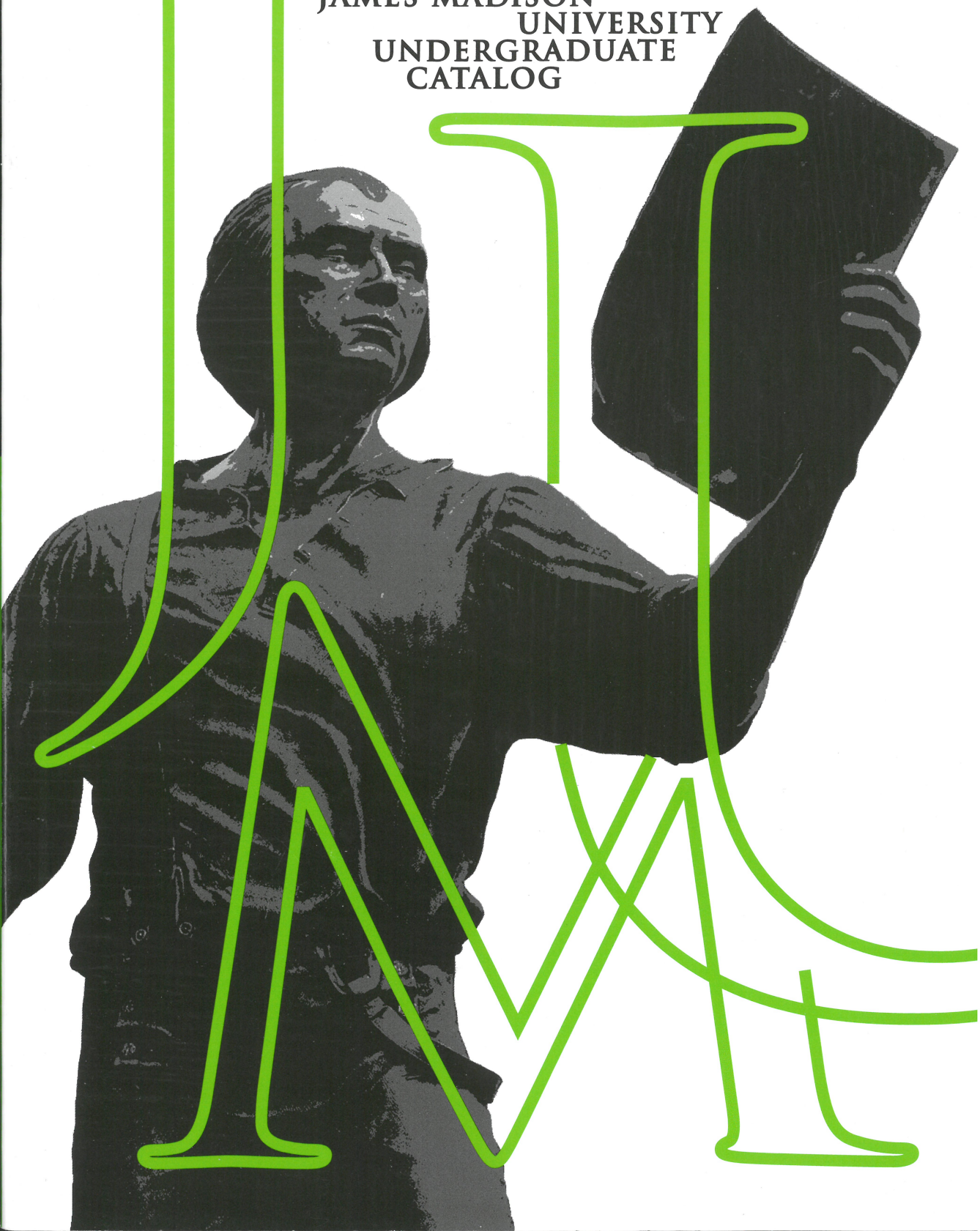


2009-2010
JAMES MADISON
UNIVERSITY
UNDERGRADUATE
CATALOG



2009-2010 University Calendar

For detailed dates and times regarding payment and adjustment of tuition and fees, registration for courses, and making course adjustments, refer to <http://ecampus.jmu.edu>. The academic calendar is also available online at <http://www.jmu.edu/registrar/academiccalendars.shtml>

Fall Semester 2009

August 18, Tuesday and August 19, Wednesday

Residence halls open 9 a.m. for first year students on assigned days.

Dining Services open on Tuesday, August 18 and fall meal plans begin at 5 p.m. for first year students.

August 21, Friday

Opening Faculty Meeting.

First Year Student Assessment Day.

Residence halls open 9 a.m. for transfer and international students.

August 22, Saturday

Residence halls open 9 a.m. for returning students.

August 24, Monday

Classes meet as scheduled.

September 11, Friday

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

October 9–11, Friday–Sunday

Family Weekend.

October 9, Friday

First Block courses end.

October 12, Monday

Second Block courses begin.

October 15, Thursday

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

Last day to submit an application for a baccalaureate degree if graduation requirements are to be met in May 2010.

October 17, Saturday

Homecoming.

October 20, Tuesday

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

October 26, Monday

Registration begins for 2010 spring semester.

November 20, Friday

Dining Services closes at 7:30 p.m.

November 21, Saturday

Thanksgiving vacation begins and residence halls close at 10 a.m.

November 28, Saturday

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

November 30, Monday

Classes resume.

Last day for students to submit work to faculty for 2009 spring semester and 2009 summer session for removal of "incomplete" grades.

December 4, Friday

Last day of classes.

Last day for faculty to turn in removal of "incomplete" grades for 2009 spring semester and 2009 summer session to the Office of the Registrar.

December 7–11, Monday–Friday

Final examinations.

August

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16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

September

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13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

October

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11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

November

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22	23	24	25	26	27	28
29	30					

December

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20	21	22	23	24	25	26
27	28	29	30	31		

January

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3	4	5	6	7	8	9
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24	25	26	27	28	29	30
31						

December 11, Friday

Residence halls close at 5 p.m.

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

Deadline for completion of course work for December graduates.

December 12, Saturday

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

Residence halls close at 3 p.m. for graduating seniors.

Spring Semester 2010

January 10, Sunday

Residence halls open at 9 a.m.

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

January 11, Monday

Classes meet as scheduled.

January 18, Monday

Martin Luther King, Jr. Day. Classes do not meet.

January 29, Friday

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

February 12, Friday

Last day to submit an application for a baccalaureate degree if graduation requirements are to be met by the end of 2010 summer session.

February 16, 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.

March 2, Tuesday

Third Block courses end.

March 5, Friday

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

Dining Services closes at 2 p.m. and residence halls close at 5 p.m.

March 8–12, Monday–Friday.

Spring Break. Classes do not meet.

March 14, Sunday

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

March 15, Monday

Classes resume. Fourth Block courses begin.

March 17, Wednesday

James Madison Day.

March 22, Monday

Advance registration for 2010 summer session begins.

April 6, Tuesday

Registration begins for 2010 fall semester.

April 16, Friday

Last day for students to submit work to faculty for 2009 fall semester for removal of "incomplete" grades.

April 30, Friday

Last day of classes.

Last day for faculty to turn in removal of "incomplete" grades for 2009 fall semester to the Office of the Registrar.

May 3–7, Monday–Friday

Final examinations.

University housing checkout process.

May 7, Friday

Residence halls close at 5 p.m. for undergraduate students.
Dining Services close at 7 p.m. and spring meal plans end.
Deadline for completion of course work for May graduates.

May 8, Saturday

Commencement at 8:30 a.m. in Bridgeforth Stadium.
Residence halls close at 3 p.m. for graduating seniors.

Undergraduate 2010 Summer Sessions

Ten-Week Term

May 17, Monday

Registration and fee payment.
Classes meet as scheduled.

May 31, Monday

Holiday – Memorial Day. No classes.

June 1, Tuesday

Last day to submit a graduation application if graduation requirements are to be met in December 2010.

July 5, Monday

Holiday – Fourth of July. No classes.

July 23, Friday

Final examinations.
Deadline for completion of course work for summer graduates.

Eight-Week Term

May 17, Monday

Registration and fee payment.
Classes meet as scheduled.

May 31, Monday

Holiday – Memorial Day. No classes.

June 1, Tuesday

Last day to submit a graduation application if graduation requirements are to be met in December 2010.

July 5, Monday

Holiday – Fourth of July. No classes.

July 9, Friday

Final examinations.

July 23, Friday

Deadline for completion of course work for summer graduates.

Six-Week Term

June 14, Monday

Registration and fee payment.
Classes meet as scheduled.

July 5, Monday

Holiday – Fourth of July. No classes.

July 23, Friday

Final examinations.
Deadline for completion of course work for summer graduates.

First Four-Week Term

May 17, Monday

Registration and fee payment.
Classes meet as scheduled.

May 31, Monday

Holiday – Memorial Day. No classes.

February

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28						

March

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

April

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

June 1, Tuesday

Last day to submit a graduation application if graduation requirements are to be met in December 2010.

June 11, Friday

Final examinations.

July 23, Friday

Deadline for completion of course work for summer graduates.

May

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

Second Four-Week Term**June 14, Monday**

Registration and fee payment.

Classes meet as scheduled.

June 1, Tuesday

Last day to submit a graduation application if graduation requirements are to be met in December 2010.

July 5, Monday

Holiday – Fourth of July. No classes.

July 9, Friday

Final examinations.

July 23, Friday

Deadline for completion of course work for summer graduates.

June

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

Tentative 2010 Fall and 2011 Spring Semesters**August 17, Tuesday and August 18, Wednesday**

Residence halls open 9 a.m. for first year students on assigned days.

Dining Services open on Tuesday, August 17 and fall meal plans begin at 5 p.m. for first year students.

August 20, Friday

Residence Halls open 9 a.m. for transfer and international students.

August 21, Saturday

Residence halls open 9 a.m. for returning students.

Fall meal plans begin at 10 a.m. for transfer and returning students.

August 23, Monday

Classes meet as scheduled.

December 10, Friday

Fall semester ends.

December 11, Saturday

Commencement

January 10, Monday

Spring semester begins.

March 7–11, Monday–Friday

Spring Break.

May 6, Friday

Spring semester ends.

May 7, Saturday

Commencement.

July

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

The University

James Madison University is a public, comprehensive university and is the only university in America named for James Madison. The university offers programs on the bachelor's, master's, educational specialist and doctoral levels with its primary emphasis on the undergraduate student. 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 learning experiences outside the classroom. The value and quality of the JMU experience has been recognized repeatedly in many national publications.

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 2008 enrollment of 18,454.

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 has continually been recognized in national publications as one of the nation's finest institutions of its type. Before being named president, Rose had served as a member of the institution's administration for 23 years, including service as executive vice president and chief operating officer.

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 senior vice president for university advancement, 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.

JMU consists of the following colleges:

- College of Arts and Letters
- College of Business
- College of Education
- College of Integrated Science and Technology
- College of Science and Mathematics
- College of Visual and Performing Arts
- The Graduate School

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 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

James Madison University Administration

Board of Visitors

Dr. Meredith Strohm Gunter (Rector), Charlottesville
 James E. Hartman (Vice Rector), Harrisonburg
 Mark T. Bowles, Goochland
 Joseph F. Damico, Libertyville, IL
 Ronald C. Devine, Burke
 Vanessa M. Evans, Charlottesville
 Lois J. Forbes, Harrisonburg
 Charles H. Foster, Jr., Richmond
 Joseph K. Funkhouser, IL
 Stephen R. Leeolou, Charlotte, N.C.
 Elizabeth V. Lodal, McLean
 Wharton B. Rivers Jr., McLean
 Larry M. Rogers, Harrisonburg
 Judith S. Strickler, Harrisonburg
 Fred Thompson, Ashburn
 Robert C. Cellucci (Student Member), JMU/Malvern, PA
 Donna L. Harper (Secretary), JMU/Harrisonburg

Chief Administrative Officers

President

Linwood H. Rose, Ed.D.

Division Heads

Douglas T. Brown, Ph.D.,
 Provost and Senior Vice President for Academic Affairs
Joanne Carr, Ph.D.,
 Senior Vice President for University Advancement
Charles W. King Jr., M.A.,
 Senior Vice President for Administration and Finance
Mark Warner, Ed.D.,
 Senior Vice President for Student Affairs and University Planning

Deans

Ralph Alberico, M.L.S.,
 Dean of Libraries
David F. Brakke, Ph.D.,
 Dean, College of Science and Mathematics
Linda Cabe Halpern, Ph.D.,
 Dean, University Studies
David K. Jeffrey, Ph.D.,
 Dean, College of Arts and Letters
Reid J. Linn, Ph.D.,
 Dean, The Graduate School
Sharon E. Lovell, Ph.D.,
 Interim Dean, College of Integrated Science & Technology
Robert D. Reid, Ed.D.,
 Dean, College of Business
George E. Sparks, Ph.D.,
 Dean, College of Visual and Performing Arts
Phillip M. Wishon, Ph.D.,
 Dean, College of Education

JMU Alumni

Office of Alumni Relations

Phone: (540) 568-6234

Web site: <http://www.jmu.edu/alumni/>

JMU benefits from an active, enthusiastic and supportive alumni association. With close to 100,000 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, parents of current students and friends of the university. The association provides scholarship opportunities for incoming JMU freshmen as well as currently enrolled students. Alumni chapters across the country sponsor events, programs, services and various forms of communication for a diverse constituency. The alumni association also hosts annual programming on campus, including homecoming, reunions, senior week and more.

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 quarterly 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, *Brightening the Lights*, is a popular way for alumni to stay informed about alumni and campus activities. Further information about all of these programs, products and services is available at www.jmu.edu/alumni.

JMU Foundation

The James Madison University Foundation, Inc., a 501(c) 3 organization was established in 1969 to promote the welfare, efficiency, service to the public, and objectives of James Madison University and to encourage private gifts of money, securities, land, or other property of whatever character for such purposes, and to that end to take, hold, receive, and enjoy any gift, grant, devise or bequest, for the benefit of James Madison University in the manner designated, for the general purposes and improvement of James Madison University, and to accept, execute and administer any trust in which it may have an interest under the terms of the instrument creating the trust.

Gifts received by the foundation are used to support the university in many ways, such as:

- construction of buildings
- endowed chairs for distinguished faculty members
- purchase of library resources
- purchase of specialized equipment for university classrooms and laboratories
- renovation and additions to existing facilities
- scholarships for students
- special academic opportunities for students
- special academic programs

Accreditation

JMU is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; Telephone Number 404-679-4501) to award bachelor's, master's, Educational Specialist, Doctor of Audiology, Doctor of Philosophy and Doctor of Psychology degrees.

Additional Accreditation

ABET, Incorporated
Accreditation Commission for Programs in Hospitality Administration
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

Institutional and Educational Membership

Association of Computing Machinery

Corporate Membership

American Association of University Women

Admissions

Office of Admissions

Phone: (540) 568-5681

Fax: (540) 568-3332

Location: Sonner Hall

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 the visitation schedule and make a reservation, visit www.jmu.edu/admissions/visit. In inclement weather, the Office of Admissions cancels conferences and tours. If weather conditions are severe, call the Office of Admissions, (540) 568-5681, before visiting.

First Year Student Admission

JMU's admission process is competitive. In fact, JMU receives more qualified applications than it can accommodate. For the 2008 admissions process, approximately 58% of applicants were admitted with 85% 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 (one full year beyond algebra II);
- three years of laboratory science (preferably including biology, chemistry and physics; general science or earth science usually 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, 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 many 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" or "B" student in core courses. We look at performance throughout the entire high school career.

E-mail: admissions@jmu.edu

Web site: <http://www.jmu.edu/admissions>

Standardized Tests

Performance on the SAT I or ACT helps discern past academic achievements and potential for future academic success. 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 room or tuition deposit by May 1 to enroll at the university. Some students who are not selected for early notification are considered under the university's regular admission process.

For the last two years, 45-50% 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 postmarked 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 room or tuition deposit by May 1 to enroll at the university.

Application Procedure for First Year Student Admission

To access the application, go to www.jmu.edu/admissions/apply/ and 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
Office of Admissions, MSC 0101
481 Bluestone Dr.
James Madison University
Harrisonburg, VA 22807
- Submit their Scholastic Aptitude Test or American College Testing Assessment scores. 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 Admission Requirements

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. Competitive transfer applicants must successfully complete college course work in the following areas: English, math, lab science and social science. 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 application fee. This fee is not refundable or transferable and will not be credited to the student's account. The application fee must be paid by check, money order or credit card.
- 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.
- Submit official SAT or ACT scores. If the applicant has completed more than 30 credit hours of college work at the time of application, SAT or ACT scores are not required. Applicants who are 25 years or older are not required to submit test scores.

- Complete a one-page personal statement (optional) for review by the Admissions Committee.
- Indicate a major.
- All materials are due by October 15 for spring admission, January 15 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 in which the student is majoring will determine the credits required for graduation.

With the exception of some degrees in General Studies, General Education requirements will be waived for those students who have completed either the Associate in Arts, Associate in Sciences, or the Associate in Arts and Sciences degree at a Virginia community college. Students who complete one of these associate degrees and are offered admission will receive junior-level status. For more details, consult the JMU Virginia Community College Transfer Guide, available at www.jmu.edu/admissions/transfer/guide/.

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 Sonner 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 nonimmigrant alien students. Requests for information concerning the admission of undergraduate international students should be directed to

Office of International Admissions, MSC 0101
481 Bluestone Dr.
James Madison University
Harrisonburg, VA 22807
(540) 568-3453

Credit for International Examinations

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.

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.

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 table below.

German Abitur

Students with the German Abitur 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 Studies in coordination with the appropriate departmental undergraduate office.

2009-2010 International Baccalaureate Courses

Higher-Level IB Courses¹

International Baccalaureate Course	Minimum Required Score	JMU Equivalent	Credit Hours Earned
Anthropology (social and cultural)	5	GANTH 195 & ANTH elective	6
Art/Design	6	ART 140 & ART elective	6
	5	ART 140	3
	4	ART elective	3
Art/Visual	5	ART 140	3
Biology	7	GSCI 003-GSCI 104, BIO 000 ²	3-1
	5	BIO 000 ² (elective)	4
Chemistry	5	Majors: CHEM 131, 132	6
	5	Nonmajors: CHEM 131, 131L, 132, 132L	8
Computing Studies	5	CS 139 and CS 238	8
Economics	6	ECON 201, GECON 200	6
English A	5	GWRTC 103	3
Foreign Languages (Course numbers are the same in each language)			
	7	300 + elective	6
	6	231-232	6
	5	231	3
	4	102	4
Geography	6	GGEOG 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	GHIST 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 135	3
Philosophy	6	GPHIL 101 & PHIL elective	6
	5	GPHIL 101	3
Physics	5	PHYS 140 & PHYS 150	6
Psychology	4	GPSYC 101	3

Standard-Level IB Courses¹

International Baccalaureate Course	Minimum Required Score	JMU Equivalent	Credit Hours Earned
Social Anthropology (social and cultural)	5	GANTH 195	3
Art/Design	7	ART 140	3
	6	ART elective	3
Chemistry	6	Majors: CHEM 131	3
	6	Nonmajors: CHEM 131-131L	4
Computing Studies	5	CS 238	4
Economics with IB diploma	6	ECON 201	3
Foreign Languages	7	232	3
	6	231	3
	5	102	4
Geography	5	GEOG elective	3
History	5	HIST elective	3
Philosophy	5	GPHIL 101	3
Physics	6	PHYS 140 & PHYS 150	6
Psychology	6	GPSYC 101	3

¹ This information is subject to change at the discretion of James Madison University.

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.

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.

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. Prospective art students who intend to major in studio art are encouraged to submit a portfolio and be interviewed.

Art

Students unable to travel to JMU may send a videotape, color photographs or slides of their work in support of their art application. Students who intend to major in art history are not required to submit a portfolio or additional material for review but should follow the regular JMU admission process. Students who submit a portfolio will be eligible to receive a first year student art scholarship.

Portfolio reviews for art majors are conducted on campus. For the complete schedule of portfolio review/interview sessions and additional information, refer to the School of Art and Art History Web site at www.jmu.edu/art/, contact the School of Art and Art History (540) 568-6216 or e-mail: art-arthistory@jmu.edu.

Music

Auditions for music are given on three specific dates in January and February. It is important that you indicate your intention to participate in the audition process by January 15. For more information, call the School of Music at (540) 568-3851 or e-mail: music_admit@jmu.edu.

Nursing

In addition to the regular first year student and transfer admission requirements, students who intend to major in nursing must submit a supplemental application. Applications may be obtained from

Department of Nursing, MSC 4305
James Madison University
Harrisonburg, VA 22807
(540) 568-6314

Theatre and Dance

Admissions to the theatre and dance programs are by audition. Most theatre and dance auditions are given in late fall and early spring. For more information, contact the School of Theatre and Dance at (540) 568-6342 [theatre] or (540) 568-6511 [dance].

Nontraditional Academic Credit Advanced Placement

Applicants for admission who have completed advanced work in secondary school may apply for advanced credit in certain subjects at JMU. Students may apply to the College Board for permission to take one or more of the tests offered through the Advanced Placement program at the following address

Advanced Placement Examinations
P.O. Box 6671
Princeton, NJ 08541-6671

Interested students should discuss advanced placement tests with their guidance counselors or principals. The College Board reports the results of the examinations to the university. The minimum advanced placement scores required to earn college credit are shown in the table on Page 17.

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, Warren Hall 504.

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*. The Office of the Registrar should be consulted.

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 the 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.

2009-2010 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. For more information and the most recent scores, refer to the Office of Admissions Web site at <http://www.jmu.edu/admissions/info/scores.shtml>. NOTE: This information is subject to change at the discretion of James Madison University.

Placement Course	Minimum Required Score	JMU Equivalent	Credit Hours Earned
Art History	4	GARTH 206	3
Art Studio: Drawing	4	Art elective	3
Art Studio: General	4	Art elective	3
Art Studio: 2D Design	4	Art elective	3
Biology	5	GBIO 103, GSCI 104 & BIO 000 ¹	8 total (3 + 1 + 4)
		or GISAT 113, GSCI 104 & BIO 000 ¹	8 total (3 + 1 + 4)
	4	GBIO 103, GSCI 104	4 total
		or GISAT 113 & GSCI 104	4 total (3 + 1)
	3	GISAT 113 & GSCI 104	4 total (3 + 1)
Calculus AB	4	MATH 235	4
Calculus BC	4	MATH 235 & MATH 236	8
Chemistry	4	Majors: CHEM 131 & CHEM 132	6
		Nonmajors: CHEM 131, CHEM 131L, CHEM 132 & CHEM 132L	8
		or CHEM 120 & CHEM 120L	4
	3	GSCI 101 & GSCI 104	4 total (3 + 1)
Comparative Government	4	POSC 240	3
Computer Science (A or AB)	4	CS 139	4
Economics (Micro)	4	ECON 201	3
Economics (Macro)	4	GECON 200	3

Placement Course	Minimum Required Score	JMU Equivalent	Credit Hours Earned
English Language and Composition or English Literature and Composition	4	GWRTC 103	3
Environmental Science	3	ISAT 000 ²	4
Environmental Science & Chemistry	4 or 5 3, 4 or 5	GISAT 112 & ISAT 000 ²	7 total (4 + 3)
French Language or French Literature	4	FR 231	3
Human Geography	4	GEOG 280	3
German Language	4	GER 231	3
Government: U.S.	4	GPOSC 225	4
History: European	5	HIST 201 & HIST 202	6
	4	HIST 201	3
History: U.S.	4	GHIST 225	4
Italian Language and Culture	4	ITAL 231	3
Latin Language	4	LAT 231	4
Physics B	4	PHYS 140, PHYS 140L, PHYS 150 & PHYS 150L	8
	3	GSCI 101 & GSCI 104	4 total (3 + 1)
Physics C: Mechanics	4	PHYS 240 & PHYS 140L	4
Physics C: Electricity & Magnetism	4	PHYS 250 & PHYS 150L	4
Psychology	4	GPSYC 101	3
Spanish Language or Spanish Literature	4	SPAN 231	3
Statistics	4	MATH 220	3
World History	5	GHIST 101 & GHIST 102	6 total (3 + 3)

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

² ISAT 000 does not count toward major or minor requirements in biology or integrated science and technology or toward general education requirements, but is elective credit toward a degree.

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 to 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. (These requirements are set forth in the following table.) 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. A student who is suspended at the end of fall semester must submit an Intent to Enroll form by April 1 to return for summer session.

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 or 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 one calendar year following a first suspension. Following a second suspension, the period of suspension is 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 Director of Academic Student Services. Such review may result in denial or conditional re-entry.

Total Number of Hours for Standing ¹				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				

1 Total Number of Hours for Standing includes all hours attempted at JMU plus:
(1) Credit hours transferred to JMU
(2) Credit hours earned by departmental exam and AP credit.
(3) 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	Trans	NC	JMU Hrs	Cum Hrs	Hrs for	Cum Quality	Cum
Attempted Hrs	Hrs	Earned	Earned	Standing	Pts Earned	GPA	
60	30	2	52	82	92	119.5	1.991

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.

Attendance

A student's participation in the work of a course is clearly a precondition to his/her 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 in 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. However, 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 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 his/her faculty adviser and the head of the academic unit offering the class. Audited courses will not affect a student's semester credit hours or grade point average.

Catalog of Record

Students are generally subject to the curricular and graduation requirements contained in the undergraduate catalog in effect upon or subsequent to their enrollment at JMU, with approval of the students' major program and the Office of the Registrar. At the discretion of their academic unit heads, students who leave and re-enter the university after an absence of a semester or more will be subject to the catalog in effect at the time of their re-entry or the catalog used by the majority of students with whom they will graduate.

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 students	Fewer than 28
Sophomores	28-59
Junior	60-89
Seniors	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 in the Registration and Student Record Services Handbook and the Office of the Registrar Web site. The end of the course adjustment period (approximately one week after midterm grades are due for a regular semester) is the deadline for withdrawing without penalty 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 her/his registered course schedule and for making any desired course adjustments prior to the published registration deadlines.

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 in the Registration and Student Record Services Handbook. Students should note that adding a course may result in a tuition increase.

Dropping a Course

Dropping and withdrawing both result in the termination of a student's enrollment in that 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. 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 who becomes unable to complete some course requirements after the course adjustment deadline has passed may request a grade of "WP" or "WF" from the instructor. The form (e.g., verbal, written) and timing of such requests are determined by individual instructors; the student is responsible for ensuring 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 Student Withdrawal 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

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 good standing may take a maximum of 19 credit hours without securing special permission.

Students in 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.

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 twelve 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.

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 or 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 or 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 or 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 or 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 or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or 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, place of birth, 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, DC 20202- 4605 or <http://www.ed.gov/policy/gen/reg/ferpa/index.html>.

For more detailed information concerning JMU's records policy see James Madison University, Policies and Procedures, Policy 2112, The Family Educational Rights and Privacy Act at <http://www.jmu.edu/JMUpolicy/2112.shtml>.

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 credit/no-credit:

- Courses used to meet General Education requirements
- Courses within a major program
- Courses within a minor program

- Courses listed by name and number in a major or minor program but offered outside the major and minor academic unit
- 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 declare the course or courses that they plan to take on a credit/no-credit basis at the time of registration, 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 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 the following options to enable students to earn credit toward their degree outside the traditional classroom setting:

- Admission of High School Students as Special Students (Refer to the Office for Admissions Web site at <http://www.jmu.edu/admissions/> for more information.)
- Admission of First year students With Advanced Placement (See Pages 16-17 for information concerning the College Board Advanced Placement program.)
- Credit by Examination
- 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 the fees information in the catalog, Page 48.) Each academic unit will determine its time schedule for giving 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 professor. It is the student's responsibility to maintain all documentation for his or 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 professor (or professors, in the case of a jointly taught course) before the Friday of the second full 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 full week of classes in the subsequent fall semester. It is the student's responsibility to maintain all documentation for his or her classes, including copies of assignments and grades earned. If the professor agrees that a change should be made, the professor 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.

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 professor teaching that particular course. Grounds for grade review are limited to two categories.

- The grade was assigned in a manner other than that listed in the course syllabus or as amended by the professor with appropriate notice.
- 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 four steps.

1. The student submits a Grade Review Form (available at www.jmu.edu/registrar/forms.shtml or the Office of the Registrar) to the appropriate professor by Monday of the third full 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 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 full week of classes in the subsequent fall semester.
2. The student meets with the professor by Friday of the third full week of classes to attempt to resolve the concern.
 - If the student and the professor reach an agreement that the grade should be changed, the professor 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. 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 professor signs the Grade Review Form and records a written response on the reverse side of the form. The professor returns the original copy of this form to the student, retains a copy of the form for his or her personal records, and forwards a copy to the relevant academic unit head by Friday of the fourth full week of classes.
3. the Friday of the fifth full week of classes to request review of statement and response.
4. confers with the relevant professor.
 - 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 full week of classes. The student receives the original copy of this form, the relevant professor 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 professor 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. 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 above has been completed, 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 only 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. To enter this phase of the process, a student should follow these procedures.

1. The student contacts the dean by Friday of the eighth full week of classes and requests that the dean review the overall process.
2. The college dean reviews the process to be sure the student and the faculty member have had a fair hearing.
If the relevant college dean believes that due process was not followed during the review process, the dean consults with the relevant professor and academic unit head or cluster coordinator to resolve the dispute.
3. The relevant college dean sends a written response to all involved parties by Friday of the 10th full 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 or herself, and sends a copy to the relevant academic unit head and the relevant professor.
If it is agreed that the student's grade should be changed, the relevant professor submits a Grade Change Form to the academic unit head. The recipient then signs the form and forwards a copy to the dean. 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.

There is no further review beyond college dean. 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 professor by the Monday of the third full week of classes in the semester following the semester during which the grade was given. These students must also notify the professor of their semester absence from campus.

The student must contact the relevant academic unit head by the Friday of the fifth full week of classes to request review of statement and response. 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.

The academic unit head then meets with the student and confers with the relevant professor.

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.

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, a student 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 regular semesters and have earned a minimum of 30 credit hours at JMU during that period of enrollment.
- Be enrolled at JMU during the semester in which the requirements for the degree are completed.
- Have earned at least 60 credit hours accepted by JMU from accredited senior (four-year) institutions of higher education, including JMU.

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 regular semesters.
- Completion of a minimum of 60 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 beyond four semesters or 60 credit hours.

Graduation honors will then be determined as specified in the table below based on all course work, including course work taken at other colleges. All grades received in all courses attempted will be used to calculate the grade point average in consideration for graduation with honors. Grades and credits completed at other colleges will be converted to the JMU grading system.

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.

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 1996 and thereafter.

Requirements for graduation with honors for students who entered JMU prior to 1996 are regulated by the catalog in effect at the time they enrolled.

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 or 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 or 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 earn two different baccalaureate degrees concurrently or consecutively at James Madison University if he or she meets the following requirements:

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

Students who hold a baccalaureate degree from another institution may earn a second baccalaureate degree at James Madison University by meeting the following requirements:

- Complete a minimum of 30 credit hours and two regular semesters (including the semester in which requirements for the second baccalaureate degree are met) at JMU.
- Meet all prerequisite and course requirements in the major field and degree requirements for the second baccalaureate degree program.

- Earn a cumulative grade point average of 2.0 or higher at JMU in course work completed for the major and second baccalaureate degree programs.

Grievance Procedure for Students

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

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 or 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 Vice President for Academic Affairs will handle any appeal.

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 when:

- 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 or she has been harassed by a staff member, faculty member or by 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 or 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 Judicial Affairs in Frederickson Hall, C-Section.

If a student employee believes that he or she has been a victim of harassment, he or 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 and Student Development 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. The Honor Council office is located in Chandler Hall Rooms 133 and 133A, and the Web site at is <http://www.jmu.edu/honor>.

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.

Makeup Days for Classes Missed Due to Inclement Weather or Emergency

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.

Misconduct in Research and Other Scholarly Work

Policy 2205, concerning Misconduct in Research and Other Scholarly Work, 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.

