M.S., Ph.D., Florida State University.
- Gregg Wrenn**, Assistant Professor of English.  
A.B., Harvard University; M.F.A., Washington University in St. Louis.
- Kenneth R. Wright**, Associate Professor of Interdisciplinary Liberal Studies.  
B.A., M.A., California State University, Fresno; Ph.D., University of Oregon.
- Nathan T. Wright**, Associate Professor of Chemistry and Biochemistry.  
B.S., Haverford College; M.S., University of Pennsylvania; Ph.D., University of Maryland, Baltimore.
- Shaun Wright**, Associate Professor of Media Arts and Design.  
B.A., Virginia Commonwealth University; M.F.A., American University.
- Roshna E. Wunderlich**, Professor of Biology.  
B.A., University of Virginia; M.A., Ph.D., State University of New York at Stony Brook.
- Kristin N. Wylie**, Assistant Professor of Political Science.  
B.A., Louisiana State University; M.A., Ph.D., University of Texas at Austin.
- Grace A. Wyngaard**, Professor of Biology.  
B.S., University of Rhode Island; M.S., University of South Florida; Ph.D., University of Maryland.
- Ling Xu**, Associate Professor of Mathematics and Statistics.  
B.S., Wuhan Technology University (China); M.S., Ph.D., University of New Mexico-Albuquerque.
- Holly Yanacek**, Assistant Professor of Foreign Languages, Literatures and Cultures.  
B.A., Heidelberg University; M.A., Ph.D. University of Pittsburgh.
- Yi Edward Yang**, Professor of Political Science.  
B.A., Foreign Affairs College (China); Ph.D., Texas A&M University.
- Michael D. Yankey**, Lecturer of Management.  
B.B.A., M.B.A., James Madison University.
- Hyong S. Yeom**, Associate Professor of Social Work.  
M.S.W., University of Minnesota – Twin Cities; M.A., Ph.D., Brandeis University.
- Emily York**, Assistant Professor of Integrated Science and Technology.  
A.B. (Hons.), M.S., University of Chicago; Ph.D., University of California, San Diego.
- Greg Young**, Assistant Professor of Kinesiology.  
B.S., Berry College; M.S., Ph.D., University of Tennessee.
- Amy Russell Yun**, Assistant Professor of Health Professions.  
B.A., Clark University; M.S., Springfield College; O.T.D., Nova Southeastern University.

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**Shenghua Zha**, Instructional Technologist for Distance Learning; Assistant Professor, Libraries and Educational Technologies.

B.A., Huazhong University of Science & Technology; M.A., Shanghai JiaoTong University; Ph.D., University of Missouri – Columbia.

**Yanjie Zhang**, Associate Professor of Chemistry and Biochemistry.

B.S., Ph.D., Jilin University (China).

**Nan Zheng**, Associate Professor of Media Arts and Design.

B.A., Communication University of China; M.A., Ph.D., University of Texas at Austin.

**James R. Zimmerman**, Associate Professor of Writing, Rhetoric and Technical Communication.

A.B., University of Michigan; M.A., Ph.D., The Ohio State University.

**Traci A. Zimmerman**, Director, School of Writing, Rhetoric and Technical Communication; Professor of Writing, Rhetoric and Technical Communication.

B.A., M.A., James Madison University; Ph.D., Case Western Reserve University.

**Rhonda Zingraff**, Associate Dean, College of Health and Behavioral Studies; Director, Institute for Innovation in Health and Human Services.

B.S., Virginia Commonwealth University; M.A., Ph.D., Bowling Green State

University.

**Tracy E. Zinn**, Professor of Psychology.

B.A., West Virginia University; M.S., Ph.D., Auburn University.

**Daniel S. Zisk**, Lecturer of Management; Lecturer of International Business.

B.A., University of Virginia; M.A., Stanford University; M.B.A., Darden School of Business, University of Virginia; P.G.M.T., University of Virginia.