Nonreturning 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 <http://www.jmu.edu/registrar/forms.shtml> or in the Office of the Registrar, 300 Warren Hall. Questions concerning the status of non-returning or leave of absence should be directed to the Office of the Registrar or to <http://www.jmu.edu/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 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. The Intent to Enroll form is available on the Web at <http://www.jmu.edu/registrar/forms.shtml>. The Re-entry Form is available on the Web at <http://www.jmu.edu/admissions/apply/PDF/reentry.pdf>. All registration holds must be cleared before the student will be eligible to register.

Deadlines for Submission of Intent to Enroll and Re-entry Forms

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 without declaring a formal leave of absence must submit an Intent to Enroll Form to the Office of the Registrar.

Students in good standing who have declared a formal leave of absence for non-medical reasons will be automatically activated and eligible to register for the stated semester of return without further action on their part (provided there is resolution of outstanding registration holds). 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 Registrar 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 Director of 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 Director of 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 Director of 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 Director of 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 Admissions. 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 <http://ecampus.jmu.edu>. The university expects all students to register on the dates indicated in the registration calendar. A late registration fee is charged for registration after the first day of classes, and there is no reduction in other fees.

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.

Student Assessment

JMU 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 the 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 further 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 carry a course load of at least twelve 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 Office of Teacher Education Services. 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. Official transcripts and other documents with the university seal attached are not released to the student; rather, the Office of the Registrar mails them directly to another college or authorized agency. 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 her or his 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 request in writing the approval of the appropriate college dean and the Office of the Registrar. The following regulations govern this option.

- The option must be exercised immediately after attempting 12 credit hours upon his or her return to JMU.
- 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.
- Consultation with the dean of the college in which the student is majoring is required.
- 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 Admission according to established deadlines.

Transfer of Credit from Other Institutions

Deadlines for Submission of Re-entry Applications	
Fall Semester	July 1
Spring Semester	November 1
Summer Session	April 1

A student wishing to earn credits at another institution, either in the summer or during a regular session, must obtain permission from the Office of the Registrar in advance of taking courses from another institution. Following consultation with the head of the academic unit if necessary, the Office of the Registrar will make the determination concerning the course and its application toward a JMU degree. 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 Dean of University Studies, the Associate Dean of University Studies 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 (*GHIST* 225 and *GPOSC* 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 "C" or better grade (2.0 quality points). Grades for courses taken at another institution are not included in grade point average calculations although they will be used in determining graduation honors for eligible students.

Unit of Credit

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 each week in the semester for lectures, or two 50-minute class periods for each week in the semester for laboratory or fieldwork.

Undergraduate Grading System

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

Quality Points Earned Per Credit Hour	Grade
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 2.0 level or above) ...	0
NC (No credit awarded).....	0
WP (Withdrawal while passing).....	0
WF (Withdrawal while failing).....	0
W (Withdrawal).....	0

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

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.

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

In certain circumstances, a grade of "NP" (denoting that an irregularity has resulted in a "Not Processed" designation) or "I" (recorded by faculty and denoting incomplete work in a given course) will be given for a course. An "NP" or "I" grade will automatically be converted to a permanent "F" grade at the end of the next regular semester. It is imperative that a student receiving any "NP" grade contact the Office of the Registrar as soon as possible to make sure that appropriate action is taken to remedy the problem. 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.

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.

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.

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.

Repeating Courses

A student may repeat any of the courses that he or she has taken 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 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. 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.

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.

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 Student Withdrawal at (540) 568-6183.

The Office of Student Withdrawal must approve such withdrawal requests, set the official withdrawal date and notify other university offices of the withdrawal. Strict compliance with this requirement is mandatory. Students who withdraw without receiving official approval will receive a grade of "F" for all courses in which they are enrolled.

Students who withdraw with official approval will receive grades based upon the following criteria:

- Students who withdraw from the university before the end of the course adjustment period will receive a grade of "W" in all their courses.
- Students who withdraw from the university for physical or mental health reasons will receive a grade of "W" in all courses and will receive a prorated refund for tuition, room and board, and fees. A letter from their appropriate health care provider must support a medical withdrawal. Re-entry to the university is contingent on receipt of a letter from their appropriate health care provider, and this letter must clearly indicate that the student is able to attend classes. Students who receive a mental health withdrawal must also be absent from the university for a period of at least 90 days. Supporting documentation for the student's return to the university must be received at least 30 days before re-entry. Students must have been in counseling to be eligible for a mental health withdrawal.
- Students who withdraw from the university because of documented extenuating circumstances after the end of the course adjustment period will receive a grade of "W" in all their courses.
- Students who withdraw from the university after the end of the course adjustment period, and who do not have documented extenuating circumstances that justify their withdrawal, will receive a grade of "W" in courses they are passing at the time of the withdrawal and a grade of "F" in courses they are failing at the time of withdrawal. These students will not receive a tuition or housing refund. Individual faculty members determine whether or not a student is passing a course.

Nondegree-seeking special students enrolled in an on- or off-campus course must also withdraw from the university by securing a Withdrawal Application form from the Office of Student Withdrawal. This form must be completed and returned to the Office of Student Withdrawal, which will process the official withdrawal. Any adjustment in charges will be calculated from the last date of attendance.

No adjustment in charges will be made unless the withdrawal form is received by the Office of Student Withdrawal within 30 days after the student leaves the campus or does not attend classes.

Adjustments will not include nonrefundable fees or charges. Further information on refunds may be found on Page 56.

Degree Requirements at James Madison University

Bachelor of Arts (B.A.)

Credit Hours

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

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

Credit Hours

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

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

Credit Hours

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

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

Credit Hours

General Education courses ⁷	41
Major concentration courses	30
Electives	49
	<hr/> 120

Bachelor of Music (B.M.)

Credit Hours

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

Bachelor of Science (B.S.)

Credit Hours

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

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

Credit Hours

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

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

Credit Hours

Core program – social work courses	42
General Education courses ²	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.
- 3 100-, 200-, 300- or 400-level course acceptable, or consult the list of courses satisfying Bachelor of Arts degree requirements at <http://www.jmu.edu/registrar>.
- 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 at <http://www.jmu.edu/registrar>
- 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.

Undergraduate Degrees at James Madison University

The following is a list of undergraduate degrees and programs offered at James Madison University. For more information, contact the academic unit.

Bachelor of Arts (B.A.)

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

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

Accounting
Computer Information Systems
Economics
Finance
Hospitality and Tourism Management
International Business
Management
Marketing

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

Individualized Study

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

Art, Studio

Bachelor of Music (B.M.)

Music

Bachelor of Science (B.S.)

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

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

Nursing

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

Social Work

Subject Abbreviations

Course Descriptions are listed in alphabetical order by subject. Courses that may meet General Education requirements (Pages 81-88) are preceded by a bold, italic **G** or an asterisk. If the course is part of a course sequence, the asterisk appears after the course subject abbreviation and number.

The abbreviations shown in this section are also listed on e-campus and student transcripts.

Subject	Abbreviation	Human Science	HSC (p. 353)
Accounting	ACTG (p. 295)	Humanitarian Affairs	HUMN (p. 353)
Africana Studies	AFST (p. 295)	Inclusive Early Childhood Education	IECE (p. 353)
AIRS	AIRS (p. 296)	Individualized Study	IS (p. 354)
American Studies	AMST (p. 296)	Industrial Design	INDU (p. 355)
Anthropology	ANTH (p. 296)	Information Analysis	IA (p. 355)
Arabic	ARAB (p. 299)	Integrated Science and Technology	ISAT (p. 356)
Art	ART (p. 299)	Interdisciplinary Liberal Studies	IDLs (p. 361)
Art Education	ARED (p. 301)	Interdisciplinary Social Science	ISS (p. 361)
Art History	ARTH (p. 301)	Interior Design	INDE (p. 361)
Astronomy	ASTR (p. 304)	International Affairs	INTA (p. 362)
Athletic Training Education Program	ATEP (p. 304)	International Business	IBUS (p. 362)
Biology	BIO (p. 305)	International Liberal Studies	ILS (p. 362)
Biotechnology	BIOT (p. 308)	Interscience Research	ISCI (p. 362)
Business Law	BLAW (p. 308)	Italian	ITAL (p. 362)
Business and Marketing Education	BMED (p. 309)	Japanese	JAPN (p. 363)
Chemistry	CHEM (p. 309)	Justice Studies	JUST (p. 363)
Chinese	CHIN (p. 311)	Kinesiology	KIN (p. 365)
Classics	CLAS (p. 311)	Korean	KOR (p. 367)
College of Business	COB (p. 311)	Latin	LAT (p. 367)
Communication Sciences and Disorders	CSD (p. 312)	Liberal Studies	LS (p. 367)
Communication Studies	SCOM (p. 313)	Management	MGT (p. 367)
Computer Information Systems	CIS (p. 315)	Management Science	MS (p. 316)
Computer Science	CS (p. 317)	Marketing	MKTG (p. 368)
Continuing Education	CE (p. 319)	Materials Science	MATS (p. 369)
Criminal Justice	CRJU (p. 319)	Mathematics	MATH (p. 370)
Dance	DANC (p. 319)	Media Arts and Design	SMAD (p. 373)
Early Childhood Education	ECED (p. 320)	Middle Education	MIED (p. 375)
Economics	ECON (p. 321)	Middle and Secondary Education	MSSE (p. 375)
Education	EDUC (p. 323)	Military Science	MSCI (p. 376)
Elementary Education	ELED (p. 323)	Music	MUS (p. 377)
Engineering	ENGR (p. 324)	Music Education	MUED (p. 379)
English	ENG (p. 324)	Music Industry	MUI (p. 380)
Environment	ENVT (p. 327)	Music Instruction, Applied	MUAP (p. 380)
Environmental Management	ENVM (p. 327)	Nonprofit Studies	NPS (p. 382)
Exceptional Education	EXED (p. 327)	Nursing	NSG (p. 382)
Family Studies	FAM (p. 329)	Nutrition	NUTR (p. 384)
Finance	FIN (p. 329)	Philosophy	PHIL (p. 385)
Foreign Language	FL (p. 331)	Physics	PHYS (p. 387)
French	FR (p. 331)	Political Science	POSC (p. 388)
General Business	GBUS (p. 332)	Psychology	PSYC (p. 391)
General Education	G (p. 332)	Public Policy and Administration	PPA (p. 393)
Geographic Science	GEOG (p. 336)	Reading Education	READ (p. 394)
Geology	GEOL (p. 338)	Religion	REL (p. 394)
German	GER (p. 340)	Russian	RUS (p. 396)
Gerontology	GERN (p. 341)	Social Work	SOWK (p. 396)
Graphic Design	GRPH (p. 341)	Sociology	SOCI (p. 397)
Greek	GRK (p. 342)	Spanish	SPAN (p. 400)
Health	HTH (p. 342)	Studies Abroad Course, Regularly Scheduled	(p. 401)
Health and Human Services	HHS (p. 345)	Teaching English as a Second Language	TESL (p. 404)
Health Services Administration	HSA (p. 345)	Technical Translation	TR (p. 404)
Hebrew	HEBR (p. 346)	Theatre	THEA (p. 405)
History	HIST (p. 346)	Vocational Education	VOED (p. 406)
Hospitality and Tourism Management	HTM (p. 351)	Women's Studies	WMST (p. 406)
Human Resource Development	HRD (p. 352)	Writing, Rhetoric and Technical Communication	WRTC (p. 407)

Undergraduate Programs

	Major	Minor	See Page		Major	Minor	See Page
Accounting (B.B.A.)	■		130	Education Pre-Professional Programs			36
Public Administration				Educational Media		■	222
Africana Studies		■	100	Engineering (B.S.)	■		92
American Studies		■	100	English (B.A.)	■	■	173
Anthropology (B.A., B.S.)	■	■	279	American Literature			
Archeology				British Literature			
Biological Anthropology				Creative Writing		□	
Cultural Anthropology				World Literature		□	
Art (B.F.A.)	■	■	138	English as a Second Language			178
General Fine Arts				Environmental Information Systems		■	103
Graphic Design				Environmental Management		■	104
Industrial Design				Environmental Science		■	104
Interior Design				Environmental Studies		■	105
Art (B.A.)	■	■	138	European Business concentration			66
General Fine Arts				European Marketing		■	228
Studio Art				Family Studies		■	106
Art (B.S.)	■	■	136	Film Studies		■	106
General Fine Arts				Finance (B.B.A.)	■		180
Industrial Design				Geographic Science (B.A., B.S.)	■	■	204
Art History (B.A.)	■	■	142	Applied Geographic Information Science			
Athletic Training (B.S.)	■		192	Environmental Conservation, Sustainability and Development			
Asian Studies		■	101	Geology (B.S.)	■	■	188
Biochemistry and Molecular Biology		■	101	General Geology			
Biology (B.A., B.S.)	■	■	145	Environmental and Engineering Geology			
Ecology and Environmental Biology				Gerontology		■	107
Biotechnology (B.S.)	■		90	Health Sciences (B.S.)	■		191
British Communication and Media		■	102	Health Assessment and Promotion			
Chemistry (B.S.)	■	■	149	Health Studies			
ACS Accredited Programs				Occupational Studies			
(Biochemistry, Chemical Education,				Public Health Education			
Chemistry and Materials Chemistry)				Substance Abuse Intervention		■	
Chemistry/Business				Health Services Administration (B.S.)	■		193
General Chemistry				History (B.A.)	■	■	198
Chinese Business Studies		■	66	Public History			
Classical Studies		■	102	Historical Archaeology		■	107
Communication Sciences and Disorders	■	■	152	Hospitality and Tourism Management (B.B.A.)	■		206
(B.A., B.S.)				Human Resource Development		■	222
Communication Studies (B.A., B.S.)	■	■	154	Human Science		■	107
Conflict Analysis and Intervention		□		Humanitarian Affairs		■	108
Cultural Communication		□		Individualized Study (B.I.S., B.A., B.S.)	■		133
Health Communication Studies		□		Social Science			
Interpersonal Communication Studies				Information Analysis (B.S.)	■		208
Organizational Communication Studies				National Security			
Political Communication				Competitive Intelligence			
Public Communication Studies		■		Integrated Science and Technology (B.S.)	■	■	204
Public Relations Studies				Biosystems			
Computer Information Systems (B.B.A.)	■	■	160	Energy			
Cooperative Education				Engineering and Manufacturing			
Computer Science (B.S.)	■	■	163	Environment			
Creative Writing		■	102	Environmental Information Systems		■	
Criminal Justice		■	103	Information and Knowledge Management			
Dietetics (B.S.)	■		192	Telecommunications		□	
Earth Science (B.A.)	■		189	Interdisciplinary Liberal Studies (B.S.)	■		98
Economics (B.A., B.S., B.B.A.)	■	■	173	Interdisciplinary Social Science		■	108
Environmental and Natural Resource				International Affairs (B.A.)	■		94
Financial				Comparative Study			
International				International Relations			
Socioeconomics							

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.

For information on teacher licensure, see Page 36.

	Major	Minor	See Page
International Business (B.B.A.)	■		212
Finance			
Marketing			
Justice Studies (B.A., B.S.)	■		215
Kinesiology (B.S.)	■		218
Coaching Education		■	
Exercise Science			
Physical and Health Education Teacher Education			
Sport Communication		■	
Sport and Recreation Management			
Latin American Studies		■	109
Management (B.B.A.)	■		223
Technology, Innovation and Entrepreneurship			
General Management			
Human Resource Management			
Management Science		■	162
Marketing (B.B.A.)	■		226
Business to Business Marketing			
Business to Consumer Marketing			
European Marketing		■	
Materials Science		□	116
Mathematics (B.A., B.S.)	■	■	229
Computational Sciences			
Media Arts and Design (B.A., B.S.)	■		234
Converged Media			
Corporate Communication			
Digital Video and Cinema			
Journalism			
Medieval and Renaissance Studies		■	110
Middle Education			240
Middle Eastern Communities and Migrations		■	110
Military Leadership		■	243
Army ROTC			
Modern European Studies		■	111
Modern Foreign Languages (B.A.)	■		183
Arabic		■	
Business French		■	
Business German		■	
Business Italian		■	
Business Spanish		■	
French		■	
German		■	
Italian		■	
Law Enforcement Spanish		■	
Legal Spanish		■	
Medical Spanish		■	
Russian		■	
Spanish		■	
Spanish-English Translation and Interpretation		■	
Music (B.M.)	■	■	245
Composition			
Jazz Studies		■	
Music Education (Instrumental, Vocal)			
Music Industry		□	
Music Theatre Emphasis			
Performance (Instrumental, Vocal,			
Piano, Accompanying/Coaching)			

	Major	Minor	See Page
Nonprofit Studies		■	112
Nursing (B.S.N.)	■		253
Philosophy and Religion (B.A.)	■		256
Interdisciplinary Philosophy			
Interdisciplinary Religion			
Philosophy		□	
Religion		□	
Physics (B.A., B.S.)	■	■	260
Applied Physics			
Astronomy		■	
Fundamental Studies			
Individual Option			
Multidisciplinary			
Physics/Engineering Combined			
Political Communication		■	112
Political Science (B.A.)	■	■	265
Pre-Professional Health Programs			122
Pre-dentistry, Pre-forensic Studies, Pre-medicine,			
Pre-occupational Therapy, Pre-optometry,			
Pre-pharmacy, Pre-physical Therapy, Pre-physician			
Assistant, Pre-veterinary Medicine			
Psychology (B.A., B.S.)	■		269
Behavior Analysis			
Public Policy and Administration (B.S.)	■	■	266
Public Policy			
Public Management			
Quantitative Finance (B.S.)	■		181
Russian Studies		■	113
Science, Technology and Society		■	113
Secondary Education		■	240
Social Work (B.S.W.)	■		273
Sociology (B.A., B.S.)	■	■	276
Community Action and Evaluation			
Environment, Technologies and Innovations			
Political and Global Analysis			
Markets and Cultures			
Social Inequalities and Public Policy			
Special Education		■	176
Statistics (B.S.)	■	■	231
Substance Abuse Intervention		■	114
Telecommunications		■	114
Theatre and Dance (B.A.)	■		282
Dance		□	
Musical Theatre			
Theatre		□	
Urban and Regional Studies		■	114
Women's Studies		■	115
World Literature		■	115
Writing, Rhetoric and Technical Communication (B.A., B.S.)	■	■	286
Technical and Scientific Communication			
Writing and Rhetoric Studies			

Teacher Education Pre-professional Licensure Programs

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.

Licensure Area	Degree Required	Major Field of Study	Academic Unit
Art Education, PreK-12	Bachelor's	Art	School of Art and Art History (Page 135)
Dance Education, PreK-12	Bachelor's	Dance	School of Theatre and Dance (Page 282)
Music Education, PreK-12	Bachelor's	Music	School of Music (Page 245)
Physical/Health Education, PreK-12	Master's	Kinesiology	Department of Kinesiology (Page 218)
Inclusive Early Childhood Education Birth-Age 8	Bachelor's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Early, Elementary and Reading Education (Page 165)
Elementary Education, PreK-6	Master's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Middle, Secondary and Mathematics Education (Page 240)
Middle Level, Education, 6-8	Master's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Middle, Secondary and Mathematics Education (Page 240)
Secondary Education, 6-12	Master's	Content major ¹ with education pre-professional licensure program	Department of Middle, Secondary and Mathematics Education (Page 240)
Special Education ² , K-12; IECE	Master's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Exceptional Education (Page 176)
Endorsements <p>Endorsements are available in the following areas. Contact the College of Education for more information.</p> <ul style="list-style-type: none"> ▪ Algebra I ▪ English as a Second Language (add-on licensure) ▪ Gifted Education (add-on licensure) ▪ Journalism ▪ Theatre <p>1 Biology, chemistry, English, geology, mathematics, foreign language, physics 2 IDLS is the recommended major</p>			

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, listed on Page 10, 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.

Lists of courses satisfying Bachelor of Arts and Bachelor of Science degree requirements are found at <http://www.jmu.edu/registrar>.

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 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.

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, pre-medicine, pre-dentistry and pre-health 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.

Degree Requirements at James Madison University

Bachelor of Arts (B.A.)

Credit Hours

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

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

Credit Hours

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

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

Credit Hours

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

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

Credit Hours

General Education courses ⁷	41
Major concentration courses	30
Electives	49
	<hr/> 120

Bachelor of Music (B.M.)

Credit Hours

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

Bachelor of Science (B.S.)

Credit Hours

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

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

Credit Hours

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

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

Credit Hours

Core program – social work courses	42
General Education courses ²	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.
- 3 100-, 200-, 300- or 400-level course acceptable, or consult the list of courses satisfying Bachelor of Arts degree requirements at <http://www.jmu.edu/registrar>.
- 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 at <http://www.jmu.edu/registrar>
- 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.

Undergraduate Degrees at James Madison University

The following is a list of undergraduate degrees and programs offered at James Madison University. For more information, contact the academic unit.

Bachelor of Arts (B.A.)

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

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

Accounting
Computer Information Systems
Economics
Finance
Hospitality and Tourism Management
International Business
Management
Marketing

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

Individualized Study

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

Art, Studio

Bachelor of Music (B.M.)

Music

Bachelor of Science (B.S.)

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

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

Nursing

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

Social Work

Subject Abbreviations

Course Descriptions are listed in alphabetical order by subject. Courses that may meet General Education requirements (Pages 81-88) are preceded by a bold, italic *G* or an asterisk. If the course is part of a course sequence, the asterisk appears after the course subject abbreviation and number.

The abbreviations shown in this section are also listed on e-campus and student transcripts.

Subject	Abbreviation	Human Science	HSC (p. 353)
Accounting	ACTG (p. 295)	Humanitarian Affairs	HUMN (p. 353)
Africana Studies	AFST (p. 295)	Inclusive Early Childhood Education	IECE (p. 353)
AIRS	AIRS (p. 296)	Individualized Study	IS (p. 354)
American Studies	AMST (p. 296)	Industrial Design	INDU (p. 355)
Anthropology	ANTH (p. 296)	Information Analysis	IA (p. 355)
Arabic	ARAB (p. 299)	Integrated Science and Technology	ISAT (p. 356)
Art	ART (p. 299)	Interdisciplinary Liberal Studies	IDLs (p. 361)
Art Education	ARED (p. 301)	Interdisciplinary Social Science	ISS (p. 361)
Art History	ARTH (p. 301)	Interior Design	INDE (p. 361)
Astronomy	ASTR (p. 304)	International Affairs	INTA (p. 362)
Athletic Training Education Program	ATEP (p. 304)	International Business	IBUS (p. 362)
Biology	BIO (p. 305)	International Liberal Studies	ILS (p. 362)
Biotechnology	BIOT (p. 308)	Interscience Research	ISCI (p. 362)
Business Law	BLAW (p. 308)	Italian	ITAL (p. 362)
Business and Marketing Education	BMED (p. 309)	Japanese	JAPN (p. 363)
Chemistry	CHEM (p. 309)	Justice Studies	JUST (p. 363)
Chinese	CHIN (p. 311)	Kinesiology	KIN (p. 365)
Classics	CLAS (p. 311)	Korean	KOR (p. 367)
College of Business	COB (p. 311)	Latin	LAT (p. 367)
Communication Sciences and Disorders	CSD (p. 312)	Liberal Studies	LS (p. 367)
Communication Studies	SCOM (p. 313)	Management	MGT (p. 367)
Computer Information Systems	CIS (p. 315)	Management Science	MS (p. 316)
Computer Science	CS (p. 317)	Marketing	MKTG (p. 368)
Continuing Education	CE (p. 319)	Materials Science	MATS (p. 369)
Criminal Justice	CRJU (p. 319)	Mathematics	MATH (p. 370)
Dance	DANC (p. 319)	Media Arts and Design	SMAD (p. 373)
Early Childhood Education	ECED (p. 320)	Middle Education	MIED (p. 375)
Economics	ECON (p. 321)	Middle and Secondary Education	MSSE (p. 375)
Education	EDUC (p. 323)	Military Science	MSCI (p. 376)
Elementary Education	ELED (p. 323)	Music	MUS (p. 377)
Engineering	ENGR (p. 324)	Music Education	MUED (p. 379)
English	ENG (p. 324)	Music Industry	MUI (p. 380)
Environment	ENVT (p. 327)	Music Instruction, Applied	MUAP (p. 380)
Environmental Management	ENVM (p. 327)	Nonprofit Studies	NPS (p. 382)
Exceptional Education	EXED (p. 327)	Nursing	NSG (p. 382)
Family Studies	FAM (p. 329)	Nutrition	NUTR (p. 384)
Finance	FIN (p. 329)	Philosophy	PHIL (p. 385)
Foreign Language	FL (p. 331)	Physics	PHYS (p. 387)
French	FR (p. 331)	Political Science	POSC (p. 388)
General Business	GBUS (p. 332)	Psychology	PSYC (p. 391)
General Education	<i>G</i> (p. 332)	Public Policy and Administration	PPA (p. 393)
Geographic Science	GEOG (p. 336)	Reading Education	READ (p. 394)
Geology	GEOL (p. 338)	Religion	REL (p. 394)
German	GER (p. 340)	Russian	RUS (p. 396)
Gerontology	GERN (p. 341)	Social Work	SOWK (p. 396)
Graphic Design	GRPH (p. 341)	Sociology	SOCI (p. 397)
Greek	GRK (p. 342)	Spanish	SPAN (p. 400)
Health	HTH (p. 342)	Studies Abroad Course, Regularly Scheduled	(p. 401)
Health and Human Services	HHS (p. 345)	Teaching English as a Second Language	TESL (p. 404)
Health Services Administration	HSA (p. 345)	Technical Translation	TR (p. 404)
Hebrew	HEBR (p. 346)	Theatre	THEA (p. 405)
History	HIST (p. 346)	Vocational Education	VOED (p. 406)
Hospitality and Tourism Management	HTM (p. 351)	Women's Studies	WMST (p. 406)
Human Resource Development	HRD (p. 352)	Writing, Rhetoric and Technical Communication	WRTC (p. 407)

Undergraduate Programs

	Major	Minor	See Page		Major	Minor	See Page
Accounting (B.B.A.)	■		130	Education Pre-Professional Programs			36
Public Administration				Educational Media		■	222
Africana Studies		■	100	Engineering (B.S.)	■		92
American Studies		■	100	English (B.A.)	■	■	173
Anthropology (B.A., B.S.)	■	■	279	American Literature			
Archeology				British Literature			
Biological Anthropology				Creative Writing		□	
Cultural Anthropology				World Literature		□	
Art (B.F.A.)	■	■	138	English as a Second Language			178
General Fine Arts				Environmental Information Systems		■	103
Graphic Design				Environmental Management		■	104
Industrial Design				Environmental Science		■	104
Interior Design				Environmental Studies		■	105
Art (B.A.)	■	■	138	European Business concentration			66
General Fine Arts				European Marketing		■	228
Studio Art				Family Studies		■	106
Art (B.S.)	■	■	136	Film Studies		■	106
General Fine Arts				Finance (B.B.A.)	■		180
Industrial Design				Geographic Science (B.A., B.S.)	■	■	204
Art History (B.A.)	■	■	142	Applied Geographic Information Science			
Athletic Training (B.S.)	■		192	Environmental Conservation, Sustainability and Development			
Asian Studies		■	101	Geology (B.S.)	■	■	188
Biochemistry and Molecular Biology		■	101	General Geology			
Biology (B.A., B.S.)	■	■	145	Environmental and Engineering Geology			
Ecology and Environmental Biology				Gerontology		■	107
Biotechnology (B.S.)	■		90	Health Sciences (B.S.)	■		191
British Communication and Media		■	102	Health Assessment and Promotion			
Chemistry (B.S.)	■	■	149	Health Studies			
ACS Accredited Programs				Occupational Studies			
(Biochemistry, Chemical Education,				Public Health Education			
Chemistry and Materials Chemistry)				Substance Abuse Intervention		■	
Chemistry/Business				Health Services Administration (B.S.)	■		193
General Chemistry				History (B.A.)	■	■	198
Chinese Business Studies		■	66	Public History			
Classical Studies		■	102	Historical Archaeology		■	107
Communication Sciences and Disorders	■	■	152	Hospitality and Tourism Management (B.B.A.)	■		206
(B.A., B.S.)				Human Resource Development		■	222
Communication Studies (B.A., B.S.)	■	■	154	Human Science		■	107
Conflict Analysis and Intervention		□		Humanitarian Affairs		■	108
Cultural Communication		□		Individualized Study (B.I.S., B.A., B.S.)	■		133
Health Communication Studies		□		Social Science			
Interpersonal Communication Studies				Information Analysis (B.S.)	■		208
Organizational Communication Studies				National Security			
Political Communication				Competitive Intelligence			
Public Communication Studies		■		Integrated Science and Technology (B.S.)	■	■	204
Public Relations Studies				Biosystems			
Computer Information Systems (B.B.A.)	■	■	160	Energy			
Cooperative Education				Engineering and Manufacturing			
Computer Science (B.S.)	■	■	163	Environment			
Creative Writing		■	102	Environmental Information Systems		■	
Criminal Justice		■	103	Information and Knowledge Management			
Dietetics (B.S.)	■		192	Telecommunications		□	
Earth Science (B.A.)	■		189	Interdisciplinary Liberal Studies (B.S.)	■		98
Economics (B.A., B.S., B.B.A.)	■	■	173	Interdisciplinary Social Science		■	108
Environmental and Natural Resource				International Affairs (B.A.)	■		94
Financial				Comparative Study			
International				International Relations			
Socioeconomics							

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.

For information on teacher licensure, see Page 36.

	Major	Minor	See Page
International Business (B.B.A.)	■		212
Finance			
Marketing			
Justice Studies (B.A., B.S.)	■		215
Kinesiology (B.S.)	■		218
Coaching Education		■	
Exercise Science			
Physical and Health Education Teacher Education			
Sport Communication		■	
Sport and Recreation Management			
Latin American Studies		■	109
Management (B.B.A.)	■		223
Technology, Innovation and Entrepreneurship			
General Management			
Human Resource Management			
Management Science		■	162
Marketing (B.B.A.)	■		226
Business to Business Marketing			
Business to Consumer Marketing			
European Marketing		■	
Materials Science		□	116
Mathematics (B.A., B.S.)	■	■	229
Computational Sciences			
Media Arts and Design (B.A., B.S.)	■		234
Converged Media			
Corporate Communication			
Digital Video and Cinema			
Journalism			
Medieval and Renaissance Studies		■	110
Middle Education			240
Middle Eastern Communities and Migrations		■	110
Military Leadership		■	243
Army ROTC			
Modern European Studies		■	111
Modern Foreign Languages (B.A.)	■		183
Arabic		■	
Business French		■	
Business German		■	
Business Italian		■	
Business Spanish		■	
French		■	
German		■	
Italian		■	
Law Enforcement Spanish		■	
Legal Spanish		■	
Medical Spanish		■	
Russian		■	
Spanish		■	
Spanish-English Translation and Interpretation		■	
Music (B.M.)	■	■	245
Composition			
Jazz Studies		■	
Music Education (Instrumental, Vocal)			
Music Industry		□	
Music Theatre Emphasis			
Performance (Instrumental, Vocal,			
Piano, Accompanying/Coaching)			

	Major	Minor	See Page
Nonprofit Studies		■	112
Nursing (B.S.N.)	■		253
Philosophy and Religion (B.A.)	■		256
Interdisciplinary Philosophy			
Interdisciplinary Religion			
Philosophy		□	
Religion		□	
Physics (B.A., B.S.)	■	■	260
Applied Physics			
Astronomy		■	
Fundamental Studies			
Individual Option			
Multidisciplinary			
Physics/Engineering Combined			
Political Communication		■	112
Political Science (B.A.)	■	■	265
Pre-Professional Health Programs			122
Pre-dentistry, Pre-forensic Studies, Pre-medicine,			
Pre-occupational Therapy, Pre-optometry,			
Pre-pharmacy, Pre-physical Therapy, Pre-physician			
Assistant, Pre-veterinary Medicine			
Psychology (B.A., B.S.)	■		269
Behavior Analysis			
Public Policy and Administration (B.S.)	■	■	266
Public Policy			
Public Management			
Quantitative Finance (B.S.)	■		181
Russian Studies		■	113
Science, Technology and Society		■	113
Secondary Education		■	240
Social Work (B.S.W.)	■		273
Sociology (B.A., B.S.)	■	■	276
Community Action and Evaluation			
Environment, Technologies and Innovations			
Political and Global Analysis			
Markets and Cultures			
Social Inequalities and Public Policy			
Special Education		■	176
Statistics (B.S.)	■	■	231
Substance Abuse Intervention		■	114
Telecommunications		■	114
Theatre and Dance (B.A.)	■		282
Dance		□	
Musical Theatre			
Theatre		□	
Urban and Regional Studies		■	114
Women's Studies		■	115
World Literature		■	115
Writing, Rhetoric and Technical Communication (B.A., B.S.)	■	■	286
Technical and Scientific Communication			
Writing and Rhetoric Studies			

Teacher Education Pre-professional Licensure Programs

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.

Licensure Area	Degree Required	Major Field of Study	Academic Unit
Art Education, PreK-12	Bachelor's	Art	School of Art and Art History (Page 135)
Dance Education, PreK-12	Bachelor's	Dance	School of Theatre and Dance (Page 282)
Music Education, PreK-12	Bachelor's	Music	School of Music (Page 245)
Physical/Health Education, PreK-12	Master's	Kinesiology	Department of Kinesiology (Page 218)
Inclusive Early Childhood Education Birth-Age 8	Bachelor's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Early, Elementary and Reading Education (Page 165)
Elementary Education, PreK-6	Master's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Middle, Secondary and Mathematics Education (Page 240)
Middle Level, Education, 6-8	Master's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Middle, Secondary and Mathematics Education (Page 240)
Secondary Education, 6-12	Master's	Content major ¹ with education pre-professional licensure program	Department of Middle, Secondary and Mathematics Education (Page 240)
Special Education ² , K-12; IECE	Master's	IDLS with education pre-professional licensure program	Interdisciplinary Liberal Studies (Page 98) Department of Exceptional Education (Page 176)
Endorsements <p>Endorsements are available in the following areas. Contact the College of Education for more information.</p> <ul style="list-style-type: none"> ▪ Algebra I ▪ English as a Second Language (add-on licensure) ▪ Gifted Education (add-on licensure) ▪ Journalism ▪ Theatre <p>1 Biology, chemistry, English, geology, mathematics, foreign language, physics 2 IDLS is the recommended major</p>			

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, listed on Page 10, 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.

Lists of courses satisfying Bachelor of Arts and Bachelor of Science degree requirements are found at <http://www.jmu.edu/registrar>.

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 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.

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, pre-medicine, pre-dentistry and pre-health 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.

Undergraduate Programs

	Major	Minor	See Page		Major	Minor	See Page
Accounting (B.B.A.)	■		130	Education Pre-Professional Programs			36
Public Administration				Educational Media		■	222
Africana Studies		■	100	Engineering (B.S.)	■		92
American Studies		■	100	English (B.A.)	■	■	173
Anthropology (B.A., B.S.)	■	■	279	American Literature			
Archeology				British Literature			
Biological Anthropology				Creative Writing		□	
Cultural Anthropology				World Literature		□	
Art (B.F.A.)	■	■	138	English as a Second Language			178
General Fine Arts				Environmental Information Systems		■	103
Graphic Design				Environmental Management		■	104
Industrial Design				Environmental Science		■	104
Interior Design				Environmental Studies		■	105
Art (B.A.)	■	■	138	European Business concentration			66
General Fine Arts				European Marketing		■	228
Studio Art				Family Studies		■	106
Art (B.S.)	■	■	136	Film Studies		■	106
General Fine Arts				Finance (B.B.A.)	■		180
Industrial Design				Geographic Science (B.A., B.S.)	■	■	204
Art History (B.A.)	■	■	142	Applied Geographic Information Science			
Athletic Training (B.S.)	■		192	Environmental Conservation, Sustainability and Development			
Asian Studies		■	101	Geology (B.S.)	■	■	188
Biochemistry and Molecular Biology		■	101	General Geology			
Biology (B.A., B.S.)	■	■	145	Environmental and Engineering Geology			
Ecology and Environmental Biology				Gerontology		■	107
Biotechnology (B.S.)	■		90	Health Sciences (B.S.)	■		191
British Communication and Media		■	102	Health Assessment and Promotion			
Chemistry (B.S.)	■	■	149	Health Studies			
ACS Accredited Programs				Occupational Studies			
(Biochemistry, Chemical Education,				Public Health Education			
Chemistry and Materials Chemistry)				Substance Abuse Intervention		■	
Chemistry/Business				Health Services Administration (B.S.)	■		193
General Chemistry				History (B.A.)	■	■	198
Chinese Business Studies		■	66	Public History			
Classical Studies		■	102	Historical Archaeology		■	107
Communication Sciences and Disorders	■	■	152	Hospitality and Tourism Management (B.B.A.)	■		206
(B.A., B.S.)				Human Resource Development		■	222
Communication Studies (B.A., B.S.)	■	■	154	Human Science		■	107
Conflict Analysis and Intervention		□		Humanitarian Affairs		■	108
Cultural Communication		□		Individualized Study (B.I.S., B.A., B.S.)	■		133
Health Communication Studies		□		Social Science			
Interpersonal Communication Studies				Information Analysis (B.S.)	■		208
Organizational Communication Studies				National Security			
Political Communication				Competitive Intelligence			
Public Communication Studies		■		Integrated Science and Technology (B.S.)	■	■	204
Public Relations Studies				Biosystems			
Computer Information Systems (B.B.A.)	■	■	160	Energy			
Cooperative Education				Engineering and Manufacturing			
Computer Science (B.S.)	■	■	163	Environment			
Creative Writing		■	102	Environmental Information Systems		■	
Criminal Justice		■	103	Information and Knowledge Management			
Dietetics (B.S.)	■		192	Telecommunications		□	
Earth Science (B.A.)	■		189	Interdisciplinary Liberal Studies (B.S.)	■		98
Economics (B.A., B.S., B.B.A.)	■	■	173	Interdisciplinary Social Science		■	108
Environmental and Natural Resource				International Affairs (B.A.)	■		94
Financial				Comparative Study			
International				International Relations			
Socioeconomics							

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.

For information on teacher licensure, see Page 36.

	Major	Minor	See Page
International Business (B.B.A.)	■		212
Finance			
Marketing			
Justice Studies (B.A., B.S.)	■		215
Kinesiology (B.S.)	■		218
Coaching Education		■	
Exercise Science			
Physical and Health Education Teacher Education			
Sport Communication		■	
Sport and Recreation Management			
Latin American Studies		■	109
Management (B.B.A.)	■		223
Technology, Innovation and Entrepreneurship			
General Management			
Human Resource Management			
Management Science		■	162
Marketing (B.B.A.)	■		226
Business to Business Marketing			
Business to Consumer Marketing			
European Marketing		■	
Materials Science		□	116
Mathematics (B.A., B.S.)	■	■	229
Computational Sciences			
Media Arts and Design (B.A., B.S.)	■		234
Converged Media			
Corporate Communication			
Digital Video and Cinema			
Journalism			
Medieval and Renaissance Studies		■	110
Middle Education			240
Middle Eastern Communities and Migrations		■	110
Military Leadership		■	243
Army ROTC			
Modern European Studies		■	111
Modern Foreign Languages (B.A.)	■		183
Arabic		■	
Business French		■	
Business German		■	
Business Italian		■	
Business Spanish		■	
French		■	
German		■	
Italian		■	
Law Enforcement Spanish		■	
Legal Spanish		■	
Medical Spanish		■	
Russian		■	
Spanish		■	
Spanish-English Translation and Interpretation		■	
Music (B.M.)	■	■	245
Composition			
Jazz Studies		■	
Music Education (Instrumental, Vocal)			
Music Industry		□	
Music Theatre Emphasis			
Performance (Instrumental, Vocal, Piano, Accompanying/Coaching)			

	Major	Minor	See Page
Nonprofit Studies		■	112
Nursing (B.S.N.)	■		253
Philosophy and Religion (B.A.)	■		256
Interdisciplinary Philosophy			
Interdisciplinary Religion			
Philosophy		□	
Religion		□	
Physics (B.A., B.S.)	■	■	260
Applied Physics			
Astronomy		■	
Fundamental Studies			
Individual Option			
Multidisciplinary			
Physics/Engineering Combined			
Political Communication		■	112
Political Science (B.A.)	■	■	265
Pre-Professional Health Programs			122
Pre-dentistry, Pre-forensic Studies, Pre-medicine,			
Pre-occupational Therapy, Pre-optometry,			
Pre-pharmacy, Pre-physical Therapy, Pre-physician			
Assistant, Pre-veterinary Medicine			
Psychology (B.A., B.S.)	■		269
Behavior Analysis			
Public Policy and Administration (B.S.)	■	■	266
Public Policy			
Public Management			
Quantitative Finance (B.S.)	■		181
Russian Studies		■	113
Science, Technology and Society		■	113
Secondary Education		■	240
Social Work (B.S.W.)	■		273
Sociology (B.A., B.S.)	■	■	276
Community Action and Evaluation			
Environment, Technologies and Innovations			
Political and Global Analysis			
Markets and Cultures			
Social Inequalities and Public Policy			
Special Education		■	176
Statistics (B.S.)	■	■	231
Substance Abuse Intervention		■	114
Telecommunications		■	114
Theatre and Dance (B.A.)	■		282
Dance		□	
Musical Theatre			
Theatre		□	
Urban and Regional Studies		■	114
Women's Studies		■	115
World Literature		■	115
Writing, Rhetoric and Technical Communication (B.A., B.S.)	■	■	286
Technical and Scientific Communication		□	
Writing and Rhetoric Studies		□	

Student Services and Learning Resources

Academic Affairs Mission Statement

Phone: (540) 568-6616

Web site: <http://www.jmu.edu/acadaffairs>

Our mission is to provide an exceptional educational experience, designed to meet the changing needs of our students in society and dedicated to achieving the highest level of excellence within our academic programs. We strive to focus on the student both as an individual and as a member of the global community. Our faculty are dedicated mentors who are scholars, innovative teachers, and models of responsibility and accountability. Our staff are creative and talented colleagues who are committed to providing a supportive environment that facilitates learning and development.

Administration and Finance Mission Statement

Phone: (540) 568-6434

Web site: <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 and University Planning Mission Statement

Phone: (540) 568-3685

Web site: <http://www.jmu.edu/stuaffairs/>

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

Business Services

Bookstore

211 Bluestone Drive, MSC 2902

Phone: (540) 568-6121

Web site: <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, office and computer supplies, software, clothing, gifts, magazines and greeting cards. For students' convenience, the bookstore provides services including special orders for books, textbook buy back, gift certificates, film processing, bus tickets and computer services.

Card Services

Warren Hall, Third Floor, MSC 3532

Phone: (540) 568-6446

Web site: <http://www.jmu.edu/cardctr/>

Card Services issues the JMU access card, the official identification card for all members of the university community. JAC allows access to various campus facilities and services.

It is also used for meal plans, dining dollar declining balance accounts and FLEX declining balance accounts, all of which are administered by Card Services. FLEX declining balance accounts are honored for purchases or services in the following areas: bookstore, on-campus copy centers and copy machines, game room, library fines, Mister Chips convenience store, postal services, University Health Center, UREC, printing labs across campus, Masterpiece Theatre, Parking Services, UPB movies, on-campus vending machines, Warren Hall Ticket Office and all dining services locations as well as many off campus locations.

Copy Centers

Medical Arts Suite 31, MSC 5722

Phone: (540) 568-3263

HHS, Room 1002, MSC 4311

Phone: (540) 568-8731

Web site: <http://www.jmu.edu/copycenter>

The University Copy Centers are owned and operated by the university as a service to the campus community. Two locations provide a full range of photocopying services. Academic coursepack service, copyright permission service, full color copying, digital copying and digital file storage, network printing, binding, laminating and express photocopying service are available. Hours of operation vary by location. All centers are closed for university holidays.

Dining Services

Gibbons Hall, Entrance 7, MSC 0901

Phone: (540) 568-6751

Web site: <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." They are the 19-Meal Plan, the 14-Meal Plan and Any-11-Premier Meal Plan. Commuters, who do not automatically have meal plans, may purchase any of the on-campus plans and have the additional options of a ten, five and three meal plan.

The department offers declining balance accounts that operate like debit cards. Students using this plan, called Dining Dollars, get a 5-percent discount and pay no sales tax on anything they buy. Cash sales are also welcome at all Dining Services locations.

Parking Services

Parking Deck, 381 Bluestone Drive, MSC 1301

Phone: (540) 568-3300

Web site: <http://www.jmu.edu/parking/>

All vehicles parked on property owned, operated or leased by James Madison University are required to display a valid JMU parking permit. For information regarding the university's parking regulations refer to the *Parking and Traffic Regulations Handbook*. A copy of the handbook may be obtained free of charge upon request at the Parking Services office. Updated information can be obtained throughout the academic year on the Web site.

Career and Academic Planning

Wilson Hall, Room 301, MSC 1016

Phone: (540) 568-6555

Employer Relations and Recruiting: Sonner Hall, Lower Level

Phone: (540) 568-7379

Web site: <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.

Academic Advising

Academic advising is vital to student success. The advisor assists students in shaping their educational experience to meet specific intellectual, personal and career goals. Advisors 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 advisors who discuss with them the university's various programs of study, academic policies and procedures, advanced placement/exemption testing, and registration procedures. At that time, students plan their course of study and register for fall semester classes. Advisors 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 advisors in their academic unit. Students remaining undeclared are assigned to a professional advisor in Career and Academic Planning. First year students must declare their major by the beginning of their sophomore year. Refer to Page 23 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 advisor. Students must be aware of their own interests, values and goals; knowledgeable about relevant policies and requirements; and willing to take the initiative to seek assistance when it is needed. Advisors 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.

Graduate School Application and Information Resources

In the fall semester, students may attend a graduate and professional school fair open to all majors. Additionally, programs on the graduate school application process are offered throughout the year. Career and Academic Planning also offers practice tests for graduate and professional school admission. Numerous resources related to graduate and professional schools can be found on the Career and Academic Planning Web site.

Career Advising and Decision-Making

Career and Academic Planning assists students at various stages of the decision-making process for choosing a major and career. In addition to the availability of professional staff to help students with decision-making issues, other programs and services include the following.

Career and Life Planning Course (IS 202)

The career and life planning course is for first year students

and sophomores 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.

Major and Career Decisions Program

The Major and Career Decisions Program is a series of workshops designed to help students pick a major, decide on a career direction, assess career information and resolve personal issues interfering with their ability to make career plans. Topics covered include career assessment, values, interests, abilities, career information and decision-making strategies.

Academic and Career Resource Center

The resource center provides information and assistance related to choosing a major and career planning, internship/summer jobs, job search tools and career trend information. A tool available to all students is FOCUS, a web-based career exploration tool available in the resource center and on-line. Directories with employer contact information and graduate school options are also available. Resources include books, printed materials, handouts, databases, career software and Web-based information. Information is 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.

Employment, Internship and Job Search Services

Employer Relations and Recruiting Services

Business, industry, government and educational employers come to JMU throughout the year to conduct job interviews with graduating seniors and students seeking internships. Information about the interview program, participating employers and interview sign-ups is available on the Career and Academic Planning Web site. To interview, students must complete a Recruit-a-Duke workshop and create a profile on Recruit-a-Duke, an online system that connects students with employment and interviewing opportunities. To help students prepare for interviews, mock interview sessions with employer participants are held each semester.

Resume Development

Assistance with writing resumes is available to students in many forms. Students may access resume writing support via the Career and Academic Planning Web site. Resume writing workshops and other related services are available throughout the year, and students may make an appointment with an academic and career advisor to receive individual assistance. Additionally, a variety of resume guides are available in the Resource Center in Wilson Hall.

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 employment-related information.

Job Search

Job search related programs are offered throughout the academic year, including presentations on job search strategies for targeted industries, behavioral interviewing, networking and evaluating job offers. Students may also meet individually with an academic and career advisor to tailor their job search. Job vacancy publications are available through the resource center, which provide information about job opportunities in a variety of career fields. Recruit-a-Duke, JMU's online job search system, also gives students access to vacancy listings.

Internships

Internships are available with the federal government, other governmental agencies, nonprofit organizations and private entities. Students interested in internships should contact Career and Academic Planning or the appropriate academic unit office to obtain additional information. Credit must be arranged in advance with the appropriate academic unit head and the Office of the Registrar.

Community Service-Learning

Wilson Hall, Room 201, MSC 1011

Phone: (540) 568-6366

Web site: <http://www.jmu.edu/csl>

Community Service-Learning 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. Alternative break programs are student led and developed service trips to locations in the United States and abroad. Most trips occur during spring break week, but trips may be offered during any academic break. America Reads and Community Work Study, part of the Federal Work Study financial aid program, place students in elementary schools to tutor in reading and in community service agencies that address a variety of community needs.

Counseling & Student Development Center (CSDC)

Varner House, Room 101, MSC 0801

Phone: (540) 568-6552

Web site: <http://www.jmu.edu/counselingctr/>

The CSDC 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 CSDC 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 CSDC operates under a short-term treatment model under 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.
- **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.).
- **Substance Abuse Counseling:** Screening, assessment, referral, education, individual counseling and group counseling are available to students struggling with alcohol or other drug issues.
- **Psychiatric Services:** The CSDC has a psychiatrist who prescribes medications that may be helpful to students dealing with psychological issues. Only students who are currently engaged in ongoing treatment at the CSDC 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 CSDC provides consultation to students, faculty, staff and others who are concerned about the 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 CSDC 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.
- **Certificate Programs:** The Interpersonal Skills Certificate Program helps students to develop the abilities and confidence necessary to effectively deal with a variety of social, emotional and academic situations. The Anger Management Certificate Program gives students the opportunity to examine their personal responses to anger and to learn more productive ways to deal with this emotion.

Center for Multicultural Student Services

Warren Hall, Room 245, MSC 3504

Phone: (540) 568-6636

Web site: <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 purpose of CMSS is:

- To assist the university in its goal of recruitment of multicultural students, faculty and staff.
- To assist with the retention of multicultural students through a host of program services designed to encourage 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 be an active part of the mainstream of campus life.

The office works diligently to provide the following services:

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

Computer Literacy

JMU is committed to providing an educational environment that is consistent with current technology in an information society. The university provides all students with the opportunity to have some experience with computers.

The General Education Program requires all students to pass a basic computer proficiency test in their first semester at JMU. Other academic units also offer courses emphasizing computer applications for individual disciplines.

Computer Ownership

JMU strongly supports and encourages student use of computers. At some point in each student's college career, he or she will need to purchase a computer in order to meet the curricular expectations of a particular program. Recommended computer configurations for use in specific departments and majors can be found online at www.jmu.edu/computing/purchase.

Honors Program

Phone: (540) 568-6953

Web site: <http://www.jmu.edu/honorsprog/>

The Honors Program seeks to meet the educational needs of talented, highly motivated students by offering increased opportunities for an enriched and demanding curriculum. It is administered by the director of the Honors Program and the Honors Program Committee. 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 small 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 program consists of various modes of study.

Track One Honors Scholars

High-achieving high school seniors are invited to enter the Honors Program as Track One Honors Scholars. Track One Honors Scholars complete a total of 27 hours in honors, including:

- Nine credit hours of honors courses in General Education
- Six credit hours of electives in courses designated "Honors" or honors options
- Six credit hours in interdisciplinary honors seminars or colloquia
- Six credit hours of independent study – the senior honors project in the student's major

Track One Honors Scholars are expected to maintain at least a 3.50 grade point average. Designation as an honors scholar and graduation with distinction will appear on the student's record after completing the program.

Track Two Honors Scholars

The Track Two Honors Scholars Program is open to first- and second-year students with at least a 3.25 grade point average. Students must also submit an application to the program office in which they give their reason for wanting to participate in the Honors Program. Students who complete the program will graduate as Honors Scholars and graduation with distinction will appear on the students' records. Candidates for Track Two Honors complete at least 24 credit hours in honors, including a six-credit hour senior honors project, six credit hours in honors seminars, and twelve credit hours of electives in honors courses.

Senior Honors Project

Academic units offer eligible students a special opportunity in the senior year to pursue an independent research topic or creative project in their major field. Successful completion of this project results in the awarding of the degree with distinction at commencement. Students not in the Honors Scholars programs are invited to apply through their academic units during their junior year. Admission to the Senior Honors Project Program is limited to juniors with at least a 3.25 average who give sufficient evidence of initiative, originality and intellectual maturity to warrant the expectation of distinction in the program. Acceptance for participation is determined by the director of the Honors Program and the student's major department. Each year awards for the outstanding honors project are given by the Shenandoah Association of Phi Beta Kappa and the JMU Chapter of Phi Kappa Phi.

Honors Courses

The university offers honors sections in different academic units that set the criteria for admission to and the requirements for these honors sections. Information concerning these courses can be obtained from individual academic units or the Honors Program. Students may also receive honors credit for work in regular course sections above and beyond the normal course requirements by agreement between the student, the instructor and the director of the Honors Program. The Honors Program also offers courses, such as honors seminars.

No honors courses may be taken with the credit/no-credit option unless the credit/no credit option is the only grading option available for the course. Honors courses may be audited with the permission of the Honors Program director, the student's faculty advisor, the instructor of the course and the appropriate academic unit head, but no honors credit will be given.

Honorary Societies

The following honorary and professional societies recognized by the Association of College Honor Societies maintain active chapters on the JMU campus:

Alpha Epsilon Delta (pre-medicine)
 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 Kappa Phi National Honor Society
 Phi Sigma Tau (philosophy)
 Pi Sigma Alpha (political science)
 Psi Chi (psychology)
 Sigma Pi Sigma (physics)
 Sigma Tau Delta (English)

Other honorary and professional societies at JMU include:

Alpha Epsilon Rho (broadcasting)
 Alpha Kappa Psi (professional business society)
 American Production and Inventory Control Society (resource management)
 Beta Alpha Psi (accounting)
 Beta Beta Beta (biology)
 Beta Gamma Sigma (business)
 Data Processing Management Association (information systems)
 Delta Sigma Pi (professional business society)
 Dobro Slovo (Russian studies)
 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)
 Mu Kappa Tau (marketing)
 National Association of Social Workers Program Unit
 Order of Omega (Greek leadership)
 Phi Alpha National Social Work Honor Society
 Phi Beta Lambda (business)
 Phi Chi Theta (business and economics)
 Phi Epsilon Kappa (honorary)
 Phi Mu Alpha Sinfonia (music)
 Pi Mu Epsilon (mathematics)
 Pi Sigma Epsilon (marketing)
 Rotaract (business)
 SIGGRAPH (digital media production)
 Sigma Alpha Iota (music)
 Sigma Phi Lambda (honorary)
 Society for Collegiate Journalists
 Society of Human Resources Management
 Society of Professional Journalists
 Tau Beta Sigma (band)

Office of International Programs

JMAC 6, Suite 22, MSC 5731

Phone: (540) 568-6419

Fax: (540) 568-3310

Web site: <http://www.jmu.edu/international/>

Semester Abroad Programs

Recognizing its responsibility to provide international experiences to JMU students, the university sponsors semesters abroad in Antwerp, Beijing, Florence, London and Salamanca. 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 the 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. Special entrance requirements are as follows. For Antwerp, there is no language requirement but applicants must be COB majors. For Florence, at least one semester of Italian is strongly recommended but not required. Students applying for the Salamanca program, where courses are taught in Spanish, are expected to have completed SPAN 231-232 or the equivalent of intermediate Spanish. Students are required to take three hours of Italian during their semester abroad and may take six hours during the fall and spring semesters. The Antwerp program for COB majors is offered during the fall and spring semesters. Participants in the summer in Beijing program may earn a minor in Chinese Business Studies and must take MKTG 380 either before or after participating in the program. The Florence, London and Salamanca programs are offered during the fall, spring and summer semesters. Internships are available as part of the London program.

Students should select a minimum of 15 credit hours and may enroll in a maximum of 18 credit hours. Course offerings vary from semester to semester. The curriculum in each program addresses a broad spectrum of academic interests but is centered around a core appropriate to the special cultural resources of the city or country.

Courses are generally taught twice weekly – one day in the classroom and another day “on site.” Classes promote individual cognitive and affective learning through experiential methods, such as studying drama by reading and attending plays, art history by viewing and discussing original works of art in museums and galleries, and political science by observing parliament in action. These instructional activities are covered by the program's fees if the students are registered for academic credit in the courses.

Courses meet the requirements of the corresponding departments and schools and may satisfy some general education requirements at JMU. A student may also arrange an independent study project under the supervision of a JMU instructor. Independent study projects also must be approved by the program director who can judge the topic's appropriateness to the city and the student's language level.

The programs' costs differ but all programs include tuition, housing, a basic food allowance, all 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 apply, 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 Office of International Programs.

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 LaTrobe University and Flinders University in Australia; University of Leicester in England; Nanzan University, Hiroshima University and Ritsumeikan University in Japan; Yonsei University in South Korea; the Universidad de Salamanca in Spain; American University of Cairo and Misr International University in Egypt; Al Akhawayn University of Ifrane in Morocco; American University of Sharjah in UAE; and Malmö University in Sweden. Language requirements and curricula vary. Exchanges are available to all majors and minors

Students should consult the Office of International Programs for application deadlines and further information.

Honors Abroad Programs

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. The Honors Abroad Program 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.

Summer Abroad Programs

During the summer, many international courses and travel study classes are offered. Specific course offerings and departments and schools vary from year to year. A typical summer schedule might include classes in Argentina, Australia, Belgium, Canada, China, Costa Rica, England, France, Germany, Ghana, India, Ireland, Italy, Japan, Kenya, Madagascar, Malta, Mexico, Montreal, Morocco, the Netherlands, the Philippines, Scotland, South Africa and Turkey. Information regarding courses to be offered each summer can be obtained in the Office of International Programs.

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 Office of International Programs and the head of the academic unit in which the transfer credit will be awarded. Applications and program resources are available in the Office of International Programs.

JMU Libraries

Carrier Library

Carrier Library Circulation

Phone: (540) 568-6150

Carrier Library Reference Desk Phone: (540) 568-6267

Web site: <http://www.lib.jmu.edu>

Music Library

Phone: (540) 568-6041

Web site: <http://www.lib.jmu.edu/music>

East Campus Library

Phone: (540) 568-2731

Web site: <http://www.lib.jmu.edu/east/>

JMU Libraries, consisting of Carrier Library, the Music Library and East Campus Library, support research, study and instruction in the use of information resources at JMU. The JMU Libraries house almost 800,000 volumes, including books, periodicals, and audiovisual materials; subscribes to over 13,000 journals; and offers access to growing collections of online books, journals, and media. The library Web site is an online gateway to the services and collections of the JMU Libraries. Through the Web site, users can search LEO, the library catalog, connect to approximately 400 electronic databases, and find subject guides highlighting the most important print and electronic sources in many subject areas. Services such as e-mail reference and Interlibrary Loan request forms are also available on the Web site. As an authorized U.S. Government Document Depository, the JMU Libraries provide access to thousands of selected online and print documents. JMU Libraries is a member of VIVA, the Virtual Library of Virginia, a statewide consortium that offers access to numerous online journals and databases.

Carrier Library and the East Campus Library each provide more than 100 personal computers in their public areas. In addition, most of the online resources on the library Web site can be accessed from any computer on campus, and those with current JMU electronic IDs can configure their browsers to access library resources from any remote location.

One of the JMU Libraries' principal goals is to provide students with lifelong learning skills that will enable them to find, use and evaluate information in all formats. Students learn basic information literacy skills through "Go for the Gold," a set of online self-instruction modules available on the library Web site. Information literacy skills in the major are addressed through instruction sessions offered in library classrooms. Reference librarians are available on a walk-up basis or by appointment to answer questions and assist students with research.

The liaison program links a librarian to each academic unit. Liaison librarians provide a variety of services, including library instruction for course-related activities, collection development and consultation with individual faculty members and students.

The Music Library serves the students and faculty members of the School of Music, as well as offering its specialized resources to the greater university community. The East Campus Library houses the science, technology and health sciences collections and provides study space for individuals and small groups, reading rooms, and open study areas with casual seating. It also includes a 24-hour study area with a secure entrance, a computer lab and coffee bar.

Media Resources

Phone: (540) 568-6802

Web site: <http://www.lib.jmu.edu/media/>

Media Resources in Carrier Library acquires commercial educational media in video, audio and computer software formats for instruction and study by faculty, staff and students. It also provides an online video collection for streaming to the JMU community. Faculty and staff can consult with media center staff to locate program items not available in the collections. The center can assist users with scheduling and recording satellite programming for academic needs. It also distributes selected campus-wide software such as Microsoft Office, SPSS, SAS, Mathematica, and other applications in coordination with IT Computing Support. Media Resources technical staff coordinate the development, installation and maintenance of technology systems in classrooms and many special facilities on campus. Media Resources also offers portable equipment such as laptops, projectors, digital cameras, camcorders and audio recorders for loan, as well as audio/video editing workstations for student projects. Staff provide user support for all installed and portable equipment, as well as repair services for non-computer media technology used on campus.

Learning Resource Centers

Wilson Hall, Room 105

Phone: (540) 568-2932

Fax: (540) 568-2926

Web site: <http://www.jmu.edu/lrc>

Learning Resource Centers creates access for all students to learning opportunities that foster personal transformation and academic achievement. The department supports the diverse learning and scholarship needs of students, faculty and staff through comprehensive learning services in a student-focused and supportive environment. The following programs and services facilitate active engagement in the process of student learning and development.

Disability Services

Wilson Hall, Room 107

Phone/TDD: (540) 568-6705

Fax: (540) 568-7099

Web site: <http://www.jmu.edu/ods>

Disability Services assists the University in creating an accessible community where students with disabilities have an equal opportunity to fully participate in their educational experience at JMU. Services include, but are not limited to the following:

- 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
- Assistive Technology and alternative text services

English Language Learner Services

Wilson Hall, Room 415

Phone: (540) 568-1759

Fax: (540) 568-3450

Web site: <http://www.jmu.edu/esolservices>

English Language Learners can seek assistance on such things as:

- Writing & grammar
- Listening
- Cultural information
- Reading
- Pronunciation
- Individual goals for improving English

Learning Strategies Instruction

Roop Hall, Room 205

Phone: (540) 568-4370

Fax: 568-4818

Web site: <http://www.jmu.edu/lrc/LRC-LSI.shtml>

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
- Studying
- Test-taking
- Time management

Supplemental Instruction

Wilson Hall, Room 416

Phone: (540) 568-6111

Fax: (540) 568-7099

Web site: <http://www.jmu.edu/supinstruct>

Supplemental Instruction (SI) is a peer facilitated academic support program that targets historically difficult courses to improve student performance and retention. Students work together in regularly scheduled out-of-class study sessions to master course content and develop their organizational, study, and learning skills. SI is offered in specific course areas such as Economics and the Physical Sciences.

Science & Math Learning Center

Roop Hall, Room 200

Phone: (540) 568-3379

Fax: (540) 568-4818

Web site: <http://www.jmu.edu/smrc>

The Science & Math Learning Center promotes academic achievement for students enrolled in first and second year math, chemistry, biology and physics courses. Tutoring is provided in by a staff of professional faculty and peer educators.

Screening & Assessment Service

Wilson Hall, Room 105

Phone: (540) 568-7146

Fax: (540) 568-2926

Web site: <http://www.jmu.edu/lrc/screeningassessment.shtml>

The Screening & Assessment is a one-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 making process for recommending the next step in the process.

Speech Services

Wilson Hall, Room 417

Phone: (540) 568-6349

Fax: (540) 568-3450

Web site: <http://www.jmu.edu/crc>

The speech program provides resources and assistance with oral communication projects to the JMU community and promotes students' communication excellence in the areas of speech preparation and presentation, small group problem solving and interpersonal skills. Services include:

- Assistance with speech outlines & research
- Communication theory tutoring
- Enhancement of speech delivery & style
- PowerPoint creation & delivery techniques
- Speech preparation assistance
- Speech anxiety reduction strategies

Writing Consultations

Wilson Hall, Room 417

Phone: (540) 568-1759

Fax: (540) 568-3450

Web site: <http://www.jmu.edu/uwc>

Writing Consultations helps writers help themselves by providing individualized instruction to students, faculty, and staff during any stage of the writing process. The program actively supports writing across all disciplines and its Writing Consultants offer writers help with:

- Business writing
- Formatting and citation
- Grammar and punctuation
- Research strategies
- Scholarly and creative work

Educational & Assistive Technology Computer Labs

Assistive Technology Computer Labs

Contact Disability Services for access.