**Ian R. Zook**, Associate Professor of Music.

B.M., University of North Carolina at Chapel Hill; M.M., University of Michigan;

D.M.A., Rutgers the State University of New Jersey.

**Sharon L. Zook**, Professor of Nursing.

B.S.N., Duquesne University; M.S.N., Edinboro University of Pennsylvania; F.N.P., Old

Dominion University; D.N.P., University of Virginia.

**Susan D. Zurbrigg**, Professor of Art.

B.A., Bard College; M.F.A., Indiana University-Bloomington.

**Jeanette Zyko**, Assistant Professor of Music.

B.M., University of Hartford; M.M., Butler University; D.M.A., Manhattan School of

Music.

## Adjunct Faculty

JMU is fortunate to have an exceptional contingent of individuals appointed as adjunct faculty members. The following is a list of adjunct faculty members for the 2017-2018 school year.

- Paul R. Ackerman Jr., D.M.A., Adjunct Instructor, Music.  
 Everaldo Attard, Ph.D., Adjunct Associate Professor, Integrated Science and Technology.  
 Maria Attard, Ph.D., Adjunct Associate Professor, Integrated Science and Technology.  
 James Barnes, M.S., Adjunct Instructor, Integrated Science and Technology.  
 Hannah Blair, Adjunct Instructor, Integrated Science and Technology.  
 Christy Bradburn, M. A., Adjunct Instructor, Integrated Science and Technology.  
 Patricia L. Brady, D.M.A., Adjunct Instructor, Music.  
 Louis F. Cassar, Ph.D., Adjunct Associate Professor, Integrated Science and Technology.  
 Elisabeth Conrad, Ph.D., Adjunct Assistant Professor, Integrated Science and Technology.  
 Felicia Courtney Esteban, M.D., Adjunct Clinical Assistant Professor, Health Sciences.  
 Simon Fabri, Ph.D., Adjunct Associate Professor, Integrated Science and Technology.  
 Robert N. Farrugia, M.Phil., Adjunct Associate Professor, Integrated Science and Technology.  
 Eric Lee Fitzgerald, M. S., Adjunct Instructor, Integrated Science and Technology.  
 Marlon Foster, B.M.Ed., M.M., Adjunct Instructor, Music.  
 Charles Galdies, Ph.D., Adjunct Instructor, Integrated Science and Technology.  
 Edward Gant, B.A., B.M., M.A., D.M.A., Adjunct Instructor, Music.  
 John Garber, PA-C, Adjunct Clinical Assistant Professor, Health Sciences.  
 Fred Garst, Adjunct Instructor, Integrated Science and Technology.  
 Robert Ghirlando, Ph.D., Adjunct Professor, Integrated Science and Technology.  
 Mikael Glago, B.A., Adjunct Instructor, Music.  
 Linda Harpine, M.S.Ed., Adjunct Instructor, Integrated Science and Technology.  
 Paul Heitsch, B.A., Adjunct Instructor, Music.  
 Matthew Heller, P.G., M.S., Adjunct Professor, Geology and Environmental Science.  
 Lucy Owen Hoyt, M.M., Adjunct Instructor, Music.  
 Christopher Kaznosky, M.Ed., Adjunct Professor, Geology and Environmental Science.  
 Manita Khemthong, M.S., Adjunct Instructor, Integrated Science and Technology.  
 Adam Larrabee, M.M., Adjunct Instructor, Music.  
 Daniel J. Nardi, B.S., M.B.A., Adjunct Instructor, Chemistry and Biochemistry.  
 David Newman, M.M., Adjunct Instructor, Music.  
 Michael Overman, D.M., Adjunct Instructor, Music.  
 Chad Reep, M.M., Adjunct Instructor, Music.  
 Jerry Ridgeway, M.S., Adjunct Instructor, Integrated Science and Technology.  
 Paul Rittenhouse, M.S., Adjunct Instructor, Integrated Science and Technology.  
 Anthony T. Sacco, Ph.D., Adjunct Assistant Professor, Integrated Science and Technology.  
 Alfred Vella, Ph.D., Adjunct Professor, Integrated Science and Technology.  
 Steven Voigt, B.M., M.A., Ph.D., Adjunct Instructor, Music.  
 Case Watkins, Adjunct Instructor, Integrated Science and Technology.  
 Bobby Whitescarver, M.P.A., Adjunct Instructor, Integrated Science and Technology.  
 Jeanine Wilson, PA-C, Adjunct Clinical Assistant Professor, Health Sciences.  
 Peter J. Wilson, M.M., Adjunct Instructor, Music.  
 Candace Wilson Bush, B.A., Adjunct Instructor, Music.  
 Brenda Witmer, B.A., M.M., Adjunct Instructor, Music.  
 Charles Yousif, Ph.D., Adjunct Instructor, Integrated Science and Technology.