Carrier Library, Room 102

East Campus Library 1st Floor

Educational Computer Lab

Wilson Hall, 4th Floor

Statistics Computer Lab

Roop Hall, Room 200

Office of Equal Opportunity

1017 Harrison St., MSC 5802

Voice/TDD: (540) 568-6991

Web site: <http://www.jmu.edu/oeo/>

The Office of Equal Opportunity promotes the practice of and adherence to the equal opportunity policies of James Madison University. Bringing diversity to JMU, the program assists in the identification and recruitment of qualified individuals who normally have been underrepresented in the university. It also sponsors workshops on various subjects such as sexual harassment, disabilities, affirmative action, etc. The Office of Equal Opportunity also provides a place where individuals who feel that they have been subjected to harassment or discrimination due to race, color, national origin, religion, gender, age, veteran status, political affiliation or disability can file a complaint for an impartial resolution. Inquires may directed to the Office of Equal Opportunity.

Office of Judicial Affairs

Frederikson Hall, Room C101, MSC 2901
Phone: (540) 568-6218
Web site: <http://www.jmu.edu/judicial>

The Office of Judicial Affairs is committed to promoting student learning, civic responsibility and, in partnership with others, developing the environment necessary for the university to best achieve its educational mission.

Office of the Registrar

Student Record Services

Warren Hall, Room 504, MSC 3528
Phone: (540) 568-6281

Registration Services

Warren Hall, Room 300, MSC 3533
Phone: (540) 568-6281
Web site: <http://www.jmu.edu/registrar/>

The Office of the Registrar is responsible for the following activities:

- Add and drop registration procedures
- Athletic certification
- Class schedule preparation
- Commencement activities
- Degree audits
- Diploma issuance
- Enrollment verifications
- Student records
- Transfer credit evaluation
- Transcript issuance

For information regarding veterans' affairs and graduation, students should contact Student Record Services on the fifth floor of Warren Hall or call the Office of the Registrar at (540) 568-6281.

Ombudsperson

Taylor Hall, Room 300, MSC 3534
Phone: (540) 568-6468
Web site: <http://www.jmu.edu/stulife/ombuds.shtml>

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

- notifying professors of extended class absences.
- facilitating the resolution of student issues and concerns.
- providing direction to students on procedures and regulations.
- providing confidential, impartial facilitation of communication.

Orientation Office

Wilson Hall, Room 113, MSC 1010
Phone: (540) 568-1787
Web site: <http://www.jmu.edu/orientation/>

JMU provides a variety of exciting and interactive 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, a five-day program in August and various programs during the fall and spring semesters. All transfer students entering in the summer and fall semesters attend a one-day orientation program in early June and a three-day program in August. For all new students entering in the spring semester, orientation activities are offered prior to the beginning of the semester.

All orientation programs provide new students with academic advising, information about educational opportunities 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. Specific programs in the summer are designed for parents and family members.

Public Safety

Anthony-Seeger Hall, MSC 6302
Phone: (540) 568-6913
Web site: <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.

Residence Life

Huffman Hall, MSC 2401
Phone: (540) 568-4663
Web site: <http://web.jmu.edu/reslife/>

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.

FYI focuses on the development of first year students by offering many services specifically targeted toward this group. Residential Learning Programs 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.

Business Operations	(540) 568-7576
Director's Office	(540) 568-6275
FYI	(540) 568-3598
Housing Operations	(540) 568-4663
Residential Learning Programs	(540) 568-3501

Student Government Association

Taylor Hall, Room 203, JMU Box 3523

Phone: (540) 568-6376

Web site: <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

Web site: <http://www.jmu.edu/judicial/handbook.shtml>

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

Student Success

MSC 1012

Phone (540) 568-3787

Web site: <http://www.jmu.edu/stusuccess>

Student Success is the name of JMU's collaborative, campus-wide effort to coordinate programs and support services based on cohesive educational goals. Student Success focuses on academic achievement, career development, planning, decision-making and civic engagement. Student Success programs are designed to help students assume responsibility for learning so they can complete seamless transitions into, through and out of the university.

The Wilson Learning Center houses the Office of Student Success Programs, Career and Academic Planning, Community Service-Learning, Orientation, Centennial Scholars, and the Learning Resource Centers, which include Disability Services, Supplemental Instruction, Learning Strategies Instruction (located in Roop Hall), Science & Math Learning Center (located in Roop Hall), Speech & Writing Center, English Language Learner Services, and Screening & Assessment Services. The On-Campus Recruiting Program, part of Career and Academic Planning, is located in Sonner Hall.

University Health Center

University Health Center, MSC 7901

Phone: (540) 568-6178

Fax: (540) 568-7803

Web site: <http://www.jmu.edu/healthctr/>

The University Health Center partners with students to empower them to make informed choices by providing a holistic approach to student health, education, wellness and outreach services in a confidential, inclusive and respectful environment. The center is staffed by qualified, professional personnel, including physicians, nurse practitioners and registered nurses who administer health care in a confidential and professional manner.

To be eligible for treatment, students must have a current, completed health record on file at the University Health Center. The Code of Virginia requires that all full-time students provide documentation of their immunizations.

The University Health Center sponsors the following programs:

Student Wellness and Outreach

Warren Campus Center, Room 404

Phone: (540) 568-2831

Web site: <http://www.jmu.edu/healthctr/swo/index.shtml>

This office combines the former Office of Health Promotion, Office of Sexual Assault Prevention, Women's Resource Center and the Lesbian, Gay, Bisexual, Transgender and Ally Education Program. Student Wellness and Outreach coordinates university-wide programs and speakers on various health topics including general wellness and nutrition, disordered eating, sexual assault prevention, sexual health, relationships, substance abuse, and stress management. Individual and group counseling, referrals and crisis support services are available especially in the areas of sexual assault and relationships. A wellness resource library is also available for students, faculty and staff. The SWO staff includes counselors, certified health educators and a registered dietitian.

Substance Abuse Prevention

Maury Hall, Room G12, MSC 1107

Phone: (540) 568-3317

Web: <http://www.jmu.edu/healthctr/sap>

Substance Abuse Prevention initiatives are designed to increase knowledge and awareness of alcohol and other drug issues, and decrease the negative consequences associated with high-risk drinking and illegal drug use. The University Health Center's Substance Abuse Prevention supports peer education and provides leadership for the Alcohol Advisory Committee and the Community Coalition on Alcohol Abuse to ensure that prevention programs are evidence-based, comprehensive and coordinated across the university.

The office provides leadership for the Brief Alcohol Screening and Intervention for College Students (BASICS) program at JMU. BASICS is a service available for students who want to consider changing or reducing their substance use. BASICS is comprised of two 50-minute interview sessions. Students who have violated the JMU alcohol policy may be required to attend a two-session BASICS intervention.

University Recreation

University Recreation Center, MSC 3901

Phone: (540) 568-8732

Web site: <http://www.jmu.edu/recreation/>

University Recreation (UREC) promotes and advances healthy lifestyles through participation opportunities, educational experiences and supportive services. Our qualified staff is committed to excellence and attentive to the developmental needs of our participants.

UREC is located near the JMU Convocation Center on the east side of campus. A valid JAC is needed to enter the building. Program areas include Adventure, Aquatics and Safety, Fitness, Nutrition, Group Fitness, Wellness, Intramural Sports, Informal Recreation, Sport Clubs, and Youth Programs. Online registration is available for educational programs, group fitness classes and intramural sports. Programs requiring fees can be registered for in person at UREC using Flex.

UREC houses a multi-level fitness and wellness center with 140,000 square feet of activity space. Building highlights include a 33-foot climbing wall, seven racquetball courts, four basketball/volleyball courts, indoor track, cardio theatre, indoor pool/sauna/spa area, locker rooms, outdoor courtyard with sand volleyball, outdoor turf fields and group fitness/multipurpose studios. UREC also houses an equipment center where sports and camping/outdoor equipment can be checked out or rented.

University Unions

Taylor Hall, Room 205B, MSC 3501

Phone: (540) 568-3341

Web site: <http://www.jmu.edu/universityunions>

The University Unions department responds to the needs of the JMU community, through facilities, services, programs and resources. The Unions provide experiential learning opportunities, which support the university's mission of student learning and development.

University Unions reflects a broad range of programs and services, which represent all members of the university community. 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:

Events Management

Madison Union Scheduling, Room 233, MSC 3501

Phone: (540) 568-6330

Festival Conference and Student Center Scheduling

Phone: (540) 568-1716

Web site: <http://www.jmu.edu/events/>

Events Management 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

Warren Hall - Taylor Hall - Grafton/Stovall, MSC 3501

Phone: (540) 568-6330

Madison Union, MSC 4201

Phone: (540) 568-2593

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

Office of Student Activities and Involvement

Taylor Hall, Room 205A, MSC 3501

Phone: (540) 568-8157

Fax: (540) 568-6444

Web site: <http://www.jmu.edu/osai/>

Office of Student Activities and Involvement houses Student Organizations, Fraternity/Sorority Life, Union Programming and the University Program Board. 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.

Student Organizations

Taylor Hall, Room 205A, MSC 3501

Phone: (540) 568-8157

Web site: <http://www.jmu.edu/osai/>

Office of Student Activities and Involvement Organizations provides services to the recognized student organizations at JMU and provides information about recognized student organizations to the JMU community.

Programs provide members, officers and advisors of student organizations with opportunities to educate themselves and improve their organizations. Student organizations offer students a leadership laboratory in which to apply their knowledge and skills.

Fraternity/Sorority Life

Taylor Hall, Room 205A, MSC 3501

Phone: (540) 568-8157

Web site: <http://www.jmu.edu/fsl>

The University Unions work with fraternities and sororities to foster cooperation and communication among the chapters, the university and the community. The staff advises the Inter-Fraternity and Panhellenic Councils and also works with the individual chapters in promoting leadership, involvement and service.

University Program Board

Taylor Hall, Room 234, MSC 3505

Phone: (540) 568-6217

Web site: <http://upb.jmu.edu>

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, club, musical events, global awareness and contemporary issues, tickets, technical services, publicity, public relations, financial management, internal student development and communications.

Taylor Down Under

Taylor Hall, Room 102, MSC 3511

Phone: (540) 568-7853

Web site: <http://www.jmu.edu/ucenter/tdu/>

Taylor Down Under, located on the ground floor of Taylor Hall, is comprised of TDU Services, the Corner Pocket Game Room and Coffee Bar. The TDU lounge area was developed with the commuter student in mind but has become a popular hangout for all students.

This area offers computers for student use, television, evening entertainment on the TDU Stage, comfortable seating and a University Information site. University Information at Taylor, operated by student employees, is one of four sites across campus for front line information about JMU and the Harrisonburg community.

Withdrawal from the University

Office of Student Withdrawal
Taylor Hall, Room 300, MSC 3534
Phone: (540) 568-6468

The Office of Student Withdrawal 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 of withdrawal. The staff member can provide the student with the proper withdrawal application form and assist in the completion of the form. Page 30 contains detailed information about the specific withdrawal process.

Tuition and Fees

University Business Office

302 Warren Hall

MSC 3516, Harrisonburg, VA 22807

Phone: (540) 568-6505

Web site: <http://www.jmu.edu/ubo>

Tuition and fee charges for the 2009-10 sessions are available on the University Business Office Web site. 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 do not include 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 Registration and Student Record Services Handbook or the University Business Office Web site.

Billing and Registration

Registration for returning students is conducted in April for the fall semester and in November for the spring semester. Students will be notified in early August by e-mail when their electronic billing statement (QuikBILL) is ready 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 Status – of QuikBILL. Authorized payers will also be e-mailed when student account charges are ready to be viewed and paid.

Course registration for new students will be completed during orientation. 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. Students may access their financial account by using the student information e-campus link on the Registrar's Web site at www.jmu.edu/registrar or through the Web link provided in the billing e-mail. Students are strongly encouraged to set their parents up as "Authorized Payers" in the QuikBILL 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.
- There is a late fee for 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 10% 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.

Tuition and Fees

Payment

Payment may be made by the following means:

- Remitting payment by check or cash to the University Business Office, Warren Hall, Room 302 by mail or in person.
- Remitting an electronic check payment or credit card payment online through the electronic bill presentment or through a link on e-campus or through the University Business Office Web site at www.jmu.edu/ubo. The service is provided by an outside vendor.

Students may pay by a combination of personal check, cash, money order, cashier's check, electronic check and credit cards. Payments drawn on foreign banks must be converted to U.S. dollars prior to transmittal to the university. 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 or 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

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

Specialized Class Fees

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

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.

Returned Check Fee

A \$50 per check fee is assessed for checks returned unpaid to the university. If a check is returned, the director of the University Business Office will notify the student by e-mail. 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.

Service Fee

Electronic Student Account payments made by credit card through e-campus 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.

Collection of Past Due Accounts Financial Information and Disclosure Statement

Students are expected to access financial information through e-campus. Failure to receive e-mail 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 e-campus 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 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 bears the costs associated with collection efforts. The costs associated with collection efforts are 33.33 percent 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 costs incurred at a rate of 33.33 percent 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 student a 33.33% fee that is the collection industry standard.

Collection fees cannot be appealed. If a student finds that their account has been referred to a collection company, please 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 23-7.4 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 Web site for additional tuition charges. A link to the Code of Virginia guidelines can be found on the Web site 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.

Dependent Students

To qualify for in-state tuition, a dependent student or an unemancipated 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 or 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 Web site under the section "Residency Requirements."

Independent Students

The statute defines an independent student as one whose parents have surrendered the right to his or her care, custody and earnings;

have ceased to support him or her and have not claimed him or her as a dependent on federal and state income tax returns for at least 12 months prior to the alleged eligibility.

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 or 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 or 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) and The Graduate School (graduate students and 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 Web site. For information on special provisions of Section 23-7.4, contact the Office of Admissions, The Graduate School or the University Business Office.

Once a student receives an initial determination of eligibility, he or 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, except university-sponsored apartments, automatically have a comprehensive 14-Plus Meal Plan included with their housing contract. Other resident meal plans are described in the JMU Student Handbook. Residents of university-sponsored apartments are only charged for the room portion of their housing contract. These students and commuter students may purchase one of several meal plans through Card Services, Warren Hall, Room 302 and can have the charge posted to their student account. Any commuter contract purchased after the first week of classes is due immediately. A commuter contract must be purchased each semester.

If students arrive late by 10 or fewer days their boarding fee will not decrease. The only exception, however, is lateness because of hospital confinement. If students are late because of seven-day or longer stays in the hospital, the university will consider adjusting the board fee. Contact Card Services, Warren Hall, Room 302; (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. All overpayments are refunded to the student except for parent PLUS loans, which are refunded to the parent. Direct deposit to the student's or parent's bank account is strongly encouraged. Students can set up an account with the Duke Dog Direct Deposit through their e-campus account. Parents can obtain direct deposit forms at the University Business Office at Warren Hall, Room 302, through the University Business Office Web site at www.jmu.edu/ubo or the Office of Financial Aid Web site at www.jmu.edu/finaid. If no direct deposit form is on record or set up in e-campus, then a check will be processed within 10 banking days and mailed to the student's/parent's 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 2009-10 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 Office of Student Withdrawal 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 Office of Student Withdrawal. Room refunds will be made in accordance with the Residence Life refund schedule as stated in the 2009-2010 Residential Contract.

For further information on withdrawal from the university, see Page 30.

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 director 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. A contract fee will be billed through the student's financial account.

Financial Aid, Scholarships and Student Employment

Scholarships, Grants and Loans

Warren Hall, MSC 3519

Phone: (540) 568-7820

Web site: <http://www.jmu.edu/finaid/>

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 Web site, contact the Office of Financial Aid and Scholarships at the above address or send e-mail to fin_aid@jmu.edu.

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
- Academic Competitiveness Grant
- National SMART Grant
- Commonwealth Award
- Virginia Guaranteed Assistance Program
- College Scholarship Assistance Program
- Federal Subsidized Direct Loan
- Federal Unsubsidized Direct Loan
- Federal Perkins Loan
- Federal Parent PLUS Direct Loan
- Federal Grad PLUS Direct Loan
- Federal Work-Study Program
- Need-based JMU Foundation Scholarships
- University Grant

When a student files 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, state and federal grants must be 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 (described later).

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 Web site. 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 mails a paper financial aid award notice to the home address 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.

Satisfactory Academic Progress

Web site: <http://www.jmu.edu/finaid/sap.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 Web site.

Understanding Satisfactory Academic Progress (SAP)

According to federal regulations, the Office of Financial Aid and Scholarships must ensure that students meet both qualitative and quantitative requirements before certifying eligibility for financial aid. Qualitative refers to grade point average (GPA). Quantitative requirements include both earned credits 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 Web site.

GPA

Undergraduate students must fulfill GPA requirements as described by the academic suspension policy in the current JMU catalog. For further information, refer to "Academic Policies and Procedures."

Earned Credits

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, credit/no credit hours 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, credit/no credit hours 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 a student was unable to meet SAP requirements during his or her previous enrollment, the student will receive notification regarding his or her area(s) of deficiency. Students who do not meet SAP standards cannot receive financial aid.

Appeals Process

If extenuating circumstances contributed to a student's inability to meet SAP requirements, the student may request reconsideration by submitting an Appeal Form with appropriate supporting documentation. This form is available on the SAP Web site. 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.

Academic Competitiveness Grant

Refer to www.jmu.edu/finaid/aidprog.shtml for information regarding this federal grant program.

National SMART Grant

Refer to www.jmu.edu/finaid/aidprog.shtml for information regarding this federal grant program.

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 public Virginia high school with at least a 2.5 GPA. The maximum award will not exceed the cost of tuition, fees and a \$500 academic year 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.

College Scholarship Assistance Program

CSAP is a need-based grant for Virginia residents who are seeking their first undergraduate degree. Awards will be made as long as funds are available.

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 Perkins Loan

Perkins is a need-based federal loan, which is awarded to students with the highest financial need. The interest rate is fixed at five percent and the student does not begin repaying the loan until nine months after he or she graduates or drops below half-time status. Awards will be made as long as funds are available.

Federal Direct Loan Program

The Direct Loan (subsidized and unsubsidized) is a long-term, low-interest loan, for which undergraduate, graduate and professional students may apply. Beginning in 2009-10, interest rates for Direct Loans disbursed on or after July 1, 2009 are as follows:

- Undergraduate Subsidized Direct Loans = 5.6%.
- Undergraduate Unsubsidized Direct Loans = 6.8%
- Graduate Student Subsidized and Unsubsidized Direct Loans = 6.8%

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.

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 is fixed at 7.9 percent. Interest begins to accrue on the date of the first loan disbursement. The first payment is due within 60 days of 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 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 Web site.

JMU Scholarships

Web site: <http://www.jmu.edu/finaid/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 Web site.

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 University Business Office
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.).

Student Employment

Web site: <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 worksheet C of 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 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 Jobs 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 Web site at www.jmu.edu/ubo.

Regardless of any adjustment to a student's charges, if he or she withdraws from the university, financial aid may be adjusted based on the percentage of the semester completed before withdrawal. In some cases, Federal Return of Title IV Funds regulations may require that aid be returned to the federal government for students who withdraw from JMU before 60 percent of a term has been completed. Financial aid is awarded for the entire term, which is generally a 15-week period. If a student does not complete the entire 15 weeks, then the Return of Title IV Fund rules will determine how much financial aid has been earned. The student can keep the earned amount for the term, but the unearned portion must be immediately returned to the federal government. In some situations, this will leave the student with a balance owed to the university. Funds are returned to the federal government in the following order: Unsubsidized Direct, Subsidized Direct, Perkins, Grad PLUS, Parent PLUS, Pell, Academic Competitiveness Grant, National SMART Grant and SEOG. See the JMU Terms and Conditions for Financial Aid document in the "Forms" section at www.jmu.edu/finaid for a sample calculation.

Additionally, certain state grant programs cannot exceed tuition, or the cost of tuition and a book allowance. Therefore, if a student's tuition is reduced based on the JMU Refund Policy, it is very possible that state grant funds will be reduced by the same amount. In most cases, this will not affect a student's bill, as the reduction to state grants is generally equal to the tuition adjustment.



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College of Arts and Letters

Dr. David K. Jeffrey, Dean

Dr. Jessica Adolino, Associate Dean

Prof. Dietrich Maune, Associate Dean

Phone: (540) 568-6472

Location: Harrison Hall, Suite 1103

MSC: 2105

Web site: <https://caal.jmu.edu/>

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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, communication and the arts, and in several pre-professional and interdisciplinary 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 student 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 beginning on Page 134.

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, beginning on Page 89.

Pre-professional Programs

Pre-law

Dr. David K. Jeffrey, Coordinator

Phone: (540) 568-7044

E-mail: jeffredk@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

Also important to the pre-law program is the Pre-law Society and Phi Alpha Delta, student organizations which organize law related activities.

Pre-theology

Dr. Iain S. Maclean, Coordinator

Phone: (540) 568-7059

E-mail: macleaix@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 or 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); biblical and modern languages (Hebrew, Greek and Latin) and, of course, religion, including the Bible, history of religious traditions and theology.

Resource and Service Centers

Archaeology Collection

Dr. Clarence Geier

Phone: (540) 568-6171

E-Mail: geiercr@jmu.edu

The archaeology collection contains prehistoric and historic material excavated at numerous Virginia archaeological sites as well as an extensive library collection of site reports, artifact identification guides and maps. Artifact study collections spanning the 12,000 year occupation of Virginia's Ridge and Valley Province are also being developed for teaching and research purposes. .

Center for Public Broadcasting/ WMRA-WEMC

Tom DuVal, Director

Phone: (540) 568-6221

E-mail: wmra@jmu.edu

Web site: www.wmra.org

The Center for Public Broadcasting's mission is to foster informed, engaged and culturally enriched communities. It serves over 50,000 listeners in the Shenandoah Valley, Charlottesville and Farmville areas.

The center comprises a four-station 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 and blues music. The center also operates Valley Voice Radio Reading Service for the print-impaired. Listeners and local businesses contribute two-thirds of the center's annual budget.

Annual Events

History Day

Each spring JMU hosts the regional competition for National History Day. The contest is open to students in grades six through 12, with categories including media presentations, performances and historical papers. Judging and comments are provided by professional historians. Winners at the state level participate in the National History Day Competition at the University of Maryland in June. For further information contact Dr. Steven Guerrier in the Department of History at (540) 568-6523.

Visiting Scholars Program

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 or her work. For further information, contact Dr. David K. Jeffrey, (540) 568-6472.

College of Business

Dr. Robert D. Reid, Dean

Dr. Philip B. DuBose, Associate Dean, Academic Affairs

*Ms. Kimberley A. Foreman, Associate Dean, Human Resources
and Administration*

Ms. Joyce W. Guthrie, Associate Dean, Student Services

Phone: (540) 568-3254

Location: Zane Showker Hall, Sixth Floor

MSC: 0207

Web site: <http://www.jmu.edu/cob/>

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Mission Statement

The College of Business is committed to preparing students to be active and engaged citizens who are exceptionally well qualified leaders for success in a global competitive marketplace.

Shared Values and Goals

- The JMU CoB aspires to be among the top ten percent of undergraduate business programs in the nation, striving for excellence and continuous improvement in undergraduate learning. Its student body comes primarily from the Mid-Atlantic region of the United States and, to a growing extent, from the Northeast.
- Directed toward a full-time student population, the CoB's undergraduate programs are based on solid foundations in general education and an integrated business core curriculum. Beyond these foundations, the CoB offers students a wide variety of programs that emphasize theory, application, and experiential learning in a business discipline.
- CoB faculty members are committed to providing an exceptional educational experience for students, with an emphasis on developing leadership, technology, communication and integrative skills.
- The CoB will be a preferred source of student talent for employers in the Mid-Atlantic region.
- The CoB takes an entrepreneurial approach to graduate programs, developing niche programs for which there is a need and for which the faculty has competence.
- Student learning is assessed frequently. Assurance of learning programs are designed to assess learning in the business core, each of the undergraduate majors, and each of the degree programs within the CoB. Consistent with academic freedom, faculty members are encouraged to take an active role in innovative curriculum development and assessment processes designed to improve the educational experience.
- The CoB recognizes that students and faculty face ethical choices. As such, it maintains the highest expectations for students regarding JMU's Honor Code. Furthermore, the CoB strives to prepare students for the ethical tensions and dilemmas they will face in the course of their professional lives. Additionally, the CoB demands the utmost in professional and ethical conduct by its faculty towards students, the community of scholars, and society at large.
- CoB faculty members believe that a balance between teaching and research is the most effective way to educate their students. Scholarly contributions complement classroom teaching by helping faculty members maintain currency in their discipline. Furthermore, students gain a deeper understanding of subject matter, a greater appreciation of a discipline's body of knowledge, and added enthusiasm for learning when they are taught by active scholars.
- Faculty members are committed to a broad array of intellectual pursuits and scholarly output in discipline-based scholarship, contributions to practice, and learning and pedagogical research. The relative emphasis on these three areas will vary from one faculty member to another depending upon education, experience, and interests, but the pursuit of knowledge in each area will be used to enhance students' learning experiences.

Overview

The College of Business offers baccalaureate degree programs leading to a B.B.A., a B.A., or a B.S. degree. All degree programs offered by the College of Business are accredited by AACSB International – The Association to Advance Collegiate Schools of Business. The vast majority of the baccalaureate programs lead to the B.B.A. degree and have essentially the same general structure consisting of the four components shown below.

- General Education component
- B.B.A. core component
- Major component
- Non-business electives component

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. Typically, students complete their General Education course requirements during their last two years of study.

B.B.A. Core Component

B.B.A. majors must complete all of the B.B.A. core component as part of their degree program. Five of the ten lower level (100 and 200-level) B.B.A. core courses must be completed during the first year of study, in order for the student to continue as a business major and progress to the second year of study. Similarly, the remaining 100 and 200-level B.B.A. core courses must be taken during the second year of study in order for a student to be considered for formal admission to the College of Business for the third and fourth years of study. Detailed information about which courses must be completed during the first year and which courses must be completed during the second year – along with information about formal admission to the College of Business – is provided in the subsequent section labeled "Progression Standards for the College of Business."

The following courses comprise the B.B.A. Core Component.

COB 191. Business Statistics (3 credits)
COB 202. Interpersonal Skills (3 credits)
COB 204. Computer Information Systems (3 credits)
COB 218. Legal 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)
COB 300A. Integrated Functional Systems: Management (3 credits)¹
COB 300B. Integrated Functional Systems: Finance (3 Credits)
COB 300C. Integrated Functional Systems: Operations (3 Credits)
COB 300D. Integrated Functional Systems: Marketing (3 Credits)
COB 487. Strategic Management (3 credits)²
ECON 201. Principles of Economics (Micro) (3 credits)
ECON 200. Introduction to Macroeconomics (3 credits;
available in General Education Cluster 4)
MATH 205 or 235. (3 or 4 credits; available in
General Education Cluster 3)

¹ Students must take all four COB 300 courses during the same semester.

² COB 487 must be taken during the senior year.

Major Component

The College of Business offers baccalaureate degree programs with the following nine academic majors: accounting, computer information systems, economics, finance, hospitality and tourism management, international business, management, marketing, and quantitative finance. Most of these majors consist of 24 credit hours that are taken after a student has been formally admitted to the College of Business and has completed COB 300. The major component of the degree program is designed to be completed in three semesters after the student has taken COB 300, and students should plan their course work with that timetable in mind.

Admission to the College of Business permits a student to enroll in COB 300 and to be formally admitted to a major. However, some majors in the College of Business 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 or she seeks to enroll. Refer to the appropriate sections of this 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 a total of nine hours in economics (note that GECON courses must be counted as economics) and three hours of COB 191. 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.

Progression Standards for the College of Business

Any student admitted to JMU can declare one of the nine majors offered in the College of Business. However, students must meet certain progression standards for each degree program – B.B.A., B.A. and B.S. – as described below. In addition to the progression standards for the three degree programs, certain majors have additional progression standards. Refer to the appropriate sections of this catalog for specific progression standards for the individual majors in the College of Business.

B.B.A. Program Progression Requirements

The requirements for any student enrolled in one of the B.B.A. programs are delineated below.

First Year: A student must complete four of the following five B.B.A. core courses – COB 191, COB 204, ECON 201, GECON 200 and MATH 205 – and have a cumulative grade point average of 2.500 or higher in all JMU course work in order to continue as a business major and enroll in the sophomore level B.B.A. core courses. Also, a student should have received no more than two course grades that are “D+,” “D,” “D-,” “F” or “WF” grades – or any combination of “D+’s,” “D,” “D-’s,” “Fs,” and “WFs” – in the ten B.B.A. core 100 and 200-level courses (described in the section of the catalog).

Note that repeating a B.B.A. core 100 or 200-level course on a “repeat/forgive” basis will NOT remove a “D+,” “D,” “D-,” “F” or “WF” – for counting purposes – from a student’s record, even if the student earns a grade other than “D+,” “D,” “D-,” “F” or “WF” when the course is repeated.

A student with a cumulative grade point average below 2.400 will be notified that he/she will be referred to Career and Academic Planning for assistance in selecting a major other than business and will be dropped from any sophomore B.B.A. core courses for which the student had registered.

A student with a cumulative grade point average in the range 2.400-2.499 will be given the summer to achieve the requisite 2.500 needed to continue into the sophomore year as a business major. A student who fails to achieve the requisite 2.500 by the end of the summer term will be referred to Career and Academic Planning for assistance in selecting a major other than business and will be dropped from any sophomore B.B.A. core courses for which the student had registered.

Sophomore Year: In order to be considered for admission to the College of Business, a student must complete the six additional 100 and 200-level B.B.A. core courses – COB 202, COB 218, COB 241, COB 242, COB 291, and the 100 or 200-level B.B.A. core course not taken during the freshman year – and must meet all three of the following criteria:

- Have achieved a 2.800 or higher cumulative grade point average in all JMU course work.
- Have completed at least 56, but not more than 70, credit hours at the time of enrollment in COB 300.

Note: There are certain exceptions to the 70-credit hour maximum, such as enrolling at JMU with earned AP credits, having a second major outside the College of Business or earning credits while participating in a study abroad program. Consult the College of Business Academic Services Center Web site for a more complete explanation of the allowed exceptions.

- Have received no more than two course grades that are “D+,” “D,” “D-,” “F” or “WF” grades – or any combination of “D+’s,” “D,” “D-’s,” “Fs,” and “WFs” – in the ten B.B.A. core 100 and 200-level courses (described above in this section of the catalog). Note that repeating a B.B.A. core 100 or 200-level course on a “repeat/forgive” basis will NOT remove a “D+,” “D,” “D-,” “F” or “WF” – for counting purposes – from a student’s record, even if the student earns a grade other than “D+,” “D,” “D-,” “F” or “WF” when the course is repeated.

Admission to the College of Business and COB 300: Any sophomore who expects to meet the three criteria just described can apply for admission to the College of Business once the student has earned a minimum of 45 credit hours (including transferred credits). The student needs to submit a completed application form and a current transcript, which can be obtained via e-campus. The application deadlines are October 1 for students planning to take COB 300 in the following spring semester, and February 1 for students planning to take COB 300 during the following summer session or fall semester. An application is valid for a maximum of two consecutive academic terms, as long as the student is within the 56-70 credit hour window referenced

above. However, a student must request that his/her application be reactivated for the second consecutive semester.

While meeting the three criteria described above will allow a student to apply for admission to the College of Business, it will not guarantee a student's admission. Admission to the College of Business is competitive, and enrollment will be limited to 750 students each academic year. Students will be rank-ordered by cumulative grade point average at the time of application and slotted into the academic term indicated on their application forms until the maximum number for each term has been reached.

A student whose cumulative grade point average fails to qualify him/her for admission to the term for which the student has applied will be notified and asked to apply for the next term, assuming that the minimum grade point average is maintained and that the student does not exceed the maximum 70 credit hours. Admission for the subsequent terms is not automatic, and each student must reapply. Students who have not been admitted to the College of Business will not be allowed to enroll in any 300-level College of Business course for which COB 300 is prerequisite or a corequisite.

Students pursuing a B.B.A. degree major who have completed the ten lower-level core courses but failed to gain admission to the College of Business and COB 300 will be eligible for a General Business certificate. The General Business certificate will be awarded if the student has completed the ten lower-level core courses and achieved a minimum 2.500 cumulative grade point average within the 56 to 70 credit hour range referenced earlier in this section of the catalog. The certificate will be noted on the student's transcript upon graduation.

Students failing to gain admission to the College of Business and COB 300 will not be eligible to receive the General Business minor unless they change to a major that has the General Business minor embedded in it as part of the major's curriculum requirements.

B.A. and B.S. Economics Program Progression Requirements

The requirements for any student enrolled in either the B.A. or B.S. degree program in economics are delineated below.

Students wishing to pursue a B.A. or B.S. degree program in economics must be formally admitted to the program in order to enroll in required core courses (ECON 331, ECON 332 and ECON 385). Quantitative finance majors can enroll in ECON 331, ECON 332 and ECON 385 without declaring an economics major. In order to be admitted, a student must meet all four of the following criteria:

- Have a cumulative grade point average of 2.500 or higher in all JMU course work.
- Have a 2.500 grade point average in all Economics courses completed at the time of application.
- Have earned a grade of "B" or better in MATH 205, MATH 231 or MATH 235 and in COB 191 or MATH 220, if the courses have been completed at the time of admission.
- Once admitted, must spend at least three additional semesters at JMU in order to complete the degree.

Students who wish to pursue a B.B.A. degree program in economics must meet all of the College of Business admission requirements described in the B.B.A. Program Progression Requirements section as well as the economics requirements detailed in the B.A. and B.S. degree program described above.

B.S. Quantitative Finance Program Progression Requirements

Students wishing to pursue a B.S. in quantitative finance must be formally admitted to the program in order to enroll in the 300-level quantitative finance and finance courses required for the major. In order to be admitted, a student must meet all four of the following criteria:

- Have a cumulative grade point average of 2.5 or higher in all JMU course work.
- Have a 2.5 grade point average in the following six courses: COB 241, ECON 201, GECON 200, MATH 235, MATH 236 and MATH 237.
- Have no more than two "D+," "D," "D-," "F" and "WF" grades, including any courses for which there has been repeat-forgiveness to replace a grade in the student's GPA, for COB 241, ECON 201, GECON 200, MATH 235, MATH 236 and MATH 237.
- Have completed at least one mathematics courses from the following list:
MATH 238. Linear Algebra and Differential Equations
MATH 248. Computer Methods in Engineering and Science
MATH 318. Introduction to Probability and Statistics
MATH 440. Fourier Analysis and Partial Differential Equations

Declaration of a Business Major or Minor

JMU students pursuing a major outside the College of Business who wish to change their current major to one in the College of Business must have a cumulative grade point average of 2.500 or higher 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 (B.B.A. degree only), finance, hospitality and tourism management, international business, management, and marketing.

JMU students pursuing a major outside the College of Business who wish to declare one of the following minors – Chinese business studies, computer information systems, economics and management science – must be in good standing, meaning that they have a cumulative grade point average of 2.000 or higher, at the time that they declare the minor. The policy does not apply to first year students or transfer students during their first semester at JMU.

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, hospitality and tourism management, international business, management, or marketing) as a second major must complete the following courses:

- All B.B.A. core courses, as shown above; 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 department head of the relevant academic program in the JMU College of Business.
2. The department 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.
4. If the student passes the comprehensive examination, the program director will report that result to the College of Business Academic Services Center, which will prepare a course substitution form.

Additionally, each 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 GECON 200.

Individual 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 department 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.

Computer Competency Requirements

All students majoring in the College of Business must be able to use current information technology tools and demonstrate the ability to learn new tools as part of their preparation for the professional world. Many business courses help students develop basic information technology skills in such areas as spreadsheet analysis, database management and Web page development. However, course work alone cannot provide students with the level of proficiency needed by employers and graduate schools. Consequently, students must take personal responsibility for developing their skills beyond the basics taught in various classes.

Personal Computers

Many courses in the JMU business curriculum make extensive use of computers and software. Students are given hands-on experience in using computer technology to solve complex business problems.

Computer labs are conveniently located in several academic buildings and residence halls. These labs are intended for quick, short-term use by students as an adjunct to their class time. Relying solely on the labs for lengthy or complex assignments, however, is unrealistic; therefore, students should make arrangements to have their own personal computers outside the university-provided labs.

Since computers are essential in today's business environment, students with majors in the College of Business are strongly encouraged to purchase their own personal computers. Computers are available at discount prices from the university bookstore; however, computers meeting the recommended configuration may be purchased from many retail and internet sources. Various vendors also provide rental and leasing programs. Because technology is continually advancing, students should consult the College of Business Web site at <http://www.jmu.edu/computing/purchase/dept.shtml> to obtain the latest specifications on recommended minimum hardware configuration.

European Business Concentration

The European Business Concentration can be completed by taking COB 300A-D (Integrated Functional Systems: 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 Belgium 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). In addition, 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 Belgium program.

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), IBUS 298 or 498 – I (Business Environment in China and Southeast Asia), IBUS 298 or 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.

College of Education

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Dr. Margaret (Maggie) Kyger, Assistant Dean

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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.

James Madison University's 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 emphasize 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 service programs in cooperation with public and private schools and agencies, other colleges, institutions, and businesses.

The undergraduate and graduate education programs are accredited by the National Council for Accreditation of Teacher Education and approved by the Virginia State Board of Education.

The basic philosophy of the college is reflected in these goals:

- To educate men and women 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 interdisciplinary liberal studies, teaching, educational leadership, adult education, human resource development and military science.

The college is organized into five departments:

Department of Early, Elementary and Reading

Department of Exceptional Education

Department of Learning, Technology and Leadership Education

Department of Middle, Secondary and Mathematics

Department of Military Science

Programs and Licensure

The College of Education does not offer majors. Individuals interested in pursuing a teacher license major in a discipline and complete a teaching area pre-professional program at the

undergraduate level. The teacher licensure program is completed during the fifth year Master of Arts in Teaching program. Individuals wishing to become licensed teachers in early, elementary, special or middle education major in Interdisciplinary Liberal Studies (IDLS) and complete a pre-professional licensure program specific to the teaching license pursued at the undergraduate level.

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 or 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.

Individuals seeking licensure in secondary education major in the discipline in which they wish to become licensed (i.e. biology, history, chemistry, etc.) and complete a pre-professional licensure program in secondary education at the undergraduate level. See the specific major requirements in the individual colleges holding the major.

The College of Education offers undergraduate minors across a range of concentrations in both teaching and non-teaching areas. To become a licensed teacher, students complete a major in one of several approved fields of study, depending upon the type of teaching license pursued, in addition to a pre-professional licensing program. Other minors are available that are not pre-professional teaching programs. The College of Education offers the following pre-professional licensure programs.

- Early Childhood Education
- Elementary Education
- Middle Education
- Secondary Education
- Special Education

The College of Education offers the following undergraduate minors.

- Educational Media
- Human Resource Development
- Military Leadership
- Special Education (non-teaching minor option)

The following endorsements are also available:

- Algebra I
- English as a Second Language
- Gifted and Talented
- Journalism
- Theatre

Undergraduate students pursuing licensure to teach through one of the five year M.A.T. or M.Ed. programs described in this catalog should:

- take the Graduate Record Examination and/or meet other requirements indicated by the respective program prior to submitting an application to The Graduate School.
- be fully admitted to teacher education before applying to The Graduate School.
- apply for admission to The Graduate School according to departmental 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.

Professional Education Unit

Dr. Phillip M. Wishon, Head

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 programs of the unit include the following:

- Art Education
- Dance Education
- Early Childhood Education
- Educational Leadership
- Elementary Education
- Middle School Education
- Music Education
- Physical and Health Education
- Reading Education
- School Counseling
- School Psychology
- Secondary Education
- Special Education
- Speech-Language Pathology

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, representative from the IDLS major, 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 for Academic Programs 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, training, 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.

Licensure Programs

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.

Licensure Area	Degree Required	Major Field of Study	Academic Unit
Art Education PreK-12	Bachelor's	Art	School of Art and Art History
Music Education PreK-12	Bachelor's	Music	School of Music
Dance Education PreK-12	Bachelor's	Dance	School of Theatre and Dance
Physical/Health Education, PreK-12	Master's	Kinesiology	Department of Kinesiology
Inclusive Early Childhood Education, Birth-Age 8	Bachelor's	IDLS	Departments of Early, Elementary and Reading Education and Exceptional Education
Elementary Education, PreK-6	Master's	IDLS	Department of Middle, Secondary and Mathematics Education
Middle Level Education, 6-8	Master's	IDLS	Department of Middle, Secondary and Mathematics Education
Secondary Education, 6-12	Master's	Content major ¹	Department of Middle, Secondary and Mathematics Education
Special Education ² K-12; ECSE	Master's	IDLS	Department of Exceptional Education
ESL (add-on licensure)	Bachelor's or Master's (Teacher Licensure required)		
Gifted Education (add-on licensure)	Master's (Teacher Licensure required)		

¹ Biology, chemistry, earth science, English, geology, mathematics, foreign language, physics

² IDLS is the recommended major

Education Support Center

Dr. Joy Moody, Director

Web site:

The Education Support Center has four major responsibilities:

- To serve as the center for information about professional education programs.
- To monitor admission to, and retention in, the professional education program.
- To coordinate field experiences.
- To approve applications for Virginia Licensure.

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 Web site. Also on the Web site 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. Students who do not plan to enroll in the teacher education program but wish to take an upper-division education course must obtain permission from the appropriate program coordinator and be cleared to register by the Education Support Center.

Application Process

Students must complete the following steps to apply to the teacher education pre-professional licensure program.

1. Declare a major and teaching concentration minor. The form is available in the education program area. It should be signed by the student's education adviser and submitted to the Registrar's Office.
2. Apply to Teacher Education online. Students will receive a return e-mail entitled "Next Steps to Apply to Teacher Education." Complete the application and submit the completed application, signed by the student's education adviser, to the ESC. Students will receive a packet of instructions with reference forms.
3. Give the AR-2 reference form to two persons (employers, clergy, teachers or other professionals) who know the student well. The references must have known the student in a professional capacity for a minimum of six months and be able to evaluate the student's potential as a future educator. Forms should be returned directly to the ESC.
4. Take the Praxis I: Academic Skills Assessment and have the scores sent to JMU (test code is 5392). Praxis scores may be waived if a student's SAT scores or ACT scores qualify. See the Education Support Center Web site for more information.
5. Complete online training in Universal Precautions. UP training sessions are offered by the JMU Health Center at. ESC receives verification that students have completed the training. NOTE: HTH 204, HTH 370, or Red Cross First Aid or equivalent training will meet this requirement.
6. Complete the Child Abuse Prevention Training online at the ESC Web site and pass the quiz after a training session. Scores will be electronically sent to the ESC.
7. Complete the following course requirements with a minimum grade of "C-": **GWRTC** 103 (formerly **GWRIT** 103) or equivalent, **MATH** or Cluster Three equivalent, and **GPSYC** 160 or equivalent. Student must provide ESC with a transcript of any courses from other institutions that do not appear on the JMU transcript.

Students can check the status of their admission to the teacher education program online at the ESC Web site.

8. After completing the previous requirements, subscribe to Tk20 and purchase a student account (see ESC Web site for details).
9. After receiving a response that the Tk20 subscription is available, complete the writing portion of the application in Tk20.

Application Deadlines

- Undergraduate candidates should apply by March of their sophomore year.
- Transfer, post-baccalaureate, and graduate candidates should apply during the first term of enrollment at JMU.

Admission Criteria

The requirements for admission to teacher education are listed below.

Note: 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	Licensure Only	Graduate Programs
Approved major and declared pre-professional teaching program	X		
Two references	X	X	X
Grades of "C" or better in			
- GWRTC 103 (formerly GWRIT 103) or Cluster One equivalent	X	X	X
- MATH or Cluster III equivalent	X	X	X
- GPSYC 160, PSYC 614 or equivalent	X	X	X
Praxis I (taken) or SAT or ACT required scores	X	X	X
Child Abuse Prevention (CAP) training	X	X	X
GPA of 2.5 or higher	X	X	X
Universal Precautions (UP) training	X	X	X
No record of felony conviction or misdemeanors involving children or drugs	X	X	X
Purchase and subscription to Tk20	X	X	X
Admission to The Graduate School	X (Five Year Programs)		X
Specific program requirements. Consult the program area coordinator for more specific information.	x	X	

Field Experiences

Field experiences (including practica and internships) are required for candidates in most 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 seeking endorsement in more than one general area 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 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 Education Support Center for prior approval.

Student Teaching Criteria

To be approved for student teaching, all candidates must:

- meet all stated requirements for admission to teacher education.
- submit a student teaching application.
- meet the required GPA.
- successfully complete all prerequisite courses for student teaching.
- be recommended for student teaching by their licensure program.
- meet any additional admission and retention standards of their academic department or school.
- be free from exposure to communicable tuberculosis.

Application Procedure

- Complete Part 1 on Tk20.
- Submit a resume and cover letter to the Education Support Center by the stated deadline.

- Sign and submit the student teaching guidelines form to the Education Support Center
- Provide evidence of freedom from exposure to tuberculosis.

The Education Support Center will process the completed application and notify the candidate whether or not all student teaching criteria have been met. The Director of the Education Support Center will explain the specific reasons if the candidate is not approved for student teaching.

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 Virginia Communication and Literacy Assessment (VCLA) for all licensure areas and the Praxis II Specialty Area Tests for most licensure areas. Virginia also requires the Virginia Reading Assessment (VRA) for selected programs.

Licensure Criteria

A statement indicating completion of an approved teacher education program will be entered on the candidate's transcript once:

- all education requirements have been met, including a cumulative 2.5 GPA,
- an appropriate degree is awarded, and
- passing scores on all state mandated assessments are achieved.

Application Procedure

- Obtain an application for Virginia licensure from the Education Support Center Web site or the Virginia Department of Education Web site
- Submit the completed application, copies of all required assessment score reports, a transcript of any course work not listed on the JMU transcript, and the appropriate fee payment to the Education Support Center.

The Education Support Center will review and approve the licensure application, and then forward it on to the Virginia Department of Education for processing.

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. Note: Other states may have additional testing and GPA requirements that the applicant must meet.

Program Coordinators and Advisers in Education

Students are responsible for obtaining the information concerning the programs in education and the requirements for enrolling in and completing those programs. Students are responsible for contacting their education advisers frequently and periodically to make sure they are aware of changes in education programs and/or licensure requirements that may not correspond with a particular university catalog. It is also crucial that the student be advised by the adviser in their major (i.e., IDLS, mathematics, English, etc.) to ensure accurate information regarding course work requirements in their major.

Educational Technology and Media Center

Dr. Richard G. Clemens, Director

The primary goal of the Educational Technology and Media Center (ETMC) is the facilitation of learning, and particularly of learning through the application of technology. This goal is achieved through instruction and promotion of educational technologies that are available within the center.

The materials laboratory houses more than 8,000 items of representative textbooks, videotapes, microcomputer software, sound slide/filmstrip programs and instructional kits. The center also houses the juvenile 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. These presentations can be taken into educational technology classrooms around the university. The growing capabilities in instructional technology are evident in this center where interactive video conferencing, video-streaming of the Web and other newly emerging technologies expand the potential for learning in multiple environments.

For those 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 faculty members and students to produce various types of instructional materials. College of Education students may also check out digital cameras, camcorders and audio recorders.

College of Integrated Science and Technology

Dr. Sharon E. Lovell, Interim Dean

Dr. Rhonda M. Zingraff, Associate Dean

Phone: (540) 568-2705

Location: ISAT/CS Building, Suite

MSC: 4101

Web site: <http://www.jmu.edu/cisat/>

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The College of Integrated Science and Technology encompasses programs of professional education whose common denominator is the use of science and technology to enhance the quality of life in the modern world.

Over the past several decades, remarkable developments have occurred in science and technology, altering our lives and our society. Continued development of human civilization, as well as of the quality of life in American society, depend on the integration of scientific knowledge, on technical capabilities, on the application of ethical principles, and on an understanding and appreciation of cultural commonalities and differences. Consequently, there is a need for individuals who understand the importance of discipline 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 may arise, and the vision and creativity to create new opportunities as needed. Our faculty is dedicated to producing graduates with a scientific knowledge base and a matching set of interpersonal, organizational and technical skills. To this end the faculty not only educates our students, but also serves as a source of inspiration and as role models.

The college places importance on carrying out its role within the community of Academic Affairs, working collaboratively with other colleges, and working in support of division-wide programs and priorities.

Mission Statement

The primary mission of the college is to educate students in the areas of the applied sciences, health, technology and human services, as well as to prepare them to enter professions or to undertake advanced study.

Goals

The goals of the College of Integrated Science and Technology are:

- to develop and sustain a community of faculty that pursues high-quality instructional, scholarly and service opportunities.
- 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.
- to promote and support a collaborative, interdisciplinary perspective.
- to emphasize innovation.
- to promote the wise use of appropriate technology and the application of scientific principles to everyday life.
- to encourage partnerships with industry, government, public and private agencies, and professional organizations.

Majors and Programs

Students may select from a variety of majors, minors, programs, concentrations and tracks that are available through the eight undergraduate departments in the College of Integrated Science and Technology. Programs offered include the following:

Majors and Programs

- Athletic Training
- Biotechnology
- Communication Sciences and Disorders
- Computer Science
- Dietetics
- Exercise Science
- Geographic Science
- Health Assessment and Promotion
- Health Sciences
- Health Services Administration
- Health Studies
- Information Analysis
- Integrated Science and Technology
- Physical and Health Education Teacher Education
- Kinesiology
- Nursing
- Occupational Studies
- Psychology
- Public Health Education
- Social Work
- Sport and Recreation Management

Minors

- Coaching Education
- Communication Sciences and Disorders
- Computer Science
- Environmental Information Systems
- Environmental Management
- Family Studies
- Geography
- Gerontology
- Human Sciences
- Integrated Science and Technology
- Materials Science
- Nonprofit Studies
- Sport Communication
- Substance Abuse Intervention
- Telecommunications
- Urban and Regional Studies

Cross Disciplinary Programs, Outreach Programs, Partnerships and Academic Centers

The College of Integrated Science and Technology 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 interdisciplinary in nature, reflecting our commitment and supporting the mission of the college. Further details about these interdisciplinary programs are provided in the "Interdisciplinary Programs" section of the catalog. A listing of our centers, outreach programs and partnerships may be found on the CISAT Web site.

College of Science and Mathematics

Dr. David F. Brakke, Dean

Dr. Judith A. Dilts, Associate Dean

Phone: (540) 568-3508

Location: ISAT/CS Building, Suite 353

MSC: 4114

Web site: <http://csm.jmu.edu/>

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<i>Dr. C. Steven Whisnant, Head</i>	

Mission

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 with 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.
- an exemplary program in mathematics and science for prospective teachers.
- 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.

Science and Mathematics Programs

The college offers a variety of academic programs, majors, minors, concentrations, interdisciplinary programs and tracks. Most of these are listed below. For an explanation and contact point of each, visit the departmental Web site at <http://csm.jmu.edu/>.

- Actuarial/Financial Mathematics
- American Chemical Society Accredited Degree
- Applied Physics
- Astronomy minor
- Biochemistry minor in biology or chemistry
- Biology major
- Biology minor
- Biotechnology major
- Chemical Education concentration
- Chemistry major
- Chemistry minor
- Chemistry/Business concentration
- Computational and Applied Mathematics
- Computational Sciences
- Pre-dentistry
- Earth Resources
- Earth Science major
- Ecology
- Environmental and Engineering Geology
- Environmental Studies minor
- Forestry
- Fundamental Physics
- Geology major
- Geology minor

- Individual Option - Physics
- Materials Chemistry major
- Materials Science minor
- Mathematics major
- Mathematics minor
- Medical Technology
- Pre-medicine
- Microbiology
- Molecular Biology and Physiology
- Pre-optometry
- Pre-pharmacy
- Physics major
- Physics minor
- Physics/Engineering Combined Program
- Plant Sciences
- Pure Mathematics
- Statistics major
- Statistics minor
- Teaching Licensure for Secondary Teaching Available:
 - Biology
 - Chemistry
 - Earth Sciences
 - Mathematics
 - Physics
- Pre-Veterinary Medicine
- Zoology

Some of these interdisciplinary programs are listed under "Interdisciplinary Programs" beginning on Page 95. These include: the biochemistry and molecular biology minor, the environmental studies minor, the materials science program, and pre-health areas such as pre-medical and pre-dental. 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

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. For further information, contact William Alexander in the Department of Physics and Astronomy at (540) 568-2312.

The Center for Computational Mathematics and Modeling

This interdisciplinary 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 360° 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. For further information, contact Dr. James Sochacki in the Department of Mathematics and Statistics at (540) 568-6614.

Electron Microscopy Center

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. For further information, contact Lance Kearns in the Department of Geology and Environmental Science at (540) 568-6421.

John C. Wells 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. For further information, contact William Alexander in the Department of Physics and Astronomy at (540) 568-2312.

JMU Meteorite Collection

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/Chemistry building. The display is open to the public year-round during university business hours, and after hours by special arrangement. We hope you enjoy your visit. For further information, contact William Alexander in the Department of Physics and Astronomy at (540) 568-2312.

Microscopy Facility

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

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. For further information contact Dr. Lance E. Kearns in the Department of Geology and Environmental Studies at (540) 568-6421/6130.

Observatory

Located at the Stokesville, Virginia Campground, a 14-inch telescope is permanently mounted under a 16-foot dome. A set of 10 piers surround the observatory building and provide easy set-up for the observatory's eight, eight-inch telescopes. This site provides dark-sky observing for introductory astronomy students. A photometer, solar filters and a CCD imaging system provide more advanced students with experience in astrophotography and data collection techniques. During the summer months, public access is regularly available on Friday and Saturday nights. For further information, contact Dr. Jon Staib in the Department of Physics and Astronomy at (540) 568-6153.

Office of Statistical Services

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. For further information contact Dr. Rickie Domangue in the Department of Mathematics and Statistics at (540) 568-6968.

Shenandoah Valley Regional NMR Facility

This nuclear magnetic resonance facility has been established with grants from The National Science Foundation (9650132), The Merck Foundation, and matching funds provided by James Madison University, Eastern Mennonite University, and Bridgewater College.

NMR spectrometers at the facility include a Bruker Avance DPX-300 NMR, equipped with a variable temperature 5mm QNP (capable of observing ^1H , ^{13}C , ^{19}F or ^{31}P) or a broad band tunable probe and a Dell host computer.

The facility also has a Bruker Avance DRX-400 NMR, equipped with a six position autosampler, a variable temperature 10mm broad band tunable probe, variable temperature 5mm broad band tunable probe with a Z gradient and a Dell host computer. Recently a Bruker Avance Ultra High Shield Plus 600 NMR was installed, equipped with a variable temperature 5mm broad band tunable probe, BST upper shim stack, Bruker Orthogonal Shim System (BOSS-2), and Bruker Smart Magnet System (BSMS) shim and Digital Lock control unit and a Dell host computer. These instruments are housed at JMU and accessed remotely by the participating regional colleges and universities. Currently the systems are running TOPSPIN 1.3 software.

A Web site, <http://csm.jmu.edu/nmr/>, has been established as a means of communicating the efforts of the Regional NMR Consortium to the local scientific community and other interested parties. This group is composed of chemists from Bridgewater College, Eastern Mennonite University, James Madison University and Mary Baldwin College.

Science and Mathematics Learning Center

The College of Science and Mathematics has established a Learning Center for Science and Mathematics located on the second floor of Roop Hall. 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 three full-time coordinators and carefully selected upper level science and math majors.

Annual Events

Physics is Phun Science Show

During the spring the department of Physics and astronomy in conjunction with the Society of Physics Students offers science shows to student groups from grades 6-12. Topic rooms are arranged with presentations and demonstration in various areas of physics and the visiting students rotate among the rooms. JMU faculty and students share their experience and knowledge of science in an engaging format. Typical shows run about two hours. For further information, contact Dr. Kevin Giovanetti, in the Department of Physics and Astronomy at (540) 568-6353.

Science Fair

The Shenandoah Valley Regional Science Fair has been administered by the JMU science faculty for the past 36 years. The science fair is a competition open to all students in grades six through 12 who live in Virginia's Shenandoah Valley. For further information, contact Dr. Thomas DeVore in the Department of Chemistry and Biochemistry at (540) 568-7938.

SUMS Conference

Each fall the Department of Mathematics and Statistics hosts the Shenandoah Undergraduate Mathematics and Statistics (SUMS) Conference, a one-day undergraduate research conference. The SUMS Conference gives undergraduates from JMU and around the country who have completed original mathematical research a chance to present their work to their peers. For further information, visit www.math.jmu.edu/SUMS or contact Dr. Elizabeth Theta Brown or Dr. Laura Taalman in the Department of Mathematics and Statistics at (540) 568-6184.

College of Visual and Performing Arts

Dr. George Sparks, Dean

Dr. Marilou Johnson, Associate Dean

Phone: (540) 568-7131

Location: Harrison Hall, Suite 1102

MSC: 2105

Web site: <http://cvpa.jmu.edu/>

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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 and Art History
- School of Music
- School of Theatre and Dance

Resources and Events

artWorks Gallery

artWorks Gallery features rotating exhibits of JMU undergraduate and graduate student work. The gallery is managed by students in the School of Art and Art History. artWorks is located a short walk from Duke Hall on the second floor of 131 Grace Street, JMU, Harrisonburg, VA. For information on current exhibitions and hours of operation, please call (540) 568-7175. artWorks Gallery is sponsored by the School of Art and Art History.

Institute for Visual Studies

Dr. David Ehrenpreis, Director

Phone: (540) 568-5656

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 sponsored by the College of Visual and Performing Arts and is a collaboration among faculty representing all colleges at the university.

Madison Art Collection

Dr. Kathryn Stevens, Director

Phone: (540) 568-6934

This collection of more than 3000 art objects features Neolithic through contemporary art pieces. The Madison Art Collection is located in the Festival College Center, Room 2102. For more information access <http://web.jmu.edu/mars>. The Madison Art Collection is sponsored by the College of Visual and Performing Arts.

Masterpiece Season

Each year the college and its visual/performing arts units present a variety of cultural events for JMU and the entire university community. The Schools of Art and Art History, Music, and Theatre and Dance all take an active role in this series. In addition to highlighting the talents of JMU faculty and students, Masterpiece Season produces visiting artist programs titled the Encore Series and the Family Series. In recent years, Masterpiece Season has featured such artists as Wynton Marsalis, the Harlem Boys Choir, the Richmond Ballet, Spirit of the Dance and the St. Petersburg State Ice Ballet. To purchase tickets or to obtain ticket information, call (540) 568-7000.

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. For information on current exhibitions and hours of operation, please call (540) 568-7175. New Image Gallery is sponsored by the School of Art and Art History.

Sawhill Gallery

Sawhill 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. Sawhill Gallery is located in Duke Hall, Room 101, corner of Main and Grace Streets, JMU, Harrisonburg, VA. For information on current exhibitions and hours of operation, please call (540) 568-6407. Sawhill Gallery is sponsored by the College of Visual and Performing Arts and the School of Art and Art History.

General Education: The Human Community

Dr. Linda Cabe Halpern, Dean

Dr. Herb Amato, Associate Dean

Dr. Margaret M. Mulrooney, Associate Dean

Catherine M. Crummett, Assistant Dean

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Mission Statement

In the liberal arts tradition, General Education: The Human Community aspires to create informed global citizens of the 21st 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:

Cluster	Credits
Skills for the 21 st Century	9
Arts and Humanities	9
The Natural World	10
Social and Cultural Processes	7
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 and to subsequent study in the major and professional programs. This cluster emphasizes competencies in the areas of oral and written communication, critical thinking, and information literacy. The broadly stated goals for Cluster One are:

- Demonstrate competency in information literacy.
- Demonstrate critical thinking skills.
- Demonstrate effective oral presentation skills.
- Demonstrate effective writing skills.
- Demonstrate self-analysis and self-directed learning.

Competence in these goals is fundamental to general education and to subsequent study in major and professional programs. Therefore, all students are required to complete all Cluster One requirements during their first academic year at JMU. The specific learning goals for each area of Cluster One are included in this section.

Cluster One Structure

Cluster One consists of nine credits. All students **MUST** complete one course in each of three groupings of courses representing the main content disciplines of the cluster: Critical Thinking, Human Communication, and Writing. Courses may be taken in any order. In addition to the three courses, students are required to demonstrate competency in information literacy by completing two high stakes exams: the technology test (Tech Level I) and the Information Seeking Skills Test (ISST).

Cluster One Requirements

All students must complete Cluster One requirements during their first academic year at JMU. If this requirement cannot be met due to extenuating circumstances a deferral form must be submitted to the Office of University Studies by March 7, 2010.

Information Literacy

Cluster One requires completion of the two information literacy tests during the first year. Information literacy is the ability to locate, evaluate and use information effectively to accomplish a purpose. Cluster One students must demonstrate competency by successfully completing:

- Information-Seeking Skills Test (ISST)
- Tech Level I exam (word processing, presentation software, spreadsheets)

See the General Education Web site for more information.

Critical Thinking

Cluster One requires the completion of one of five courses offered in critical thinking. Students study various techniques and approaches to critical thinking such as analyzing and evaluating information, arguments, premises, and concepts and their relationships as well as fostering 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.

Choose one of the following:

- GBUS* 160. Business Decision Making in a Modern Society
- GHIST* 150. Critical Issues in Recent Global History
- GISAT* 160. Problem Solving Approaches in Science and Technology
- GMAD* 150. Mediated Communication: Issues and Skills
- GPHIL* 120. Critical Thinking

Human Communication

Cluster One requires completion of one of three courses offered in oral communication. 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, using power and managing conflict, and applying critical listening. 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.

Choose one of the following:

- GCOM* 121. Fundamental Human Communication: Presentations
- GCOM* 122. Fundamental Human Communication: Individual Presentations
- GCOM* 123. Fundamental Human Communication: Group Presentations

Students who have received credit for one *GCOM* class are not eligible to receive credit for a second *GCOM* class. Students who have received credit for *GCOM* 121 are not eligible to receive credit for *GCOM* 122 or *GCOM* 123. Students who have received credit for *GCOM* 122 are not eligible to receive credit for *GCOM* 121 or *GCOM* 123. Students who have received credit for *GCOM* 123 are not eligible to receive credit for *GCOM* 121 or *GCOM* 122.

Writing

Cluster One requires completion of the writing course *GWRTC* 103. The emphasis is on the process of constructing a focused, logical, coherent, well-supported thesis or point of view. Students employ research and formal documentation to produce writing stylistically appropriate to its audience, purpose, and occasion. Students edit their writing for clarity and control of conventions, and they are prepared to use reading and writing in their personal, academic, and civic lives.

Complete the following:

- GWRTC* 103. Critical Reading and Writing (formerly *GWRT* 103)

GWRTC Placement and Exemptions

Students may receive credit or exemptions for GWRTC 103 (formerly GWRIT 103) under the following conditions:

- an AP minimum score of 4 on the English Language and Composition or the English Literature and Composition test
- a Higher-Level IB English score of 5
- transfer or dual enrollment credit for GWRTC 103 (formerly GWRIT 103)
- Receive an exemption for successfully completing the Waiver Exam for GWRTC 103.

Students who have received credit for GWRIT 101 are not eligible to receive credit for WRTC 100. Students who have received credit for GWRIT 102 are not eligible to receive credit for WRTC 100 or GWRTC 103 (formerly GWRIT 103).