## Studies Abroad Faculty

### Semester in Antwerp

- Sascha Albers, PhD, University of Cologne.  
 Alain Guiette, PhD, University of Antwerp.  
 Kris Lieckens, Ph.D., University of Antwerp.  
 Ben Podevyn, M.B.A., University of Antwerp.  
 Thorsten Strauss, MBA, Copenhagen Business School.  
 Koen Vandenbempt, Ph.D., University of Antwerp.

### Semester in Florence

- Luca Baldoni, Ph.D., University College London.  
 Beatrice Corsini, M.A., Ca' Foscari University, Venice.  
 Alessandro Gentili, Doctor of Arts and Letters, University of Florence.  
 Giampiero Giacomello, Doctor of Political Science, Bologna University; Ph.D., European University, Florence.  
 Susanna Mollica, Doctor of Arts and Letters, University of Florence.  
 Caterina Paolucci, M.A, Università Cattolica de Milano  
 Trajche Panov, Ph.D., European University Institute, Florence  
 Francesca Passeri, Ph.D., University of Florence  
 Chiara Steindler, Ph.D., European University Institute, Florence

### Semester in London

- Rachel Barnes, M.Phil, Birmingham University.  
 Tancred Bradshaw, Ph.D., London University.  
 Judith Dobbs, A.B., Vassar; M.Phil., University of London.  
 John Dodson, M.Phil., Goldsmiths College, University of London.  
 Caroline Dover, Ph.D., Goldsmiths College, University of London  
 Sheila Fox, B.A., Trinity College, Dublin, M.A., Ph.D., Manchester University.  
 Jay Hicks, Ph.D. University of Hertfordshire  
 Steven Lally, M.Phil, University of Birmingham

### Semester in Salamanca

- Izaskun Álvarez Cuartero, Ph.D., University of Salamanca  
 Javier Panera Cuevas, Ph.D., University of Salamanca.  
 Guillermo Mira Dotti, Ph.D., University of Salamanca  
 Marta García García, M.A., University of Salamanca.  
 Paz Rabanal García, M.A., University of Salamanca  
 Pedro Javier Pardo García, Ph.D., University of Salamanca.  
 Eva Guerrero Guerrero, Ph.D., University of Salamanca.  
 Javier de Santiago Guervós, Ph.D., University of Salamanca.  
 Juan Miguel Prieto Hernández, Ph.D., University of Salamanca.  
 Jesús Angel Jiménez García, Ph.D., University of Salamanca.  
 Rosario LLorente Pínto, Ph.D., University of Salamanca  
 Marisol Martín Martín, Ph.D., University of Salamanca  
 María Jesús Framiñá de Miguel, Ph.D., University of Salamanca.  
 Salamanca.  
 Enrique Jiménez Ríos, Ph.D., University of Salamanca.  
 Juan José Rastrollo Suárez, Ph.D., University of Salamanca  
 Javier Sánchez Zapatero, Ph.D., University of Salamanca.