Cluster One Learning Objectives

After completing Cluster One: Skills for the 21st Century, students should be able to use reading, writing and oral communication, critical thinking, and information literacy skills for inquiring, learning, thinking and communicating in their personal, academic, and civic lives.

Information Literacy

After completing both information literacy tests and course work in critical thinking, human communication, and writing, students should be able to:

- Determine when information is needed and find it efficiently using a variety of reference sources.
- Evaluate the quality of the information.
- Use the information effectively for an appropriate purpose.
- Employ appropriate technologies to create an information-based product.
- Use information ethically and legally.

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:

- understand and apply the fundamentals of audience analysis, message construction, development, organization, and presentation.
- deliver effective oral presentations in a variety of contexts.
- identify, evaluate and employ critical and sensitive listening behaviors.
- identify and manage the verbal and nonverbal dimensions of communication in a variety of contexts.
- recognize and apply the influences of self-concept perception and culture on communication.
- identify, evaluate and utilize the nature and functions of power and the strategies of conflict negotiation.

Writing

After completing course work in writing, students should be able to:

- develop and support a relevant and informed thesis, or point of view, that is appropriate for its audience, purpose, and occasion.
- analyze and evaluate information to identify its argumentative, credible, and ethical elements.
- reflect on civic responsibility as it relates to written discourse (critical thinking, reading, and writing).
- demonstrate effective writing skills and processes by employing invention, research, critical analysis and evaluation, and revision for audience, purpose, and occasion.
- effectively incorporate and document appropriate sources to support a thesis and effectively utilize the conventions of syntax, grammar, punctuation, and spelling.

Cluster Two: Arts and Humanities

Dr. Michael Moghtader, Interim 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 multidisciplinary 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 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. *GAMST 200* takes an interdisciplinary approach to questions about American identity and shows how they reflect a complex interplay of cultural, historical, religious, and ideological perspectives. The *GANTH* and *GHIST* 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 *GHUM* courses are interdisciplinary, in-depth explorations of specific topics, cultures, periods or themes. The *GPHIL* and *GREL* 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:

- GAMST 200*. Introduction to American Studies
- GANTH 205*. Buried Cities, Lost Tribes: The Rise and Fall of Early Human Societies
- GHIST 101*. World History to 1500
- GHIST 102*. World History Since 1500
- GHUM 102*. God, Meaning, and Morality

- GHUM 250*. Foundations of Western Culture
(Topics vary by section. Examples include: Ancient Greece, Rome)
- GHUM 251*. Modern Perspectives
(Topics vary by section. Examples include: The Enlightenment, Romanticism, and Human Rights)
- GHUM 252*. Cross-Cultural Perspectives
(Topics vary by section. Examples include: East Asia, West Africa, Latin American Cultures, Islamic Civilization)
- GPHIL 101*. Introduction to Philosophy
- GREL 101*. Religions of the World

Group Two: Visual and Performing Arts

Students will take one course from the list below. The art history surveys 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. *GART 200* and *GMUS 200* are introductions to art or music in general culture; *GTHEA 210* studies theatre as an art form including acting, directing, design, costuming, lighting; *GMUS 203* explores America's musical landscape and examines the interconnections among music, art, and literature in historical periods.

In all Group Two courses, students will examine the innate human aesthetic sense, sources of art and music appreciation, and the creation of art as both an expression of human creativity and a means of giving meaning to the world. Thus all the courses focus on the key areas of human creativity and expressiveness through the visual and performing arts - imaginative outpourings that have form, structure, meaning and aesthetic appeal that all students can come to appreciate.

Choose one of the following:

- GART 200*. Art in General Culture
- GARTH 205*. Survey of World Art I: Prehistoric to Renaissance
- GARTH 206*. Survey of World Art II: Renaissance to Modern
- GMUS 200*. Music in General Culture
- GMUS 203*. Music in America
- GMUS 206*. Introduction to Global Music
- GTHEA 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:

GENG 235. Survey of English Literature: From Beowulf to the 18th Century

GENG 236. Survey of English Literature: 18th Century to Modern

GENG 239. Studies in World Literature

GENG 247. Survey of American Literature: From the Beginning to the Civil War

GENG 248. Survey of American Literature: From the Civil War to the Modern Period

GENG 260. Survey of African-American Literature

GHUM 200. Great Works

(Topics vary by section. Examples include: German Literature in Translation; Speculative Fiction; Western Classics)

The courses in Group Three are designated as “writing-infused.” Students will write a minimum of 5000 words (about 15 pages double-spaced in a standard font) distributed among five separate, graded assignments. The courses thus afford students extensive opportunities to produce various genres of academic writing, as well as to develop more engaged and sophisticated reading strategies through exposure to interesting and thought-provoking texts.

Cluster Two Learning Objectives

After completing Group One, Human Questions and Contexts, students will be able to:

- Question their own and others’ opinions about and responses to the world.
- Apply the methods of the discipline(s) studied to material from the humanities.
- Identify and evaluate arguments using appropriate concepts and techniques to 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.
- Appreciate appropriate humanities events (such as exhibits, films, performances or public lectures).

After completing Group Two, Visual and Performing Arts, 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.
- Appreciate arts events.
- Acknowledge relationships among the arts.

After completing Group Three, Literature, 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 Three: The Natural World

Dr. Kit Murphy, 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. Each track is multidisciplinary and interdisciplinary, thereby demonstrating boundaries and connections among mathematics, the sciences and other aspects of culture.

Cluster Three: Track I and Track II

All students begin either Track I or Track II in Cluster Three during their first year and should complete it by the end of their sophomore year. Individual courses in the tracks satisfy requirements in a number of major and professional programs on campus. Students are encouraged to select appropriate courses in Cluster Three on the basis of their backgrounds, interests and educational objectives.

Track I

In this track, students take one course from each of three groups and are required to have at least one lab experience. Group 1 consists of mathematics courses, and Groups 2 and 3 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.

Group 1. Choose one of the following

- GISAT* 151. Analytic Methods I: Topics in Applied Calculus for Integrated Science and Technology
- GISAT* 251. Analytic Methods II: Topics in Statistics for Integrated Science and Technology
- MATH 103. The Nature of Mathematics
- MATH 205. Introductory Calculus I
- MATH 220. Elementary Statistics
- MATH 231. Calculus with Functions I
- MATH 235. Calculus I

Group 2. Choose one of the following

- CHEM 120. Concepts of Chemistry
- CHEM 131. General Chemistry I (CHEM 131L required lab corequisite)
- GISAT* 112. Environmental Issues in Science and Technology (includes lab)
- GSCI* 101. Physics, Chemistry and the Human Experience*
- GSCI* 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*

Group 3. Choose one of the following

- GANTH* 196. Biological Anthropology
- ASTR 120. The Solar System
- ASTR 121. Stars, Galaxies and Cosmology
- GBIO* 103. Contemporary Biology
- BIO 114. Organisms (includes lab)
- BIO 270. Human Physiology (includes lab)*
- GGEOL* 102. Environment: Earth
- GGEOL* 115. Earth Systems, Cycles and Human Impact
- GEOL 110. Physical Geology (includes lab)
- GEOL 200. Evolutionary Systems (includes lab)
- GEOL 210. Applied Physical Geography
- GEOL 211. Introduction to Oceanography
- GISAT* 113. Issues in Science and Technology: Living Systems
- GPSYC* 122. The Science of Vision and Audition

Lab Experience

Students must either complete a Group 2 or Group 3 course with a lab or complete *GSCI* 104.

Track II

In addition to the science and math content, Track II emphasizes the learning environment and the unifying themes that link each of the individual classes. Track II is meant to serve primarily, but not exclusively, IDLS majors. MATH 107 must be taken prior to *GSCI* 163; *GSCI* 161 and *GSCI* 162 are corequisites; *GSCI* 163 and *GSCI* 164 are corequisites. Corequisite pairs may be taken in any order.

- MATH 107. Fundamentals of Mathematics I
- GSCI* 161. Science Processes
- GSCI* 162. The Science of the Planets
- GSCI* 163. The Matter of Matter
- GSCI* 164. Physical Science: Learning Through Teaching
- GSCI* 165. The Way Life Works

Cluster Three Learning Objectives

After completing Cluster Three: The Natural World, students should be able to meet the following objectives grouped under three learning goals:

- 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 and 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 Four:

Social and Cultural Processes

Dr. Raymond M. Hyser, Interim Coordinator

Rapid changes are taking place in today's world that are transforming our lives. To make informed judgments about the causes of these changes, their underlying dynamics and the implications they hold for the future, students must become critical thinkers about their own societies and the larger global community. Students must learn how to frame questions, develop strategies of inquiry, build upon past scholarship and make connections between distinct disciplines of study. Cluster Four courses help students develop these capabilities through an examination of the key social and cultural processes and structures that shape the human experience. Students will take one course that focuses on the American experience and one course that examines the global experience.

The Cluster Four courses that students must take are not sequenced so that either part of the cluster may be taken first or they may be taken concurrently. *Students may not take two courses from the same discipline in completing the Cluster Four requirement.*

Cluster Four Package

The American Experience

Each of the American Experience courses provides students with an understanding of the major themes and concepts that structure American life today. *GHIST 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. *GJUST225* frames questions regarding historic and contemporary events in terms of issues of justice, highlighting how societal structures interact with individual lives and vice versa.

GPOSC 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:

GHIST 225. U.S. History

GJUST 225. Justice and American Society

GPOSC 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:

GAFT 200. Introduction to Africana Studies

GANTH 195. Cultural Anthropology

GECON 200. Introduction to Macroeconomics

GGEOG 200. Geography: The Global Dimension

GPOSC 200. Global Politics

GSOCI 110. Social Issues in a Global Context

Cluster Four Learning Objectives

American Experience

Students completing this part of Cluster Four will be able to identify, conceptualize and evaluate:

- Social and political processes and structures using quantitative and qualitative data
- 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
- 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:

- Basic global problems
- Global political, social, cultural and economic systems
- The issues involved in analyzing societies different from one's own
- The global forces that shape societies
- Theoretical models used in studying global problems
- The strengths and limitations of alternative solutions to global problems across and within cultures

Cluster Five: Individuals in the Human Community

Dr. Jeanne Martino-McAllister, 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 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 Wellness and in Sociocultural Dimension. Students are expected to complete Cluster Five course work during their first two years at the university.

Wellness

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:

- GEIC 101. Wellness Dimension: Individual Perspectives
- GHTH 100. Personal Wellness
- GKIN 100. Lifetime Fitness and Wellness

Sociocultural Dimension

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:

- GEIC 102. The Sociocultural Dimensions: Community Perspective
- GPSYC 101. General Psychology
- GPSYC 160. Life Span Human Development
- GSOCI 140. Microsociology: The Individual in Society

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:

- Identify factors that affect individual and group behavior in social contexts.
- Identify factors that lead an individual or group to adopt a particular position on social and behavioral issues.
- Discern the extent to which sources of information about the socio-cultural domain are reputable and unbiased.
- Evaluate the extent to which the approach to, and uses of, psychosocial research are ethical and appropriate.

Biotechnology

Dr. Jonathan Monroe, Director

Phone: (540) 568-6649

Location: Burruss Hall, Room 304

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, interdisciplinary B.S. degree program for a major in biotechnology. 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 must complete 47-53 credit hours of science foundation courses, 17 credit hours of biotechnology transition and core courses, and 15 credit hours of concentration courses. With the advice and approval of a concentration adviser, each student selects the courses for his or her concentration area. Three broad areas of concentrations are suggested to serve a spectrum of student needs and desires. A research concentration would prepare students for graduate school or entry into a research laboratory. An industry concentration would prepare students for entry into the biotechnology industry. A custom concentration can be assembled for a specialized area of study such as bioinformatics, genomics or agricultural biotechnology.

Major and Degree Requirements

Bachelor of Science in Biotechnology Degree Requirements

General Education ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
Major requirements (listed below) and electives	79
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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.

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Web site: <http://www.jmu.edu/biology/biotechnology.shtml>

Major Requirements

Science Foundation Courses	Credit Hours
Complete all of the following:	
BIO 114. Organisms	4
BIO 124. Ecology and Evolution	4
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4
CHEM 131. General Chemistry I	3
CHEM 131L. General Chemistry Laboratory	1
CHEM 132. General Chemistry II	3
CHEM 132L. General Chemistry Laboratory	1
CHEM 341. Organic Chemistry Lecture I	3
CHEM 342. Organic Chemistry Lecture II	3
CHEM 346L. Organic Chemistry Laboratory	2
Choose one of the following sets of courses:	
MATH 231. Calculus with Functions I	4
MATH 232. Calculus with Functions II	4
OR MATH 235 Calculus I	4
Choose one of the following courses:	
MATH 220. Elementary Statistics	3
MATH 285. Data Analysis	4
Choose one of the following sets of courses:	
PHYS 125. Principles of Physics with Biological Applications I	4
PHYS 126. Principles of Physics with Biological Applications II	4
OR	
PHYS 140-140L. College of Physics I with Laboratory	4
PHYS 150-150L. College of Physics II with Laboratory	4

Biotechnology Transition & Core Courses	Credit Hours
Complete all of the following:	
BIOT 260. Biotechnology Seminar	1
ISAT 305. Biotechnology Lab	1
CHEM/BIO 361. Biochemistry I	3
CHEM 366L. Biochemistry Lab	2
BIO 480. Advanced Molecular Biology	4
ISAT 451. Biotechnology in Industry and Agriculture	3
ISAT 456. Ethical, Legal and Social Implications of Biotechnology	3

Biotechnology Area Concentration

Students must complete 15 credit hours of courses in one of the biotechnology concentrations areas listed below.

Research Concentration: Preparation for graduate school research program or employment in a research laboratory.

Industry Concentration: Preparation for entry-level positions in the biotechnology industry.

Custom Concentration: Specialized in specific areas of biotechnology, including bioinformatics, genomics and agricultural biotechnology.

Upon declaration of the major, each student will be assigned a concentration adviser. The student and the adviser will define the specific courses taken to fulfill the concentration requirement. The student will choose upper division (300 level or higher) BIO, ISAT, CHEM, PHYS or MATH courses, but other appropriate course offerings from other academic units may be substituted with the approval of the concentration adviser.

Students are highly encouraged to include academic credit for research, up to 8 credits of which may be applied to the concentration 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 114. Organisms ¹	4
BIO 124. Ecology and Evolution	4
CHEM 131 & CHEM 131L. General Chemistry I ¹	4
CHEM 132 & CHEM 132L. General Chemistry II	4
Quantitative course ¹	4-8
General Education: Cluster One	9
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¹ Fulfill General Education: Cluster Three.

Second Year	Credit Hours
BIOT 260. Biotechnology Seminar	1
ISAT 305. Biotechnology Lab	1
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4
CHEM 341-342. Organic Chemistry Lecture	6
CHEM 346L. Organic Chemistry Laboratory	2
Quantitative course	3-4
General Education: from Clusters Two, Four and Five	9
	<hr/> 30-31

Third Year	Credit Hours
CHEM/BIO 361 and CHEM 366L. Biochemistry Lab	5
BIO 480. Advanced Molecular Biology	4
Concentration Electives	4
Physics courses	8
General Education: from Clusters Two, Four and Five	7
Electives	4
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Fourth Year	Credit Hours
ISAT 456. Social and Ethical Issues	3
ISAT 451. Biotechnology in Industry	3
Concentration Electives	11
General Education: from Clusters Two, Four and Five	6
Electives	6
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School of Engineering

Dr. Ronald G. Kander, Director

Phone: (540) 568-8110

Location: Health & Human Services Building, Room 3228

E-mail: kanderrg@engr.jmu.edu

Web site: www.jmu.edu/engineering/

The Bachelor of Science in Engineering is a single engineering degree that spans the traditional engineering disciplines and includes course work in science, mathematics, business, technology management, engineering, design and interpersonal communication skills. The themes of the program are sustainability, engineering design and systems analysis.

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, systems, and infrastructures 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. Sub-disciplines of engineering, such as mechanical, electrical or chemical will not be offered in this program. Rather, a broad-based engineering program that spans many areas of engineering will be emphasized to train engineering versatilists who are aware of the need for sustainability in the products, processes, and engineering systems they design.

The curriculum is designed to meet all engineering accreditation standards and to prepare students to pass 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 exhibiting the practical ingenuity of an engineering versatilist.

Mission Statement

James Madison University engineering graduates will improve the sustainability of our world by participating in projects in which they analyze problems and design solutions in the context of environmental, energy, financial, and social impacts.

Objectives

The JMU engineering program empowers and motivates students to engineer systems for sustainable societies by:

- analyzing and solving real-world human problems.
- modeling, simulating and testing complex interdependent socio-technical systems.
- integrating business, social, and ethical aspects into engineering solutions.
- working effectively in interdisciplinary teams and international environments.
- managing engineering projects in a timely and cost-effective manner.
- communicating effectively with diverse audiences.
- striving toward lifelong learning and creative critical thinking.

Career Opportunities

Upon graduation, alumni will be prepared for a wide range of opportunities in the engineering workforce or in engineering graduate school. Typical fields of engineering that students will be prepared to enter include applications engineering, process design, product design, process engineering, project engineering and systems engineering. Other industry options include product service, 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, aeronautic firms, airports, automobile manufactures, colleges and universities, computer service and software firms, consulting firms, energy systems firms, engineering 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.

Progression Standard and Prerequisite Chain

Students have two targets to watch while planning their engineering curriculum: the progression standard and the prerequisite chain.

Progression Standard

Engineering students must meet the following progression standard before being admitted into junior-level (ENGR 3xx) or senior-level (ENGR 4xx) engineering courses.

The lowest grade of record for any of the following required in-major courses is a "C-."

- ENGR 112, ENGR 212, ENGR 221, ENGR 231, ENGR 232
- MATH 235, MATH 236, MATH 237, MATH 238
- PHYS 240, PHYS 140L, PHYS 250, PHYS 150L
- CHEM 131, CHEM 131L, CHEM 132L

A student's overall GPA and required major GPA (for the same list of courses) must be at least 2.500 (no rounding).

Prerequisite Chain

Engineering students should be aware that many courses include prerequisites, or courses that must be successfully completed before enrollment in a specific course. The following list includes prerequisites that students should consider when planning their courses of study.

Course	Prerequisite Course(s)
ENGR 112	MATH 235, PHYS 240, PHYS 140L
ENGR 212	ENGR 112, PHYS 250, PHYS 150L, MATH 237, & MATH 238 ¹
ENGR 221	ENGR 112
ENGR 231	ENGR 112
ENGR 232	ENGR 231
Required ENGR 3xx Courses	All required ENGR 2xx Courses
ENGR 332	ENGR 331
Required ENGR 4xx courses	All required ENGR 3xx Courses
ENGR 432	ENGR 431
ENGR 412	ENGR 411

¹ Course may be taken concurrently as a corequisite.

Degree and Major Requirements

Bachelor of Science in Engineering

Required courses	Credit Hours
General Education ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
Major requirements (listed below) and electives	73-77
	<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 In addition to course work taken to fulfill General Education requirement.

Recommended Schedule for Majors

First Year	Credit Hours
Fall	
MATH 235. Calculus I ¹	4
PHYS 240 & 140L. University Physics I & Laboratory ²	4
General Education ³	3
General Education ⁴	3
	<hr/> 14

First Year	Credit Hours
Spring	
MATH 236. Calculus II	4
PHYS 250 & 150L. University Physics II & Laboratory	4
ENGR 112. Introduction to Engineering	3
General Education ⁴	3
	<hr/> 14

Second Year	Credit Hours
Fall	
MATH 237. Calculus III	4
CHEM 131. General Chemistry I and 131L & 132L. General Chemistry Laboratories ⁴	5
ENGR 221. Management of Technology	3
ENGR 231. Engineering Design I	1
General Education	3
	<hr/> 16

Second Year	Credit Hours
Spring	
MATH 238. Linear Algebra and Differential Equations	4
ENGR 212. Engineering Statics & Dynamics	4
ENGR 232. Engineering Design II	1
General biology or geology ⁵	3
General Education	3
	<hr/> 15

Third Year	Credit Hours
Fall	
ENGR 311. Engineering Fluids & Transport + Lab	4
ENGR 313. Instrumentation & Circuits + Lab	4
ENGR 331. Engineering Design III	2
Technical elective	3
General Education	3
	<hr/> 16

Third Year	Credit Hours
Spring	
ENGR 312. Engineering Thermo & Heat Transfer + Lab	4
ENGR 314. Strength of Materials + Lab	4
ENGR 322. Management of Technology II	3
ENGR 332. Engineering Design IV	2
General Education	3
	<hr/> 16

Fourth Year	Credit Hours
Fall	
ENGR 411. Sustainability I	3
ENGR 413. Systems Analysis	3
ENGR 431. Engineering Design V	2
Technical elective	3
General Education	4
	<hr/> 15

Fourth Year	Credit Hours
Spring	
ENGR 412. Sustainability II	3
ENGR 432. Engineering Design VI	2
Technical elective	3
General Education	6
	<hr/> 14

¹ Also fulfills General Education requirement for Cluster 3, Group 1 (Mathematics)

² Also fulfills General Education requirement for Cluster 3, Group 2 (Science)

³ Fulfills General Education requirement for Cluster 1 (Skills for the 21st Century)

⁴ Engineering only sections of labs

⁵ Also fulfills General Education requirement for Cluster 3, Group 3 (Science)

International Affairs

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Mission

The major in international affairs provides an interdisciplinary 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 interdisciplinary, 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, 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. International affairs is a 50-credit hour major, with a 32-credit common core and 18 credits of concentration study.

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

General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses) ³	3
University electives	12-26
Major requirements (listed below)	50
	<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. 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: *GAMST 200* AND one of the following courses: *GHIST 225*, *GENG 247* or *GENG 248*.

3 If students have taken a *GPHIL* course to meet their General Education requirements, they must take an additional course to meet the B.A. degree 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
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ECON 201. Principles of Economics (Micro)	3
ECON 270. International Economics ¹	3
GECON 200. Introduction to Macroeconomics	3
INTA 295. Cross-National Research Skills ²	4
INTA 489. Seminar in International Affairs ³	4
POSC 230. International Relations	3
POSC 240. Comparative Politics	3
Choose one of the following: ⁴	3
HIST 330. U.S. Diplomatic History	
POSC 370. U.S. Foreign Policy	
FL 300. Grammar and Communication ⁵	3
FL 320. Oral and Written Communication ⁵	3
	<hr/> 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.

3 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

Prerequisite: 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 (including Russian and Japanese) 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.

Cross Area Courses	Credit Hours
Complete one course:	3
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	
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 Politics¹

Sociology

SOCI/SOWK 348. Introduction to Developing Societies

¹ When course topic is appropriate for the chosen concentration. Students should consult with the INTA coordinator about the suitability of a particular course.

Area Courses

Credit Hours

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 Asia
 HIST 371. India
 HIST 375. History of Modern Southeast Asia
 HIST 377. History of Korea
 HIST 460. Modern Japan
 HIST 480. Modern China
 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 390. France since 1789
 HIST 465. Twentieth Century Britain
 HIST 475. Modern Russia
 HIST 478. Eastern Europe
 HIST 486. Europe since 1914
 POSC 344. Politics of the European Union
 POSC 345. Politics of Western Europe
 POSC 346. Politics of Central and Eastern Europe

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

International Relations Courses

Credit Hours

Complete four courses:¹

12

(These courses must come from at least three fields of study. One of these courses must be HIST 330. The potential fields are listed below.)

Economics

ECON 365. Economic Development
 ECON 370. International Trade and Trade Policies
 ECON 372. International Finance and Payment

Geography

GEOG 375. Political Geography

History

HIST 330. U.S. Diplomatic History²

Justice Studies

JUST 300. Perspectives on Comparative Justice

Political Science

POSC 361. Topics in International Politics³
 POSC 395. International Law
 POSC 396. International Organizations
 POSC 397. The Politics of International Economic Relations
 POSC/JUST 392. Peace Studies
 POSC 430. International Security in the Post-Cold War World
 POSC 435. Seminar in International Terrorism
 POSC 458. International Political Analysis
 POSC 493. Simulations³

Religion

REL 314. Gandhi, Nonviolence and Global Transformation

¹ No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

² HIST 330 must be one of the course taken to fulfill the international relations courses for the IP concentration.

³ 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:¹

6

(Each course must come from a different field of study. The potential fields are listed below.)

Cross-Cultural

GANTH 195. Cultural Anthropology
 SOCI/ANTH 313. Processes of Social and Cultural Change
 ANTH 340. The Invention of Race

Economics

ECON 312. Comparative Economic Systems.
 ECON 372. International Finance and Payments

Geography

GEOG 280. Human Geography: The Cultural Landscape
 GEOG 300. Population Geography
 GEOG 325. Environmental Ethics
 GEOG 344. Economic Geography and Development Issues
 GEOG 375. Political Geography

History

HIST 330. U.S. Diplomatic History

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 Politics²
 POSC 370. U.S. Foreign Policy
 POSC/JUST 392. Peace Studies
 POSC 395. International Law
 POSC 396. International Organizations
 POSC 397. The Politics of International Economic Relations
 POSC 430. International Security in the Post Cold War World
 POST 458. International Political Analysis
 POSC 493. Simulations²

¹ No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

² 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:¹ 12

(These courses must come from at least three fields of study.

The potential fields are listed below.)

Africana Studies

GAFST 200. Introduction to Africana Studies

GAFST 489. Africana Studies Senior Research Experience²

Culture

ANTH 280. Peoples and Cultures of Sub-Saharan Africa

ANTH 395. Special Topics in Anthropology²

ARTH 210. African Art and Culture in the Humanities

ARTH 410. African Art: The Sahara and Northern Sahel

ARTH 412. 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 Religion²

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 Africa³

History

HIST 263. Africa

HIST 341. Selected Themes in World History²

HIST 361. Class and Ethnicity in Africa

HIST 470. Modern Africa

HIST 473. The Islamic World

HIST 489. Selected Topics in World History²

Political Science

POSC 353. African Politics

POSC 371. Topics in Comparative Politics²

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:¹ 12

(These courses must come from at least three fields of study.

The potential fields are listed below.)

Culture

ANTH 295. Peoples and Cultures of East Asia

ANTH 395. Special Topics in Anthropology²

ARTH 416. Arts of Oceania

ARTH 430. Far Eastern Art

REL 300. Selected Topics in Religion²

REL 310. Hindu Traditions

REL 312. Religions of East Asia

REL 313. Hindu Ethics

REL 316. Topics in Hinduism

PHIL/REL 385. Buddhist Thought

Geography

GEOG 334. Geography of East and Southeast Asia³

History

HIST 274. Modern Asia

HIST 341. Selected Themes in World History²

HIST 371. India

HIST 375. History of Modern Southeast Asia

HIST 377. History of Korea

HIST 379. Family and Gender in East Asia

HIST 460. Modern Japan

HIST 480. Modern China

HIST 489. Selected Topics in World History²

Political Science

POSC 355. East Asian Politics

POSC 371. Topics in Comparative Politics²

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:¹ 12

(These courses must come from at least three fields of study.

The potential fields are listed below.)

Required

POSC 344. Politics of the European Union

3

Culture

GARTH 206. Survey of World Art II: Renaissance to Modern

ENG 341. Contemporary British Novel

ENG 374. Introduction to Anglo-Irish Literature

FR 308. Contemporary French Civilization

FR 425. Twentieth Century French Literature

FR 465. French Cinema, 1930-1980

FR 466. Contemporary French Cinema

GER 308. Contemporary German Civilization

GER 426. Modern German Literature

ITAL/HIST 308. Contemporary Italian Civilization

ITAL 425. Modern Italian Literature

ITAL 465. Italian Cinema

RUS 405. Russian Literature of the 19th Century

RUS 426. Russian Literature of the 20th Century

SPAN 307. Spanish Civilization

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

Geography

GEOG 332. Geography of Europe²

History

HIST 301. European Military History
 HIST 321. European Women's History
 HIST 341. Selected Themes in World History³
 HIST 384. England and the Empire-Commonwealth
 HIST 386. Russia since 1885
 HIST 390. France since 1789
 HIST 462. The Rise and Fall of Nazi Germany, 1918-1945
 HIST 465. Twentieth Century Britain
 HIST 475. Modern Russia
 HIST 478. Eastern Europe
 HIST 486. Europe since 1914
 HIST 487. World War II
 HIST 489. Selected Topics in World History³

Political Science

POSC 337. Politics of Russia and the Former Soviet Union²
 POSC 345. Politics of Western Europe
 POSC 346. Politics of Central and Eastern Europe
 POSC 371. Topics in Comparative Politics³

¹ No course taken for this requirement may be used to fulfill a requirement elsewhere in the major.

² 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.

³ 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.

The following courses are taught abroad ONLY and are accepted for culture credit in the Europe track:

ARTH 313. Masterpieces in Italian Renaissance Art (Semester in Florence only)
 ARTH 314. Masterpieces in Spanish Art (Semester in Salamanca only)
 ARTH 315. Masterpieces in British Art (Semester in London only)
 ARTH 317. Masterpieces in French Art (Semester in Paris only)

Latin America Track

Area Courses **Credit Hours**

Complete four courses:¹ 12

(These courses must come from at least three fields of study.
 The potential fields are listed below.)

Culture

ANTH 265. People and Cultures of Latin America and the Caribbean
 ANTH 395. Special Topics in Anthropology²
 ANTH/HIST 436. Afro-Latin America
 ENG 431. Studies in Caribbean Literature
 GHUM 252. Cross-Cultural Perspectives²
 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 Linguistics, Literature or Civilization

Geography

GEOG 337. Geography of Latin America³

History

HIST 341. Selected Themes in World History²
 HIST 444. Revolution and Change in Latin America
 HIST 445. Latin America and the United States
 HIST 447. South America
 HIST 489. Selected Topics in World History²

Political Science

POSC 350. Latin American Politics
 POSC 371. Topics in Comparative Politics²

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.

Middle East Track

Area Courses **Credit Hours**

Complete four courses:¹ 12

(Each course must come from at least three fields of study.
 The potential fields are listed below.)¹

Culture

ANTH 395. Special Topics in Anthropology²
 ARTH 424. Arts of Ancient Egypt
 ENG 433. Studies in Arabic Literature
 REL 300. Selected Topics in Religion²
 REL 305. Islamic Religious Tradition
 REL 320. Judaism
 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 History²
 HIST 473. The Islamic World
 HIST 485. Colonialism in the Greater Middle East
 HIST 489. Selected Topics in World History²

Political Science

POSC 340. Political Development in the Third World
 POSC 354. Politics of the Middle East
 POSC 371. Topics in Comparative Politics²

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.

The following course is taught abroad ONLY and is accepted for culture credit in the Middle East track:

REL 338. The Culture of Israel

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

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.

Interdisciplinary Liberal Studies

Dr. Fletcher Linder, Director

Phone: (540) 568-5260

Location: Maury Hall, Room 118

E-mail: lindergf@jmu.edu

Web site: <http://www.jmu.edu/idls>

Dr. Steve Baedke, Area Director for Mathematics and Science

Dr. Matthew Chamberlin, Faculty Adviser

The major in Interdisciplinary Liberal Studies (IDLS) is the undergraduate major for students who are pursuing teaching licensure in any of the following education licensure programs: Inclusive Early Childhood (PreK-3); Elementary (PreK-6); Middle Grades (6-8) and Special Education (K-12). IDLS offers extended breadth and integration across the content areas of English/language arts, history/social sciences, mathematics/science/technology, and the requirements support Virginia teacher licensure competencies. Students with this major who are seeking teacher licensure must complete the education pre-professional licensure program corresponding to their licensure interests. Further information about the education licensure programs can be found at the end of this entry in the "IDLS Major and Education Pre-Professional Programs" section and in the section for the College of Education.

IDLS requirements vary depending upon the licensure program, as outlined below. A current IDLS checklist is available online.

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.