# Faculty Emeriti

- Craig E. Abrahamson, B.A., M.S.W., Ph.D.**  
Professor Emeritus of Psychology.
- Elizabeth D. Adams, B.A., M.S., D.Sc.**  
Associate Professor Emerita of Computer Science.
- Ralph A. Alberico, B.A., M.L.S.**  
Dean Emeritus of Libraries and Educational Technologies.
- Joseph D. Albert, B.A., Ph.D.**  
Professor Emeritus of Finance.
- Virginia Aliotti, B.S., M.A.**  
Assistant Professor Emerita of French.
- Violet L. Allain, B.A., M.A., Ph.D.**  
Associate Dean Emerita, General Education; Professor Emerita of Secondary Education.
- Judith L. Anderson, B.M., M.A., M.L.S.**  
Professor Emerita, Catalog Librarian.
- Virginia Andreoli-Mathie, B.A., B. Math., M.A., Ph.D.**  
Professor Emerita of Psychology.
- Charles G. Arnold, B.S., M.S.**  
Assistant Professor Emeritus of Physical Education.
- Kathleen G. Arthur, B.A., M.A., Ph.D.**  
Professor Emerita of Art and Art History.
- Thomas H. Arthur, B.S., M.A., Ph.D.**  
Professor Emeritus of Theatre.
- Robert C. Atkins, S.B., Ph.D.**  
Professor Emeritus of Chemistry.
- George Baker, M.S., Ph.D.**  
Professor Emeritus of Integrated Science and Technology.
- Nicholas Bankson, B.S., M.A., Ph.D.**  
Professor Emeritus of Speech Pathology.
- James L. Barnes, M.Ed., M.S., Ed.D.**  
Professor Emeritus of Integrated Science and Technology.
- Fernando Barroso,**  
Professor Emeritus of Foreign Language and Literature.
- Kenneth Beer Jr., B.A., M.A.**  
Associate Professor Emeritus of Art and Art History.
- James O. Benedict, B.A., M.S., Ph.D.**  
Professor Emeritus of Psychology.
- Ralph L. Benke Jr., B.S., M.B.A., D.B.A., C.M.A.**  
Professor Emeritus of Accounting.
- Clinton W. Bennett, B.S., M.S., Ph.D.**  
Professor Emeritus of Speech Pathology.
- Devin C. Bent, B.A., Ph.D.**  
Director Emeritus, James Madison Center; Professor Emeritus of Political Science.
- Vicki Lynn Berneking, B.M., M.A.**  
Professor Emerita of Music.
- Robert D. Besson, B.A., M.S.Ed, Ph.D.**  
Professor Emeritus of Art and Art History.
- Thomas M. Bertsch, B.S., M.S., Ph.D.**  
Professor Emeritus of Marketing.
- Charles P. Bilbrey, B.A., M.B.A., Ph.D.**  
Professor Emeritus of Information Technology.
- John J. Bilon, B.S., M.S.**  
Director Emeritus, Hotel and Restaurant Management Program; Professor Emeritus of Management and Marketing.
- Ashton C. Bishop, B.S., M.S, Ph.D.**  
Professor Emeritus of Accounting.
- Charles W. Blair, B.A., M.A. in Ed., Ed.D.**  
Head Emeritus, Department of Early and Middle Education; Professor Emeritus of Education.
- Sidney R. Bland, B.A., M.A., Ph.D.**  
Professor Emeritus of History.
- Claire P. Bolfing, B.S., M.B.A., Ph.D.**  
Professor Emerita of Marketing.
- Christina E. Bolgiano, B.A., M.L.S.**  
Special Collections Librarian Emerita; Adjunct Professor Emerita.
- Anthony E. Bopp, B.A., M.A., Ph.D.**  