Bachelor of Science in Interdisciplinary Liberal Studies for Early Childhood, Elementary Education and Special Education Licensure Students

Degree Requirements

IDLS and general education core	53
Remaining General Education	6
IDLS Upper-level concentration	21
Education Program	35-47
Elective	5 (maximum)
Total	120

Core Requirements

Language Arts & Communication	Credit Hours
Writing	3
<i>GWRTC 103. Critical Reading and Writing</i>	
Oral Communication (Choose one)	3
<i>GCOM 121. Fundamental Human Communication: Presentations</i>	
<i>GCOM 122. Fundamental Human Communication: Individual Presentations</i>	
<i>GCOM 123. Fundamental Human Communication: Group Presentations</i>	
Literature (Choose one)	3
<i>GENG 235. Survey of English Literature: From Beowulf to the 18th Century</i>	
<i>GENG 236. Survey of English Literature: 18th Century to Modern</i>	
<i>GENG 247. Survey of American Literature: From the Beginning to the Civil War</i>	
<i>GENG 248. Survey of American Literature: From the Civil War to the Modern Period</i>	

GENG 239. Studies in World Literature

GENG 260. Survey of African-American Literature

History/Social Sciences

Global History (Both required)	6
<i>GHIST 101. World History to 1500</i>	
<i>GHIST 102. World History Since 1500</i>	
U.S. History	4
<i>GHIST 225. U.S. History</i>	
Government	4
<i>GPOSC 225. U.S. Government</i>	
Economics (Choose one)	3
<i>GECON 200. Introduction to Macroeconomics</i>	
<i>ECON 201. Principles of Economics (Micro)</i>	
Geography (Choose one)	3
<i>GEOG 280. Human Geography: The Cultural Landscape</i>	
<i>GANTH 195. Cultural Anthropology</i>	
Psychology	3
<i>GPSYC 160. Life Span Human Development</i>	
Health (Choose one)	3
<i>GKIN 100. Lifetime Fitness and Wellness</i>	
<i>GHTH 100. Personal Wellness</i>	
Mathematics	9
Fundamentals of Math (all required)	
<i>MATH 107. Fundamentals of Math I</i>	
<i>MATH 108. Fundamentals of Math II</i>	
<i>MATH 207. Fundamentals of Mathematics III</i>	

Natural Sciences

IDLS students should select Track II in Cluster Three	
<i>GSCI 161. Science Processes</i>	1
<i>GSCI 162. The Science of the Planets</i>	2
<i>GSCI 163. The Matter of Matter</i>	1
<i>GSCI 164. Physical Science: Learning Through Teaching</i>	2
<i>GSCI 165. The Way Life Works</i>	1
<i>GSCI 166. Environment in Context</i>	2

Upper Level concentration requirement

21 hours in either math/science or humanities/social sciences.

When students in IECE, ELED or EXED declare the IDLS major, they also select an upper-level concentration in either mathematics/science or humanities/social sciences. The concentration provides depth and integration beyond the core requirements. Course requirements for each concentration are listed in the IDLS checklist online.

Bachelor of Science in Interdisciplinary Liberal Studies for Middle Education Licensure Students

Degree Requirements

IDLS and general education core	46
IDLS Upper-level concentration	36-42
Education Program	32
Elective	0-6
Total	120

The IDLS Middle Education curriculum consists of 46 hours of

General Education 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.

General Education Core Requirements for IDLS Middle Education

Students follow the General Education check sheet for their catalog year, and complete these specific IDLS core requirements:

- Cluster 2: Must select **GHIST 102** from Group One
- Cluster 3: Must select Track 2 (the **GSCI 16X** series); must complete the series with **GSCI 166**; must take **MATH 108** in addition to **MATH 107**
- Cluster 4: Must select **GECON 200**
- Cluster 5: Must select **GPSYC 160**

Middle Education Concentration Options

ME students will complete the required courses for any two of the four areas: science, mathematics, language arts, social studies.

Concentration	Credit Hours
Science	18
ASTR 301. Searching for Life in the Universe	
BIO 366. Plants and the Environment	
CHEM 280. Practical Applications in Chemistry for Teachers	
GEOL 301. Earth Science for Teachers	
ISAT 495. Technology in our World	
Social Science	21
HIST 350. Virginia History	
ANTH 368. Modern American Culture	
GEOG 280. Human Geography: The Cultural Landscape	
Choose one:	
ANTH 327. Ancient North American Civilizations	
HIST 453. Patterns of Global History	
Choose one:	
REL 305. Islamic Religious Tradition	
REL 310. Hindu Traditions	
REL 312. Religions of East Asia	
REL 320. Judaism	
REL 385. Buddhism	
HIST 339. Selected Themes, when topic is American Religious History	
POSC 240. Comparative Politics	
IDLS 400. Seminar in Liberal Studies*	
Mathematics	18
MATH 207. Fundamentals of Mathematics III	
MATH 304. Principles of Algebra	
MATH 305. Principles of Geometry	
MATH 306. Principles of Analysis	
MATH 307. Principles of Probability and Statistics	
Choose one:	
Mathematics elective	
Language Arts	21
Choose one:	
ENG 421. Traditional English Grammar	
ENG 422. Modern English Grammar	
Choose one:	
ENG 325. Romantic Poetry	

- ENG 331. Modern Poetry
- ENG 332. Contemporary Poetry
- ENG 362. African American Poets
- ENG 367. Women's Poetry

Choose one:

- ENG 299. Writing about Literature
- WRTC 340. Teaching about Writing
- ENG 396. Advanced Composition

Choose one:

- ENG 440. Texts for Teachers I (poetry or drama)
- ENG 441. Texts for Teachers II (fiction or nonfiction)
- Any upper level English elective

Choose one:

- ENG 456. Shakespeare's Tragedies and Romances
- ENG 457. Shakespeare's Comedies and Histories

Choose one:

- ENG 330. The Nineteenth Century Novel
- ENG 355. Southern Literature
- ENG 356. Modern American Novel
- ENG 357. Contemporary American Fiction
- ENG 361. African American Fiction Writers
- ENG 368. Women's Fiction

IDLS 400. Seminar in Liberal Studies*

*Students who select endorsements in Social Science and Language Arts will take IDLS 400 once, and then a 300-400 elective in one area. The IDLS 400 is an interdisciplinary course drawing upon materials from language arts and social science disciplines. As such, the course is suitable for students coming from an LA endorsement concentration, SS endorsement concentration, or both.

IDLS Advisement

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 or her licensure programs 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.

IDLS Major and Education Pre-Professional Programs

Licensure Area: Inclusive Early Childhood Education

Degree Required: Bachelor of Science (B.S.)

Major Field of Study: IDLS with early childhood education pre-professional program

Licensure Area: Elementary Education PreK-6

Degree Required: Master of Arts in Teaching (M.A.T.)

Major Field of Study: IDLS with elementary education pre-professional program

Licensure Area: Middle Education Grades 6-8

Degree Required: Master of Arts In Teaching (M.A.T.)

Major Field of Study: IDLS with middle education pre-professional program

Licensure Area: Special Education Grades K-12

Degree Required: Master of Education (M.Ed.)

Major Field of Study: IDLS with special education pre-professional program

Minors

Africana Studies

Dr. Lamont King, Coordinator

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The minor in Africana studies broadens students' world perspectives by enhancing their acquaintance with and understanding of the peoples, issues of identities and institutions of Africa as well as the African Diaspora in the western hemisphere. The Africana program engages interdisciplinary approaches to understand and to encounter African and the African Diaspora in a global context. The interdisciplinary 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 major 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 students major, as well as General Education requirements.

The Africana studies minor requires:

- successful completion of 22 credit hours according to the requirements listed below.
- no more than 12 of the 22 hours coming from a single discipline.

Required Courses	Credit Hours
GAFST 200. Introduction to Africana Studies	3
AFST 489. Senior Research Experience ²	1
Choose one from each of the following options:	6
Option I: Africa	
HIST 263. Introduction to African History	
ANTH 280. Peoples and Cultures of Sub-Saharan Africa	
Option II: African Descendants in the New World	
HIST 355. Afro-American History to 1865	
HIST 356. Afro-American History Since 1865	
Choose four or more of the following courses, at least one of which must be at the 400-level.	16
ANTH 391. Study Abroad (must be in Africa or in Diaspora) ^{1,3}	
ANTH 395. Special Topics ^{1,3}	
ARTH 210/GHUM 252. African Experience	
ARTH 410. African Art I	
ARTH 412. African Art II	
ARTH 419. Topics in African Art	
ARTH 489: Topics in Art History: African-American Art	
ARTH 489. Topics in Art and Art History	
ENG 358. Oral Literature ^{1,3}	
ENG 361. African-American Fiction Writers	
ENG 362. African-American Poets	
ENG 412. Special Topics Seminar ¹	
ENG 431. Studies in Caribbean Literature	
ENG 432. Studies in African Literature	
GENG 260. Survey of African-American Literature	
GEOG 335. Geography of Africa	
^{1,3} HUM 252. Cross-Cultural Perspective: African Culture in the Humanities	
HIST 263. Introduction to African History	

HIST 307. The Trans-Atlantic Slave Trade
HIST 341. Selected Topics in World History (when appropriate)
HIST 355. Afro-American History to 1865
HIST 356. Afro-American History Since 1865
HIST 361/HON 200J. Class and Ethnicity in Africa
HIST 391. Study Abroad (must be in Africa or in Diaspora)^{1,3}
HIST/ANTH 436. Afro-Latin America
HIST 439. Selected Topics in American History^{1,3}
HIST 470. Modern Africa
HIST 489. Selected Topics in World History^{2,3}
MUS 356. History of Jazz in America
POSC 326. Civil Rights
POSC 353. African Politics
POSC 361. Contemporary Problems in International Affairs^{1,3}
REL 330. African and African-American Religion
SOCL 354. Social and Cultural Stratification
SOCL 336. Race and Ethnic Relations
SOCL 378. Introduction to Africa-Centered Critical Theory
SOCL 379 Africentric Social Thought
SOCL 391. Study Abroad (must be in Africa or in Diaspora)^{1,3}
SWA 102. Elementary Kiswahili

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1 Course topic and content must focus on Africa and be approved by the program director.

2 Research must have an African, African-American or Diaspora focus.

3 Course topic and content must focus on African descendants in the Western Hemisphere and be approved by the program director(s).

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 the prior approval of the program director.

Intermediate Swahili courses may count for credit in Africana Studies. Consult the coordinator for details.

American Studies

Dr. Laura Henigman, Coordinator

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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. The American studies program is a flexible one that students can relate to their own individual interests and needs while exploring the interrelationships among diverse aspects of American culture and its changing ideas and values.

The minor program in American studies is open to all undergraduate students at JMU. The requirement is the successful completion of 24 hours. Three of the 24 hours must consist of *GAMST 200*, Introduction to American Studies (previously *AMST 250*). No more than nine of the 24 hours may come from 100- or 200-level courses. Students must take two courses from each of the groups listed and one elective course chosen from any of the groups. See the program coordinator for additional courses that may be substituted.

Core Requirements	Credit Hours
GAMST 200. Introduction to American Studies	3
Elective: One course from any of the groups below	3
Multicultural Studies	
Choose two from the courses below:	6
ANTH 312. The Native Americans	
ANTH 265. People and Cultures in Latin America	
GENG 260. Survey of African American Literature	
HIST 320. Women in United States History	
HIST 355 or HIST 356. Afro-American History	
REL 330. African and African-American Religion	
SOCI 336. Race and Ethnic Relations	
Ideas and the Arts	
Choose two from the courses below:	6
ARTH 480. American Art to 1870 or	
ARTH 482. American Art from 1870	
ARTH 484. Art of the Americas	
GENG 247. Survey of American Literature: From the Beginning to the Civil War or	
GENG 248. Survey of American Literature: From the Civil War to the Modern Period	
GMUS 203. Music in America	
SMAD 372. Media History	
THEA 485. American Theatre History	
PHIL 370. American Philosophy	
POSC 330. American Political Thought	
History and Politics	
Choose two from the courses below:	6
GHIST 225. United States History	
GPOSC 225. U.S. Government	
HIST 310. American Business History or	
SOCI 302. Business in American Society	
POSC 369. Political Parties and Elections or	
POSC 385. Legislative Process	
SCOM 346. Free Speech	

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AMST 490 may be substituted with prior approval of the program coordinator.

Asian Studies

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The purpose of this interdisciplinary 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 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 399. Intensive Reading and Writing in Chinese	
ECON 312. Comparative Economic Systems	
ENG 427. Studies in South Asian Literature	
FL 490. Beginning Hindi	
FL 490. Advanced Hindi	
FL 490. Advanced Japanese	
KOR 101. Elementary Korean	
KOR 102. Elementary Korean	
KOR 231. Intermediate Korean	
KOR 232. Intermediate Korean	
GEOG 334. Geography of East and Southeast Asia	
GEOG 338. Geography of the Philippine Islands: Problems and Possibilities	
GHUM 200. Great Works – Asia	
GHUM 252 Cross-Cultural Perspectives – East Asian Humanities	
HIST 371. India	
HIST 375. History of Modern Southeast Asia	
HIST 377. History of Korea	
HIST 379. Family and Gender in East Asia	
HIST 460. Modern Japan	
HIST 480. Modern China	
IBUS 298-I. Business Environment in China and Southeast Asia	
IBUS 298-II. Doing Business in China	
JAPN 101. Elementary Japanese	
JAPN 102. Elementary Japanese	
JAPN 231. Intermediate Japanese	
JAPN 232. Intermediate Japanese	
POSC 355. East Asian Politics	
REL 310. Religions of India	
REL 312. Religions of East Asia	
REL 313. Hindu Ethics	
REL 314. Gandhi, Nonviolence and Global Transformation	
REL 317. Exploring Gandhian Philosophy of Nonviolence	
REL 318. Exploring Contemporary India	
REL/PHIL 385. Buddhist Thought	

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Biochemistry and Molecular Biology

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Dr. Gina MacDonald, Coordinator

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The following are prerequisites for entry into the biochemistry and molecular biology minor program:

BIO 214. Cell and Molecular Biology

CHEM 131-132. General Chemistry I-II

Choose from the following:

CHEM 131L-132L. General Chemistry Laboratories

CHEM 135L-136L. Special General Chemistry Laboratories

CHEM 341-342. Organic Chemistry

Choose from the following:

CHEM 346L. Organic Chemistry Laboratory

CHEM 387L-388L. Integrated Laboratory

Required Courses	Credit Hours
BIO 224. Genetics and Development	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
CHEM 331. Physical Chemistry including	
CHEM 336L. Physical Chemistry Laboratory	
CHEM 351. Analytical Chemistry	
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Required Courses	Credit Hours
Choose one of the following:	3
GHUM 250. Foundations of Western Culture: The Greek Experience	
GHUM 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	
GARTH 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 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	
GHIST 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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British Communication and Media

Dr. Rustin Greene, Coordinator

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The interdisciplinary 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 ¹	
SCOM/SMAD/WRTC 360L. British Media and Society ²	
Elective Courses	12
Select at least four of the following courses:	
SCOM 347L. Communication, Diversity & Pop Culture in the U.K. ²	
SMAD 301L. Culture By Design ² or	
SCOM/WRTC 351L. Visual Rhetoric ²	
WRTC 320L/SCOM 321L. Writing In The Public Sphere ²	
ENG/SMAD 463L. Film Adaptations: British Literature and Film ²	
POSC/SCOM/SMAD 472L. Media and Politics in the U.K. ²	
THEA 449/ENG 412N. The London Theatre ²	
GEIC 490L. Internship ²	

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. May be taken in either Harrisonburg at JMU or in London.

¹ Must be taken in Harrisonburg at JMU

² Must be taken in London

³ May be taken in Harrisonburg or in London

Classical Studies

Dr. Stephen Chappell, Coordinator

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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 departments. Students who take Latin or Greek can apply up to 12 credit hours to the minor.

Creative Writing

Ms. Erica Bleeg, Coordinator

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The interdisciplinary 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. By developing course selections in poetry, fiction and non-fiction matched with those in stage and screenplay writing, students may tailor the program to suit a variety of artistic goals and professional objectives. The choice of at least one course from a group involving literary analysis and media criticism ensures perspective on current issues affecting readers and viewers, writers and their creative works.

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.

Required Courses	Credit Hours
Select four or five courses from the offerings of at least two 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 412. Special Topics Seminar (when topic is appropriate)	
ENG 493. Creative Nonfiction	
ENG 494. Advanced Poetry Writing	
ENG 495. Advanced Fiction Writing	
SMAD 250. Scriptwriting (subject to availability)	
SMAD 251. Screenplay Writing	
SMAD 311. Feature Writing	
SMAD 340. Advanced Screenplay Writing	
SMAD 498. Senior Seminar (when topic is appropriate)	
THEA 347. Playwriting (may be taken as ENG 347)	
THEA 440. Seminar in Theatre (when topic is appropriate)	
Select one or two courses from the following:	3-6
ENG 302. Special Topics (when topic is appropriate)	
ENG 412. Special Topic Seminar: Image and Text in Art and Poetry	
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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Criminal Justice

Dr. Peggy Plass, Coordinator

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Web site: <http://www.jmu.edu/justicestudies/cjminor.htm>

The interdisciplinary 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 credit hours including:

Required Courses	Credit Hours
Choose two of the following:	6
CRJU 215. Introduction to Criminal Justice	
SOCI/JUST 325. Criminology	
PSYC 250. Introduction to Abnormal Psychology (Non PSYC majors only) or PSYC 335. Abnormal Psychology (PSYC majors)	
Choose five from the following: (Courses must be in at least two different academic disciplines)	15
PHIL 325. Crime, Punishment and Justice	
POSC 326. Civil Rights	
PSYC 250. Introduction to Abnormal Psychology (Non PSYC majors) or PSYC 335. Abnormal Psychology (PSYC majors)	
PSYC 312. Forensic Psychology	
CRJU 215. Introduction to Criminal Justice	
CRJU 328. Criminal Procedure	
CRJU 329. Criminal Investigation and Evidence	
JUST 327. Criminal Law	
JUST 323. Comparative Criminal Justice	
SCOM 231. Introduction to Alternative Dispute Resolution	
SCOM 331. Communication and Conflict	
SOCI 214. Social Deviance	
SOCI/JUST 325. Criminology	
SOCI 327. Juvenile Delinquency	
SOCI 330. Corrections	

Any one of the following may be taken as an elective¹:

POSC 495. Internship in Political Science

PSYC 495. Field Placement in Psychology

PPA 496. Internship in Public Management

SOCI 485. Internship in Sociology

Any one of the following may be taken as an elective²:

PSYC 402. Independent Research in Psychology

SOCI 490. Special Studies in Sociology

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¹ Internships must be in a criminal justice-related field in order to receive credit for the criminal justice minor. Credit for only one internship will be given toward the minor.

² Readings and research courses must be specifically related to the field of criminal justice. Students may register for only one readings and research class for credit toward the minor.

Transfer Credit

A maximum of three courses may be transferred into the criminal justice minor from other institutions. No transfer credit will be given for any course offered in the minor at the 300 or 400 level.

Environmental Information Systems

Dr. Steven P. Frysinger, Coordinator

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Web site: <http://www.jmu.edu/EnvironmentalInfoSys/>

The interdisciplinary 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 24 credit hours. 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	
CS 139. Algorithm Development1	4
CS 274. Introduction to Databases1	3
ISAT 320. Fundamentals of Environmental Science and Technology I	3
ISAT 321. Fundamentals of Environmental Science and Technology II	3
GEOG 215. Geospatial Tools I—Cartography and GIS1	3
Elective Courses	
CIS/MS 364. Decision Support Systems	3
CS 239. Advanced Computer Programming ¹	4
CS 474. Database Design and Application ¹	3
GEOG 216. Geospatial Tools II—Remote Sensing and GPS	3
GEOG 366. Introduction to Geographic Information Science	3
GEOG 385. Principles of Remote Sensing	4
GEOG 466. GIS and Geographic Databases	3
ISAT 341. Modeling and Simulation	3

ISAT 420. Environmental Analysis and Modeling	3
ISAT 426. Environmental Information Systems	3
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1 Or equivalent by permission of director.

Note: ISAT 242 and CIS 221 substitute for CS 139; CIS 331 substitutes for CS 239; ISAT 340 and COB 204 substitute for CS 274; CIS 330 substitutes for CS 474.

Environmental Management

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The interdisciplinary 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. After fulfilling prerequisite requirements in biology and statistics, students pursue the minor by completing core courses and electives.

The environmental management minor strives to develop graduates who can apply science and technology to a broad range of practical environmental problems in a variety of professional settings. Students completing the minor 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, including prerequisite courses. The prerequisites must have been completed successfully before the student may be enrolled in the environmental management minor. 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
Three hours from one of the following:	3
MATH 220. Elementary Statistics	
ISAT 251. Topics in Statistics for ISAT	
MATH 285. Data Analysis	
MATH 318. Introduction to Probability and Statistics	
MATH 307. Principles of Probability and Statistics	

Required Courses	Credit Hours
ISAT 320-321. Fundamentals of Environmental Science and Technology I-II	6
CHEM 221. Concepts of Organic Chemistry ¹	3
ISAT 302. Instrumentation and Measurement of the Environment	1
ENVT 400. Capstone Seminar	3

Concentration	
See descriptions below	9
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¹ May also be fulfilled by CHEM 341-342 sequence

Concentrations

Students completing the environmental management minor must concentrate in one of the three areas described below: 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 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. 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 422. Environmental Management or

ISAT 424. Natural Resource Management

ISAT 421. Environmental Policy and Regulation

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 420. Environmental Analysis and Modeling
 ISAT 423. Environmental Remediation
 ISAT 471. Transportation: Energy, Environment, and Society
 ISAT 472. Transportation: Air Quality Monitoring and Regulation
 SCOM 354. Communication, Environment, and Environmentalism
 SOCI 311. Sociology of the Environment

Other courses may apply to the concentration by permission of the coordinator.

Environmental Science

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The environmental science minor 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. 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 categories 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.

A score of four or greater in AP Environmental Science substitutes for GGEO 115 or ISAT 112.

Courses	Credit Hours
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One of the following:

Minimum of 3-4 credit hours; can be double-counted with GenEd credits.

BIO 124. Ecology and Evolution	4
GGEO 102. Environment: Earth	3
GGEO 115. Earth Systems and Climate Change	3
GISAT 112. Environmental Issues in Science and Technology	4
GEOG 210. Physical Geography	4

Fifteen credit hours from the following.

BIO 451. Ecological Systems	4
BIO 452. Population Ecology	4
BIO 453. Microbial Ecology	4
BIO 454. Introduction to Biometrics	4
BIO 456. Landscape Ecology	4
BIO 457. Biological Applications of GIS	4
BIO 459. Freshwater Ecology	4
BIO 465 Environmental Toxicology	4
BIO 466. Ecotoxicology Seminar	3
CHEM 354. Environmental Chemistry Field Camp	3
CHEM 450. Nuclear and Radiation Chemistry	3
ENVT 200. Environmental Systems Theory	3
GEOG 215. Geospatial Tools I – Cartography & GIS	3
GEOG 216. Geospatial Tools II – Rem. Sensing & GPS	3
GEOG 290. Human Interaction with the Physical Environment	3
GEOG 340. Biogeography	3
GEOG 365. Cartography & Geospatial Visualization	3
GEOG 366. Introduction to GIS	3
GEOG 385. Principles of Remote Sensing	3
GEOL 211. Introduction to Oceanography	3
GEOL 310. Management of Marine Resources	3
GEOL 320. Meteorology	3
GEOL 340. Soils and Land Use	3
GEOL 355. Geochemistry of Natural Waters	3
GEOL 377. Earth Surface Processes	3
GEOL 395. Geomorphology	3
GEOL 410. Engineering Geology	3
GEOL 460. Hydrogeology	3
ISAT 302. Instrument & Measurement of the Environment	1
ISAT 320. Fundamentals of Environmental Science & Technology I	3
ISAT 321. Fundamentals of Environmental Science & Technology II	3
ISAT 420. Environmental Analysis and Modeling	3

ISAT 423. Environmental Remediation	3
ISAT 425. Environmental Hydrology	3
ISAT 427. Industrial Hygiene	3
ISAT 428. Industrial Ecology	3
MATH 321. Analysis of Variance and Experimental Design	3
MATH 322. Applied Linear Regression	3
MATH 324. Applied Nonparametric Statistics	3
MATH 328. Time Series Analysis	3
MATH/BIO 345E. Biometry	4
MATH 421. Applied Multivariate Statistics	3
PHYS 215. Energy and the Environment	3

One of the following courses:

ANTH 373. Anthropological Perspectives on Environment	3
ECON 305. Environmental Economics	3
ECON 340. Economics of Natural Resources	3
ENG 371. Literature and the Environment	3
ENG 471. Eco-Criticism and Environmental Ethics	3
GEOG 325. Environmental Ethics	3
HIST 427. US Environmental History	3
ISAT 421. Environmental Policy and Regulation	3
SCOM 354. Communication, Environment and Environmentalism	3
SOCI 311. Sociology of the Environment	3
ENVT 400. Capstone Seminar	3

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. Pete Bsumek, Coordinator

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Web site: <http://www.jmu.edu/environment/studies.shtml>

The environmental studies minor provides an interdisciplinary 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 environmental studies 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.

Introduction to Environmental Literacy

Minimum of three credit hours; can be double-counted with GenEd credits.

Courses	Credit Hours
GANTH 196. Biological Anthropology	3
GBIO 103. Contemporary Biology	3
ENVT 200. Environmental Systems Theory	3
GGEO 102. Environment: Earth	3
GGEO 115. Earth Systems and Climate Change	3

GHUM 200. Literature, Nature, Environment (this GHUM section only)	3
GISAT 112 Environmental Issues in Science and Tech	4
GEOG 210 Physical Geography	4

Socio-Cultural Approaches to Environmental Studies

Minimum of 15 credit hours; only two courses with the same course subject may be taken from the courses listed below.

Courses	Credit Hours
ANTH 373. Anthropological Perspectives on Environment and Development	3
ECON 305. Environmental Economics	3
ECON 340. Economics of Natural Resources	3
ENG 371. Literature & the Environment	3
ENG 471. Eco-Criticism & Environmental Ethics	3
GEOG 290. Human Interactions with the Physical Environment	3
GEOG 300. Population Geography	3
GEOG 310. Environmental Issues	1-4
GEOG 311. Endangered Environments	3
GEOG 320. Human Dimensions of Global Change	3
GEOG 322. Agricultural Systems	3
GEOG 325. Environmental Ethics	3
GEOG 341. Wilderness Techniques	3
GEOG 342. Management and Protection of Natural Resources	3
GEOG 343. Wildlife Management	3
GEOG 345. Geography of Poverty	3
GEOG/ISAT 429. Sustainability: An Ecological Process	3
GEOG 430. Geography of Crop Plants	3
HIST 427. U.S. Environmental History	3
ISAT 421. Environmental Policy and Regulation	3
SCOM 354. Communication, Environment and Environmentalism	3
SOCI 311. Sociology of the Environment	3
Approved special topics courses	3
Approved internship programs	1-6
Approved study abroad courses	1-6

Environmental Science Literacy

Minimum of 3 credit hours from this list.

Courses	Credit Hours
BIO 451. Ecological Systems	4
BIO 452. Population Ecology	4
BIO 456. Landscape Ecology	4
BIO 457. Environmental Toxicology	4
BIO 459. Freshwater Ecology	4
GEOG 327. Climatology	3
GEOG 340. Biogeography	3
GEOL 211. Introduction to Oceanography	3
GEOL 310. Management of Marine Resources	3
GEOL 340. Soils and Land Use	3
ISAT 320. Fundamentals in Environmental Science	3

Senior Seminar Capstone Course

Course	Credit Hours
ENVT 400 Capstone Seminar	3

Family Studies

R. Ann Myers, Minor Adviser

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Web site: <http://www.jmu.edu/socwork/academics/familystudies.html>

The interdisciplinary 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, thereby adding value to the major.

The family studies minor requires a minimum of 18 credit hours with no more than six credit hours in the student's major.

One introductory course is required from the following: FAM 133, The Contemporary Family, or SOCI 276, Sociology of the Family. 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, Family Issues and Applications, is also required. At least four courses in the minor, including the introductory course, must have been completed prior to enrolling in FAM 400.

Required Courses	Credit Hours
Introductory course (choose one of the following):	3
FAM 133. Contemporary Family	
SOCI 276. Sociology of the Family	
Families in Society (choose one of the following):	3
ECON 306. Economics of Women and the Family ¹	
GERN/SOCI 280. Social Gerontology	
HIST 466. The Family 1400-1800	
SOCI 303. Sociology of Death and Dying ²	
SOCI 337. Sociology of Gender	
SOWK 338. Issues and Policies in Family Services	
SOWK 342. Child Welfare Services	
Family and Intimate Relationships (choose one of the following):	3
FAM 330. Family Relations	
HTH 372. Human Sexuality	
PSYC 275. Psychology of Human Intimacy	
PSYC 450. Psychology of Child Abuse and Neglect ^{1,3}	
SOWK 340. Violence in Families ⁴	
Human Development in the Family (choose one of the following):	3
FAM 300. Child Development ^{1,6}	
FAM 335. Parent-Child Relationships Across the Lifespan	
PSYC 304. Death and Dying: Thanatology ^{1,5}	
PSYC 365. Developmental Psychology ^{1,7}	
PSYC 470. Psychology of the Young Adult ¹	
PSYC 475. Psychology of Adulthood ¹	
SOWK 387. Working with Teenagers	
Capstone	3
FAM 400. Family Issues and Applications ¹	
Additional family studies course	3
(choose additional course from B, C, D or one of the following):	
FAM 487. Special Topics in Family Issues	
FAM 490. Special Studies in Family Issues	
FAM Elective	

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1 Course has one or more prerequisites. 2 May not also take PSYC 304 in the minor. 3 May not also take SOWK 340 in the minor. 4 May not also take PSYC 450 in the minor. 5 May not also take SOCI 303 in the minor. 6 May not also take PSYC 365 in the minor. 7 May not also take FAM 300 in the minor.

Film Studies

Dr. Charles Turner, Coordinator

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Web site: <http://smad.jmu.edu/minor.html>

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 interdisciplinary, 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.

The minimum requirement for a minor in film studies is 18 hours. A total of six credit hours may be double-counted between the minor and the major. Students electing this minor may acquire more information from the film studies adviser of the School of Media Arts and Design or the Department of English.

All students must complete the following:

Required Courses	Credit Hours
ENG 381. An Introduction to Film to 1960	3
SMAD 460. Movies and Society	3
Select no fewer than four courses from the following:	12
ENG 302. Special Topics (when topic is film)	
ENG 382. An Introduction to Film Since 1960	
ENG 383. Major Film Genres	
ENG 384. Major Film Directors	
ENG 412. Special Topic Seminars (when topic is film)	
SMAD 371. Narrative Media Studies	
SMAD 461. Movies as Art	
SMAD 462. Documentary in Film and Television	
SMAD 463. Film Adaptations	
SMAD 498. Senior Seminar (when topic is film)	

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Gerontology

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The interdisciplinary minor in gerontology is designed for any undergraduate major desiring a concentration of study in gerontology for personal understanding or career preparation. The minor program requires 18 hours of study in gerontology. Upon completion of the minor program, a certificate in gerontology will be awarded for those students enrolled in the certificate program.

Required Courses	Credit Hours
GERN/SOCI 280. Social Gerontology	3
GERN 305. Programs and Services for the Elderly	3
GERN 400. Skills and Techniques	3
GERN 495. Field Experience/Seminar	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

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Historical Archaeology

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Dr. Gabrielle Lanier, Minor Adviser

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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. 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 highly field and research oriented. Students enrolling in the program should anticipate courses that require significant effort outside of the classroom.

The minor is a minimum of 22 credit hours. 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 396. Introduction to Public History	3
Capstone research course ¹	3
ANTH/HIST 496. Research Thesis	
Choose three of the following:	9
Of these, one course must be chosen from the history/anthropology options and one must be from the geology and geography options. ²	
ANTH 455. Archaeology: Methods of Analysis and Interpretation	
HIST 492. American Material Culture	
HIST 493. Historic Preservation	
HIST 494. Introduction to Museum Work	
GEOL 340. Soils and Land Use	
GEOG 366. Geographic Information Systems	

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¹ 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.

² Access to the geology and geography courses will be competitive and will require some computer experience.