Professor Emeritus of Health Sciences.
- Henry C. Bowers III, B.A., M.Ed., Ed.D.**  
Associate Professor Emeritus of Education.
- Catherine E. Boyd, B.A., M.A., Ph.D.**  
Professor Emerita of History.
- Dorothy A. Boyd-Bragg, A.B., Ed.M., M.A., Ph.D.**  
Professor Emerita of History.
- William P. Boyer Jr., B.A., M.A., Ph.D.**  
Associate Professor Emeritus of Anthropology.
- Linda M. Bradley, B.A., M.A., Ed.D.**  
Associate Professor Emerita of Education.
- Patricia Lynn Brady, B.A., B.M., M.M., D.M.**  
Professor Emerita of Music.
- David F. Brakke, B.A., M.S., Ph.D.**  
Dean Emeritus, College of Science and Mathematics; Professor Emeritus of Biology; Professor Emeritus of Geology and Environmental Science.
- Patricia B. Brevard, B.S., B.A., M.S., Ph.D.**  
Professor Emerita of Health Sciences.
- Douglas T. Brown, B.A., M.A., Ph.D.**  
Provost Emeritus, Professor Emeritus of Psychology.
- William J. Buck, B.A., M.F.A.**  
Professor Emeritus of Theatre.
- Bruce C. Busching, B.A., Ph.D.**  
Professor Emeritus of Sociology.
- Martha B. Caldwell, B.A., M.A., M.A., Ph.D.**  
Professor Emerita of Art and Art History.
- Shirley Lynn Cameron, B.A., M.A., M.L.S.**  
Professor Emerita of Library Administration.
- F. Howard Campbell III, B.A., M.S.**  
Assistant Professor Emeritus of Geology.
- Timothy J. Carter, B.A., M.A., Ph.D.**  
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- Charles M. Runyan, A.B., M.A., Ph.D.**  
Professor Emeritus of Communication Sciences and Disorders.
- Sara E. Runyan, B.S., M.A.**  
Associate Professor Emerita of Communication Sciences and Disorders.
- Brenda M. Ryals, B.S., M.A., Ph.D., CCC-A**  
Professor Emerita of Communication Sciences and Disorders.
- Bijan Saadatmand, B.S., M.S., Ph.D.**  
Professor Emeritus of Psychology.
- John E. Sander, B.S., M.S., Ph.D.**  
Associate Professor Emeritus of Geology.
- William M. Sanders, B.S., M.A., Ph.D.**  
Professor Emeritus of Mathematics.
- Karen E. Santos, B.S., M.Ed., Ph.D.**  
Professor Emerita of Exceptional Education.
- Brenda C. Seal, B.S., M.A., Ph.D.**  
Professor Emerita of Communication Sciences and Disorders.
- Vernon C. Seguin, B.Ch.E., M.B.A., D.B.A.**  
Associate Professor Emeritus of Marketing.
- Cletus M. Sellers Jr., B.A., M.S., Ph.D.**  
Director Emeritus, Center for Prehealth Resources; Professor Emeritus of Health Sciences.
- Raymond A. Serway, B.A., M.S., Ph.D.**  
Professor Emeritus of Physics.
- W. Cullen Sherwood, B.S., M.A., Ph.D.**  
Professor Emeritus of Geology and Environmental Science.
- Beverly P. Silver, B.S., M.S., Ph.D.**  
Associate Professor Emerita of Biology.
- Douglas Skelley, A.B., M.A., Ph.D.**  
Professor Emeritus of Political Science.
- Michael E. Smilowitz, B.A., M.A., Ph.D.**  
Associate Professor Emeritus of Communication Studies.

## 480 James Madison University 2017-2018 Undergraduate Catalog: University Faculty

- Glenn T. Smith, B.B.A., M.S.**  
Associate Professor Emeritus of Computer Information Systems and Management Science.
- V. Russel Smith, B.A., Ph.D.**  
Associate Professor Emeritus of Economics.
- William D. Smith, B.S., M.A.T., Ph.D.**  
Professor Emeritus of Secondary Education.
- Ray V. Sonner, B.A., M.Ed., Ed.D.**  
Senior Vice President Emeritus; Professor Emeritus of Education.
- Diane M. Spresser, B.S., M.A., Ph.D.**  
Professor Emerita of Mathematics.
- Jon A. Staib, B.S., M.S., Ph.D.**  
Professor Emeritus of Physics.
- Paul H. Steagall Jr., B.S., M.Ed., Ph.D.**  
Professor Emeritus of Business Education and Administrative Services.
- James Steele, A.B., B.D., Th.M.**  
Professor Emeritus of Sociology.
- Barbara S. Stern, B.A., M.A., Ed.D.**  
Professor Emerita of Middle, Secondary, and Mathematics Education.
- Stephen Stewart, B.H.S., M.P.H., Dr.P.H.**  
Director Emeritus, Strategic Alliances and Special Projects for CISAT; Professor Emeritus of Health Sciences.
- John D. Stone, B.A., M.A., Ph.D.**  
Professor Emeritus of Communication Studies.
- Allan D. Stuhlmiller, Lt. Col., B.S., M.S.**  
Head Emeritus, Department of Military Science; Professor Emeritus of Military Science.
- Donna L. Sundre, B.A., M.A., Ed.D.**  
Executive Director Emerita, Center for Assessment and Research Studies; Professor Emerita of Graduate Psychology.
- John W. Sweigart, A.B., Ph.D.**  
Professor Emeritus of Philosophy.
- Kenneth A. Szmagaj, B.F.A., M.A., M.F.A.**  
Professor Emeritus of Art, Design and Art History.
- Gerald R. Taylor Jr., B.S., M.S., Ph.D.**  
Director Emeritus, Center for Materials Science; Professor Emeritus of Physics and Integrated Science and Technology.
- Jack A. Taylor, B.S., M.A., Ph.D.**  
Associate Professor Emeritus of Integrated Science and Technology.
- Timothy N. Taylor, B.S., M.S., M.A.**  
Assistant Professor Emeritus of Mathematics.
- Faye P. Teer, B.A., M.Ed., D.B.A.**  
Professor Emerita of Computer Information Systems and Business Analytics.
- Harold B. Teer Jr., B.S., M.B.A., D.B.A.**  
Professor Emeritus of Marketing.
- Robin L. Teske, B.A., M.A., J.D., Ph.D.,**  
Professor Emerita of Political Science.
- Crystal Theodore, A.B., A.M., Ed.D.**  
Professor Emerita of Art.
- Katherine B. Thompson, B.S., M.P.A.**  
Assistant Dean Emerita of The Graduate School.
- Richard H. Thompson, B.A., A.M. Ph.D.**  
Professor Emeritus of Anthropology.
- Mikel Kent Todd, B.S., M.S., Ph.D.**  
Associate Professor Emeritus of Kinesiology.
- H. Richard Travis, B.A., M.S., Ph.D.**  
Professor Emeritus of Health Sciences.
- Gilbert S. Trelawny, B.S., M.S., Ph.D.**  
Professor Emeritus of Biology.
- William Gene Tucker, B.S., M.S., Ph.D.**  
Professor Emeritus of Integrated Science and Technology.
- Francis E. Turner, B.M. in Ed., M.Ed.**  
Director Emeritus of Admissions and Continuing Education.
- Larry T. Tynes, B.A., M.A.**  
Associate Professor Emeritus of Music.
- Stanley L. Ulanski, B.S., M.S., Ph.D.**  
Professor Emeritus of Geology.
- Robert W. Vanderwarker Jr., B.A., M.S.**  
Assistant Professor Emeritus of Kinesiology.
- Arvid W. VanDyke, B.A., M.A., Ed.D.**  
Associate Professor Emeritus of Integrated Science and Technology.
- Joel Vedelli, B.S., M.A., Ed.S.**  
Professor Emeritus of Kinesiology.
- Gregory R. Versen, B.A., M.S.S.W.**  
Associate Professor Emeritus of Social Work.
- William H. Voige, B.S., Ph.D.**  
Professor Emeritus of Chemistry.
- Jacqueline B. Walker, B.A., M.A., Ph.D.**  
Professor Emerita of History.
- N. William Walker, B.A., Ed.M., Ed.D.**  
Dean Emeritus, College of Graduate and Professional Programs.
- David A. Watkins, B.M., B.S., M.A.**  
Associate Professor Emeritus of Music.
- M. Evelyn Watkins, A.B., A.M.**  
Assistant Professor Emerita of Education.
- George A. Wead, B.A., M.A., Ph.D.**  
Professor Emeritus of Media Arts and Design.
- Carl G. K. Weaver, B.S., M.S., D.B.A.**  
Professor Emeritus of Finance.
- Catherine J. Webb, B.S.N., M.A.**  
Professor Emerita of Nursing.
- Stephen D. Welpott, B.B.A., B.S., M.B.A.**  
Lecturer Emeritus of Hospitality and Tourism Management.
- David H. Wendelken, B.S., M.S., Ph.D.**  
Associate Professor Emeritus of Media Arts and Design.
- Richard F. West, B.A., M.A., Ph.D.**  
Professor Emeritus of Graduate Psychology.
- C. Steven Whisnant, B.S., M.S., Ph.D.**  
Head Emeritus, Department of Physics and Astronomy; Professor Emeritus of Physics and Astronomy.
- Howard M. Wilhelm, B.A., M.A. in Ed., Ed.D.**  
Head Emeritus, Department of Economics; Professor Emeritus of Economics.
- Kenneth C. Williamson, B.S.I.M., M.S., D.B.A.**  
Professor Emeritus of Marketing.
- Mervyn Wingfield, A.B., M.S., Ph.D., C.P.A.**  
Professor Emeritus of Accounting.
- Janet Winstead, B.S., M.S., Ph.D.**  
Associate Professor Emerita of Biology.
- Maurice L. Wolla, B.S.E.E., Ph.D.**  
Professor Emeritus of Integrated Science and Technology.
- Thomas F. Wood, B.A., M.B.A.**  
Lecturer Emeritus of Computer Information Systems and Business Analytics.
- John M. Woody, B.S., M.S., M.F.A.**  
Professor Emeritus of Media Arts and Design.
- Joyce S. Wszalek, B.A., M.A.**  
Associate Professor Emerita of English.
- Ronald J. Wyanco, B.F.A., M.A., M.F.A.**  
Professor Emeritus of Art.
- Mary Lou Wylie, B.A., M.A., Ph.D.**  
Head Emerita, Department of Sociology and Anthropology; Coordinator Emerita, Women's Studies Program; Professor Emerita of Sociology.
- Chong-kun Yoon, B.A., M.A., Ph.D.**  
Professor Emeritus of History.
- Jae H. Yoon, B.A., M.A., Ph.D.**  
Assistant Professor Emeritus of Communication Studies.
- Sang Y. Yoon, B.F.A., M.F.A.**  
Professor Emerita of Graphic Design.
- Masako Miyata Zapton, B.F.A., M.F.A.**  
Professor Emerita of Art and Art History.
- Steven A. Zapton, B.D., M.F.A.**  
Professor Emeritus of Art and Art History.
- Charles W. S. Ziegenfus, B.S., M.A.**  
Professor Emeritus of Mathematics and Statistics.
- D. Kent Zimmerman, B.S., M.B.A., Ph.D.**  
Associate Professor Emeritus of Management.
- David P. Zimmerman, B.A., M.S., Ed.D.**  
Associate Professor Emeritus of Library Science and Educational Media.