Human Science

Dr. Steve Keffer, Coordinator

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The Human Science minor is a multidisciplinary program that brings together elements of biology, anthropology and psychology to understand our species, *Homo sapiens*, as a complex biological and social organism. Goals for the students in this minor are twofold: (1) Through a set of basic core courses in the three disciplines students will gain a multidisciplinary, scientific understanding of human beings; and (2) Students will then pursue their own interests in human science through elective courses in three disciplines.

The human science minor is appropriate for students whose career goals would be enhanced by a program that focuses on the scientific, multidisciplinary study of humans. Such careers include the health-oriented professions, law, government, public policy and academic study in the humanities, and social and life sciences. Furthermore, graduates of the human science minor will be taught to think synthetically across the natural and social sciences, and thus will be better prepared to grapple with the complex problems of the 21st century. Consequently, they will be well situated to take advantage of the rapidly developing and diverse career opportunities of the coming years and decades.

The human science minor requires 24 credits hours: 15 hours of required courses and another 9 hours of electives.

Required Courses (15 credit hours)

GANTH 196. Biological Anthropology	3
GPSYC 101. General Psychology	3
BIO 270. Human Physiology	
or BIO 370. Animal Physiology	4
BIO 290. Human Anatomy	4
HSC 400. Human Science Seminar	1

Note: HSC 400 may only be taken after all other minor courses, including electives, are completed.

Electives (9 credit hours; one course must be taken from each of the following groups)

Anthropology Group	
ANTH 300. Anthropology of Diet and Nutrition	3
ANTH 315. Human Evolution	3
ANTH 322. Human Variation and Adaptation	3
ANTH 352. Birth, Death, Sex: Exploring Demography	3
ANTH 360. Medical Anthropology	3
ANTH 362. Evolution of the Human Brain	3
ANTH 395. Special Topics in Anthropology ¹	3
ANTH 420. Evolution of Human Behavior	3
Biology Group	
BIO 280. Allied Health Microbiology or BIO 380. Microbiology	4
BIO 364. Human Uses of Plants	3
BIO 420. Medical Parasitology	4
BIO 426. Topics in Biology	1-4
BIO 427. Topics in Biology with Laboratory	1-4
BIO 430. Human Genetics	3
BIO 442. Immunology	3
BIO 482. Human Histology	4
BIO 490. Biomechanics	4
Psychology Group	
PSYC 250. Introduction to Abnormal Psychology or PSYC 335. Abnormal Psychology	3
PSYC 285. Drugs and Behavior	3
PSYC 308. Health Psychology	3
PSYC 310. The Psychology of Women and Gender	3
PSYC 385. Biopsychology	3
PSYC 390. Psychology of Learning	3
PSYC 395. Comparative Psychology	3

¹ The content of this course varies. This course may be used to satisfy a requirement of the human science minor only if the topics covered have been specifically approved by the human science minor coordinator.

Humanitarian Affairs

Dr. Mary Tacy, Coordinator

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The interdisciplinary humanitarian affairs minor provides students with a global perspective on the major issues facing the human community today. Students will investigate the impacts of natural disasters, disease, poverty, conflict, and local, national, and international policies on the welfare of human communities around the world. They will also explore solutions to various humanitarian crises and some of the organizations that address these crises. Finally, students will acquire knowledge and skills that prepare them for careers in governmental or non-profit organizations that address humanitarian issues such as poverty, hunger and malnourishment, conflict, human rights violations and natural disasters.

The minor program in humanitarian affairs is open to all undergraduate students at JMU. The requirement is the successful completion of 18 credit hours. Three of the 18 hours must include HUMN 201. Students are strongly encouraged to choose GEOG 491 as three of the other fifteen credits needed to complete the minor. The international experience must be one that will enhance the student's knowledge of humanitarian affairs and approved by the humanitarian affairs coordinator. This experience can be completed abroad or with an international organization in the U.S.

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:	15
GEOG 215. Geospatial Tools I - Cartography and GIS	
GEOG 322. Agricultural Systems and Global Food Production	

GEOG 300. Population Geography	
GEOG 345. Geography of Poverty	
GEOG 350. Topics: The Geography of Human Genetics and Infectious Disease	
GEOG 366. Introduction to Geographic Information Science	
GEOG 375. Political Geography	
GEOG 491. International Studies	
JUST 235. Justice in the Global Community	
JUST 341. Gender and Justice	
JUST 375. Genocide in the 20th Century	
JUST/POSC 392. Peace Studies	
NUTR 380. Global Nutrition	
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	
SOWK 288. Social Welfare	
SOWK/SOCI 348. Introduction to Developing Societies	
SOWK 375. Grant Writing for Agencies	
WRTC 322. Making a Difference: Service Learning Writing	

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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.

Interdisciplinary Social Science

Dr. David Dillard, Coordinator

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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. Student 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 Page 202.

Degree Requirements

General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
Major requirements	37
Minor requirements (listed below)	18
	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.

Political Science Major with ISS Minor

Requirements for the political science major are on Page 268.

Degree Requirements

General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
Major requirements	33-35
Minor requirements (listed below)	18
	<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's placement test.

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. Courses taken for General Education credit may be double counted.

ISS for History Majors

Complete all of the following: 9

GPOSC 225. U.S. Government

(Must be completed for GenEd credit)

Choose one:

GECON 200. Macroeconomics (may double count)

ECON 201. Microeconomics

Choose one:

GEOG 280. Human Geography: The Cultural Landscape (should double count)

GGEOG 200. The Global Dimension

Choose one:

GEOG 300 or 400 level

ECON 200, 300 or 400 level

Complete three of the following: 9

POSC 302. State and Local Government

POSC 385. The U.S. Congress

POSC 362. Political Behavior

POSC 369. Political Parties and Elections

POSC 370. U.S. Foreign Policy

Total credits

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ISS for Political Science Majors

Complete all of the following: 9

GHIST 225. U.S. History (Must be completed for GenEd credit)

Choose one:

GECON 200. Macroeconomics (may double count)

ECON 201. Microeconomics

Choose one:

GEOG 280. Human Geography: The Cultural Landscape (should double count)

GGEOG 200. The Global Dimension

Choose one:

GEOG 300 or 400 level

ECON 200, 300 or 400 level

Complete three of the following: 9

HIST 350. Virginia History

HIST 362. U.S. Religious History

HIST 356. Afro-American History Since 1865

HIST 405. Travel and Exploration

HIST 453. Patterns of Global History

HIST 456. The Global Economy and Nationalism

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Latin American Studies

Dr. Laura Lewis, Coordinator

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This interdisciplinary minor helps students to acquire a deeper understanding of Latin America. All Latin American studies minors must attain proficiency in Spanish or Portuguese at or above the intermediate level (232 or equivalent). In addition to the language requirement, the Latin American studies minor consists of 18 approved credit hours. Across those 18 credits, 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 country for a semester or summer session. See <https://caal.jmu.edu/latinamerica/LASminor.htm> for changes in required 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

GHUM 252. Cross Cultural Perspectives: Latin American Cultures¹

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 Abroad²

ANTH 395. Special Topics in Anthropology²

ANTH/HIST 436. Afro-Latin America

ANTH 490. Special Studies in Anthropology²

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 Economics²

ENG 434. Latin American Literature in Translation

ENG 439. Major Authors of Literature in Spanish in Translation

GEOG 337. Geography of Latin America

GEOG 380B. Regional Geographic Studies - Latin America

GEOG 490. Senior Project II²

GHUM 252. Cross Cultural Perspectives: Latin American Cultures

HIST 341. Selected Themes in World History²

HIST 391. Travel Studies Seminar¹

HIST 395. History Seminar²

HIST 399. Special Studies in History²

HIST 444. Revolution and Social Change in Latin America

HIST 445. Latin America and the United States

HIST 446. Mexico, Central America and the Caribbean

HIST 447. South America

HIST 448. Gender in Colonial Latin America

HIST 489. Selected Topics in World History²

POSC 350. Latin American Politics

POSC 371. Topics in Comparative Politics²

POSC 397. The Politics of International Economic Relations

REL 380. Contemporary Theologies

REL 450. Religion and Society

SOCI 391. Study Abroad²

SOCI 490. Special Studies in Sociology²

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 Linguistics, Literature or Civilization ¹	
SPAN 465. Cinema and Literature	
SPAN 490. Special Topics in Spanish	

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¹ GHUM 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 GHUM 252 to count as part of the Latin American studies minor. GHUM 252 counts as a history course unless taught by faculty from another discipline.

² This is a special topics or special studies course. It may count for the minor, but only if it deals with Latin America. Contact the coordinator for approval.

Medieval and Renaissance Studies

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The Medieval and Renaissance Studies 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 a range of languages (Arabic, French, Spanish, German, Italian and Latin as well as medieval languages such as Old English and Middle English) in the original or in translation. Students focus on either the Medieval or the Renaissance periods or combine course work from both periods.

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 minor coordinator. In addition, students interested in pursuing a three-credit hourm 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 GHUM 200, GHUM 250 and GHUM 252 may vary, the minor coordinator will determine the appropriate disciplinary category for these courses.

Introductory Courses	Credit Hours
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GHIST 101. World History to 1500	3
GHUM 200. Great Works*	3
GHUM 250. Foundation of Western Culture*	3
GHUM 252. Cross-Cultural Perspectives*	3
HIST 201. Europe to 1815	3

HIST 269. Middle and Near East 500-1500 3
Elementary and intermediate courses in Arabic, Greek and Latin may be taken for credit. Other languages may also be counted for credit with the approval of the minor coordinator.

Intermediate Courses	Credit Hours
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ANTH 333. Celts, Vikings and Tribal Europe	3
ARTH 313. Masterpieces of Italian Renaissance Art	3
ARTH 320/ANTH 394. Studies in Fresco Preservation	3
ARTH 340. Early Medieval Art	3
ARTH 346. Italian Renaissance Art	3
ENG 302. Special Topics in Literature and Language*	3
ENG 311. Medieval Literature and Culture	3
ENG 312. Special Topics in Medieval Literature	3
ENG 313. Poetry and Prose of the Early British Renaissance	3
ENG 314. Seventeenth-Century British Literature	3
ENG 315. Seventeenth-Century British Poetry	3
ENG 316. Renaissance and Seventeenth-Century British Drama	3
HIST 383. Early England	3
HIST 389. France to 1789	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

Advanced Courses	Credit Hours
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ARTH 442. Art of Later Middle Ages	3
ARTH 444. Gothic and Gothic Revival Architecture	3
ARTH 448. Studies in Leonardo and Michelangelo	3
ARTH 449. Topics in Renaissance Art	3
ENG 410. Major Author*	3
ENG 412. Special Topics Seminar*	3
ENG 416. Old English Language and Literature	3
ENG 451. Chaucer	3
ENG 456. Shakespeare's Tragedies and Romances	3
ENG 457. Shakespeare's Comedies and Histories	3
ENG 461. Milton	3
FR 446. Studies in French Literature*	3
GER 436. Studies in German Literature*	3
HIST 464. Renaissance and Reformation	3
HIST 466. The Family, 1400-1800	3
HIST 473. The Islamic World	3
HIST 477. Medieval Europe	3
HIST 489. Selected Topics in World History*	3
ITAL/ENG 437. Studies in Italian Literature*	3
MUS 373. Music History: Antiquity through 1700 ¹	2
PHIL 460. Topics in Classical Philosophy*	3

¹ 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

Shah Mahmoud Hanifi, Coordinator

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The Middle Eastern Communities and Migrations 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 interdisciplinary 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 structured as follows.

Students must take two of the following three courses to fulfill the six-credit core course work required for the minor:

Core Courses Credit Hours

HIST 269. The Pre-Modern Middle East	3
HIST 270. The Modern Middle East	3
GHUM 252. Islamic Civilization	3

Choose any of the following courses to fulfill the remaining 12 credits of course work required for the minor:

Regular Offerings

Department of Foreign Languages, Literature and Culture¹

ARAB 101. First Semester Arabic ²	4
ARAB 102. Second Semester Arabic ³	4
ARAB 111-112. Intensive Arabic ⁴	6
ARAB 211-212. Intensive Arabic ⁴	6
ARAB 231. Second Semester Arabic ²	4
ARAB 232. Second Semester Arabic ³	4

School of Art and Art History

ARTH 410. African Art: The Sahara Northern Sahel ⁵	3
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Department of History

HIST 269. The Pre-Modern Middle East ⁶	3
HIST 270. Modern Middle East ⁶	3
HIST 372. Afghanistan in Regional and Global Systems ⁵	3
HIST 473. The Islamic World ⁷	3
HIST 485. Colonialism in the Greater Middle East ⁵	3

Department of Philosophy and Religion

REL 201. Introduction to Hebrew Bible/Old Testament ⁵	3
REL 202. Introduction to the New Testament ⁵	3
REL 305. Islamic Religious Tradition ⁶	3
REL 320. Judaism ⁶	3
HEBR/REL 131-132. Elementary Biblical Hebrew ⁷	4
HEBR/REL 231-232. Intermediate Biblical Hebrew ⁷	4

Department of Anthropology and Sociology

SOCI 342. Muslim Movements in the Middle East	3
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¹ No more than 9 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

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.

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 and Art History

ARTH 419. Topics in African Art	3
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Department of English

ENG 430. Studies in Comparative Literature	3
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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
POSC 435. Seminar in International Terrorism	3

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. Examples of such courses include Special Topics, Independent Study, Internships, Seminars, Travel Study/Study Abroad and Honors Thesis courses (often numbered 390 or 490). Contact the program coordinator to apply an upper-level generic course to the MECM minor.

Modern European Studies

Dr. John Scherpereel, Coordinator

Phone: (540) 568-3933

Email: scherpja@jmu.edu

The minor in modern European studies provides an interdisciplinary understanding of social dynamics in Europe from the Enlightenment (18th century) through the present. All modern European studies minors must attain proficiency in French, German, Italian, Spanish or another European Union language at or above the intermediate level (FL 232 or above).

The minor requires students to complete 18 credit hours in addition to the language requirement. These 18 credit hours must include 6 core credits and 12 elective credits. The 12 elective credits must be distributed as follows: 6 elective credits must cover culture and thought, and 6 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.

Core Credit Hours

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

Culture and Thought Electives

Choose two from the following: 6

ARTH 313. Masterpieces in Italian Renaissance Art
ARTH 314. Masterpieces in Spanish Art
ARTH 315. Masterpieces in British Architecture
ARTH 316 or ARTH 316L. Masterpieces in British Art
ARTH 317. Masterpieces in French Art
ARTH 360. Nineteenth Century Art
ARTH 466. Art and Nationalism ¹
ARTH 469. Topics in Nineteenth Century Art
ARTH 372. Modern Art from 1900-1945
ARTH 472. Modern Art Since 1945
ENG 325. Romantic Poetry
ENG 326. Romantic Era Prose
ENG 327. The Gothic: Change and Continuity
ENG 329. Victorian Literature
ENG 330. The 19th-Century English Novel
ENG 340. Modern British Novel
ENG 341. Contemporary British Novel
ENG 374. Introduction to Anglo-Irish Literature
ENG 375. Studies in Anglo-Irish Literature
ENG 412L/THEA 449L/GHUM 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 Civilization²
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 465 or ITAL 465F. Italian Cinema (1930-1980)
ITAL 425 or ITAL 380F. Modern Italian Literature (Harrisonburg) or
19th-Century Italian Novel (Florence only)
ITAL 446. Special Topics in Linguistics, Literature, or Civilization²
ITAL 490F/POSC 371F. European Culture and Identity
ITAL 490F. Wine and Culture in Italy
PHIL 344. Existentialism
PHIL 375. Nineteenth-Century Philosophy and Theology
PHIL 390. Special Topics in Philosophy²
PHIL 465. Topics in Modern Philosophy²
PHIL 470. Topics in Contemporary Continental Philosophy
PHIL 475. Philosophy Seminar²
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 355S. 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 460. Postwar Literature in Spain
SPAN 465 or SPAN 465S. Spanish Cinema and Literature

History and Society Electives

Choose two of the following:

ECON 373F. Economics of European Integration
GEOG 332. Geography of Europe
IBUS 298S. Special Topics in International Business (Salamanca only)
HIST 202. Europe Since 1815
HIST 301. European Military History
HIST 308. Contemporary Italian Civilization
HIST 321. European Women's History
HIST 341. Selected Themes in World History²
HIST 382. Europe in the 20th Century³
HIST 384. England and the Empire-Commonwealth
HIST 388. Germany Since 1871
HIST 390. France Since 1789
HIST 462. The Rise and Fall of Nazi Germany, 1918-1945
HIST 465. Twentieth-Century Britain
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 History²
SMAD 360L/SCOM 360L/WRTC 360L. British Media and Society
POSC/JUST 332F. Human Rights in European Perspective
POSC 344 or POSC 344F. Politics of the European Union³
POSC 345. Politics of Western Europe³
POSC 346. Politics of Central and Eastern Europe³

PSOC 371. Topics in Comparative Politics³

POSC 371S. Comparative Politics: Spain/US

POSC 472L/SCOM 472L/SMAD 472L. Media and Politics (London only)

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.

Nonprofit Studies

R. Ann Myers, Minor Adviser

Phone: (540) 568-6980

E-mail: myersra@jmu.edu

Web site: <http://www.jmu.edu/socwork/academics/nonprofit.html>

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.

Required Courses	Credit Hours
NPS 300. Introduction to Nonprofits	3
NPS 320. Nonprofit Management	3
NPS 400. Internship/Practicum in Nonprofit Studies	4-6
NPS 450. Nonprofit Studies Capstone Seminar	3
Major elective (discipline specific)	3
Elective	3

(A course to be determined in consultation with the nonprofit studies adviser)

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Political Communication

Dr. Valerie Sulfaro, Coordinator

Phone: (540) 568-3997

E-mail: sulfarva@jmu.edu

Web site: http://www.jmu.edu/commstudies/pc_minor.shtml

6 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 or practicum in the field of political communication, and a set of electives. All speech communication majors with a minor in PCOM are required to take a three-credit hour internship in the School of Communication Studies or the Department of Political Science. POSC majors minoring in PCOM must complete POSC 495 to meet the internship requirement. PCOM minors taking SCOM internships must have completed the SCOM major core requirements prior to enrolling in SCOM 495. Students not wishing to complete the eligibility requirements for an internship in SCOM may elect to take a three credit hour practicum in communication studies (contact the coordinator for details). This practicum is open only to non-POSC and non-SCOM majors. Before pursuing an internship, students should consult with the PCOM coordinator to ensure that the internship is suitable for the minor.

For majors in communication studies who minor in PCOM, a maximum double counting of six credit hours of course work between the minor and the home academic unit or major is permitted. Those not wishing or able to double count, including non-POSC or non-SCOM majors, must complete 25-26 credit hours for the minor.

Required Courses	Credit Hours
GPOSC 225. U.S. Government	4
SCOM 240. Process of Human Communication	3
POSC/SCOM/SMAD 472. Media and Politics	3
Choose one of the following:	3-4
Non POSC and SCOM majors	
SCOM 318. Practicum in Communication Studies (3 credits)	
POSC or SCOM majors	
POSC 495. Internship (4 credits)	
SCOM 495. Internship (3 credits)	
Choose one of the following:	3
POSC 365. American Political Campaigning	
POSC 369. Parties and Elections	
Choose one of the following:	3
SCOM 353. Political Communication	
SCOM 453. Political Campaign Communication	
Choose two of the following:	6
POSC 362. Political Behavior	
POSC 368. Interest Groups and Public Policy	
POSC 383. Women and Politics	
POSC 385. The U.S. Congress	
SCOM 341. Persuasion	
SCOM 346. Free Speech in America	
SCOM 352. Communication and Social Movements	
SCOM 354. Communication, Environment and Environmentalism	
SCOM 431. Legal Communication	
	25-26

For additional information, contact the head of the Department of Political Science, the director of the School of Communication Studies, or the coordinator of the minor in political communication.

Russian Studies

Dr. Mary Louise Loe, Minor Adviser

Phone: (540) 568-6168
E-mail: loeml@jmu.edu

This minor offers students a broad, interdisciplinary perspective on Russian culture, history, political institutions, economy and geography. This program 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 minimum requirement for a minor in Russian studies is 18 hours. Students should take courses in at least three different disciplines from the following list:

Required Courses

ECON 301. Economies in Transition
GEOG 333. Russian and the Former USSR
HIST 385. Russia to 1855
HIST 386. Russia Since 1855
HIST 475. Modern Russia
POSC 337. Russia and Post-Soviet Politics
RUS 266/GHUM 200. Russian Literature in Translation/Great Works
RUS 300. Russian Conversation and Composition
RUS 308. Introduction to Russian Civilization
RUS 315. Russian Phonetics
RUS 320. Advanced Russian Grammar
RUS 405. Russian Literature of the 19th Century
RUS 426. Russian Literature of the 20th Century
RUS 438. Studies in Russian Literature

Students may include one course from the following list:

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

With the approval of the program adviser, six to eight hours of Russian language may be included in the minor. Students may also earn credit by studying in a program in Russia or any of the former Soviet states.

Science, Technology and Society

Dr. Jeffrey Tang, Coordinator

Phone: (540) 568-2758
E-mail: tangjd@jmu.edu
Web site: <http://www.jmu.edu/sts/>

Science, technology and society (STS) is an internationally recognized field of interdisciplinary study that integrates social scientific and humanistic studies to better understand the natural and human-built world. The minor in STS offers students the opportunity to critically examine science, technology and medicine as expressions of human cultures, past and present. Students learn to scrutinize the ideas, values and materials embedded in the world they inhabit today and to relate them to other times and places. They explore how choices made within various social, economic and political structures 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, as well as General Education requirements.

The STS minor requires 18 credit hours with at least one course each from the history, sociology and ISAT courses listed below.

Required Courses	Credit Hours
Choose one:	3
ISAT 131. Technology, Science, and Society	
SOCI 315. Science, Technology, and Society	
HIST 327. Technology in America	

Elective courses

Choose five from at least four different programs/majors	15
ANTH/ARTH/HIST 492. American Material Culture	
ANTH/SOCI 313: Processes of Social and Cultural Change	
ANTH340. The Invention of Race	
ANTH 360. Medical Anthropology	
ANTH 373. Anthropological Perspectives on Environment and Development	
ARTH 303. History of Design	
ARTH 474. The New Media and Contemporary Art	
ARTH 476. Modern Architecture	
GEOG 322. Agricultural Systems	
GEOG 325. Environmental Ethics	
GEOG 344. Economic Geography and Development Issues	
HIST 305. History of Science and Christianity	
HIST 326. The Automobile in 20th Century America	
HIST 327. Technology in America	
HIST 328. History of Science, 1534 – 1859	
HIST 329. History of Science Since 1859	
HIST 405. Travel and Exploration	
HIST 427. U.S. Environmental History	
HIST 443. Modern American Technology and Culture	

Required Courses	Credit Hours
GPOSC 225. U.S. Government	4
SCOM 240. Process of Human Communication	3
POSC/SCOM/SMAD 472. Media and Politics	3
Choose one of the following:	3-4
Non POSC and SCOM majors	
SCOM 318. Practicum in Communication Studies (3 credits)	
POSC or SCOM majors	
POSC 495. Internship (4 credits)	
SCOM 495. Internship (3 credits)	
Choose one of the following:	3
POSC 365. American Political Campaigning	
POSC 369. Parties and Elections	
Choose one of the following:	3
SCOM 353. Political Communication	
SCOM 453. Political Campaign Communication	
Choose two of the following:	6
POSC 362. Political Behavior	
POSC 368. Interest Groups and Public Policy	
POSC 383. Women and Politics	
POSC 385. The U.S. Congress	
SCOM 341. Persuasion	
SCOM 346. Free Speech in America	
SCOM 352. Communication and Social Movements	
SCOM 354. Communication, Environment and Environmentalism	
SCOM 431. Legal Communication	
	25-26

For additional information, contact the head of the Department of Political Science, the director of the School of Communication Studies, or the coordinator of the minor in political communication.

Russian Studies

Dr. Mary Louise Loe, Minor Adviser

Phone: (540) 568-6168
E-mail: loeml@jmu.edu

This minor offers students a broad, interdisciplinary perspective on Russian culture, history, political institutions, economy and geography. This program 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 minimum requirement for a minor in Russian studies is 18 hours. Students should take courses in at least three different disciplines from the following list:

Required Courses

ECON 301. Economies in Transition
GEOG 333. Russian and the Former USSR
HIST 385. Russia to 1855
HIST 386. Russia Since 1855
HIST 475. Modern Russia
POSC 337. Russia and Post-Soviet Politics
RUS 266/GHUM 200. Russian Literature in Translation/Great Works
RUS 300. Russian Conversation and Composition
RUS 308. Introduction to Russian Civilization
RUS 315. Russian Phonetics
RUS 320. Advanced Russian Grammar
RUS 405. Russian Literature of the 19th Century
RUS 426. Russian Literature of the 20th Century
RUS 438. Studies in Russian Literature

Students may include one course from the following list:

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

With the approval of the program adviser, six to eight hours of Russian language may be included in the minor. Students may also earn credit by studying in a program in Russia or any of the former Soviet states.

Science, Technology and Society

Dr. Jeffrey Tang, Coordinator

Phone: (540) 568-2758
E-mail: tangjd@jmu.edu
Web site: <http://www.jmu.edu/sts/>

Science, technology and society (STS) is an internationally recognized field of interdisciplinary study that integrates social scientific and humanistic studies to better understand the natural and human-built world. The minor in STS offers students the opportunity to critically examine science, technology and medicine as expressions of human cultures, past and present. Students learn to scrutinize the ideas, values and materials embedded in the world they inhabit today and to relate them to other times and places. They explore how choices made within various social, economic and political structures 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, as well as General Education requirements.

The STS minor requires 18 credit hours with at least one course each from the history, sociology and ISAT courses listed below.

Required Courses	Credit Hours
Choose one:	3
ISAT 131. Technology, Science, and Society	
SOCI 315. Science, Technology, and Society	
HIST 327. Technology in America	

Elective courses

Choose five from at least four different programs/majors	15
ANTH/ARTH/HIST 492. American Material Culture	
ANTH/SOCI 313: Processes of Social and Cultural Change	
ANTH340. The Invention of Race	
ANTH 360. Medical Anthropology	
ANTH 373. Anthropological Perspectives on Environment and Development	
ARTH 303. History of Design	
ARTH 474. The New Media and Contemporary Art	
ARTH 476. Modern Architecture	
GEOG 322. Agricultural Systems	
GEOG 325. Environmental Ethics	
GEOG 344. Economic Geography and Development Issues	
HIST 305. History of Science and Christianity	
HIST 326. The Automobile in 20th Century America	
HIST 327. Technology in America	
HIST 328. History of Science, 1534 – 1859	
HIST 329. History of Science Since 1859	
HIST 405. Travel and Exploration	
HIST 427. U.S. Environmental History	
HIST 443. Modern American Technology and Culture	

HIST 481. Early Modern Europe: The New Worlds of Exploration and Science
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 471. Transportation: Energy, Environment and Society
ISAT 477. Complex Systems and How They Fail
PHIL 300. Knowledge and Belief
PHIL 395. Philosophy and Scientific Inquiry
SOCI 311. Sociology of the Environment
SOCI 316. Space, Time and the Human Social Environment
SOCI 366. Sociology of Knowledge
SOCI 375. Medical Sociology
WRTC 350. Science and Technology in Literature

Special topics courses not listed can be applied to the minor with prior approval of the program coordinator.

Substance Abuse Intervention

Katherine Ott Walter, Adviser

Phone: 568-8972
E-mail: ottwalmk@jmu.edu

This 22-credit hour interdisciplinary substance abuse intervention minor prepares the student to understand the impacting forces on the abusing individual and help the individual seek aid as appropriate. The SAI minor also prepares the student to assist communities in designing science-based prevention programs. Course work in the SAI minor can lead to certification as a Certified Prevention Professional, Alcohol, Tobacco and Other Drug (CPP-ATOD).

There is a moratorium on the SAI minor for the 2009-10 academic year.

Required Courses	Credit Hours
HTH 378. The Use and Effects of Drugs	3
HTH 407. Health Education Facilitation/Synthesis	2
HTH 451. Strategies for Health Change	3
HTH 458. Health Program Planning and Evaluation	3
HTH 488. Substance Abuse Prevention Basics	1
SOWK 317. Skills for Generalist Social Work	3
Choose one of the following:	3
PSYC 285. Drugs and Behavior	
PSYC 308. Health Psychology ¹	
Choose one of the following:	3
SOCI 327. Juvenile Delinquency	
SOWK 340. Violence in Families	
SOWK 387. Working with Teenagers	
Choose one of the following:	1
HTH 357. Coping with Stress	
HTH 278. Alcohol Use and Abuse	
HTH 389. Health Education Practicum	

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¹ Prerequisite is PSYC 101 and junior status.

Telecommunications

Dr. Malcolm Lane, Adviser

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E-mail: lanemg@jmu.edu
Web site: <http://www.jmu.edu/cisat/minors/telecomm.html>

The interdisciplinary 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; and computer information systems. However, the program is open to any undergraduate with an interest in telecommunications and some computer background.

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.

The requirements for the minor are 18 credits shown below. 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
CIS/CS 320. Telecommunications and Information Processing	3
SMAD 356. Telecommunications Policy and Regulation	3
CS 460. Local Area Networks	3
CS 461. Internetworking	3
CS 462. Network Applications Development	3
Choose one of the following:	
CS 239. Advanced Computer Programming	4
CIS 331. Intermediate Computer Programming	3
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Urban and Regional Studies

Dr. Henry Way, Coordinator

Phone: (540) 568-2740
E-mail: wayha@jmu.edu
Web site: <http://www.jmu.edu/cisat/minors/urs.html>

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
ECON 475. Regional Economics	3
GEOG 376. Urban Geography	3
POSC 360. Urban Politics	3
SOCI 265. Sociology of the Community	3
Choose from the following ¹ :	12
ECON 326. Public Finance	
ECON 340. Economics of Natural Resources	
FIN 210. Principles of Real Estate	
GEOG 315. Field Studies	
GEOL/GEOG 310A-D. Environmental Impact (2-3 credits)	
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 Studies

Dr. Jessica Davidson, Co-coordinator

Phone: (540) 568-2697
E-mail: davidsjb@jmu.edu

Dr. Mary Thompson, Co-coordinator

Phone: (540) 568-3758
E-mail: thompsmx@jmu.edu
Web site: <http://www.jmu.edu/womenstudies/>

The women's studies minor is an 18 credit hour interdisciplinary program that explores the scholarship related to gender and equity issues affecting women. This minor includes one required course, WMST 200. The remainder of the program incorporates many academic fields.

Required Course	Credit Hours
WMST 200. Introduction to Women's Studies	3
Choose five of the following:	15
ANTH 370. Topics in the Anthropology of Gender	
ECON 306. Economics of Women and the Family	
ENG/WMST 367. Women's Poetry	
ENG/WMST 368. Women's Fiction	
ENG/WMST 370. Exploring Gay and Lesbian Literature	
ENG/WMST 466. Studies in Women's Literature	
ENG 467. Feminist Literary Theory	
HIST 320. Women in United States History	
HIST 321. European Women's History	
HIST 327. Technology in America ¹	
HIST 466. The Family, 1400-1800	
HIST 488. Gender in Colonial Latin America	
JUST/WMST 341. Gender and Justice	
PHIL/WMST 350. The Philosophy of Feminism	
PSYC 310. The Psychology of Women and Gender	
REL 315. Women and Religion	
SCOM/WMST 348. Communication and Gender	
SOCI/WRTC/WMST 420. Feminist Rhetorics	
SOCI 337. Sociology of Gender	
SOCI 339. Sociology of Women	
WMST 300. Special Topics in Women's Studies	
WMST 400. Issues and Research in Women's Studies	
WMST 490. Independent Studies in Women's Studies	
WMST 492. Internship in Women's Studies	
WMST 495. Special Topics in Women's Studies	

¹ If research project addresses issue of gender.

World Literature

Dr. Ramenga Mtaali Osotsi, Coordinator

Phone: (540) 568-6560
E-mail: osotsirm@jmu.edu

The undergraduate minor in world literature provides students with a chance to study literature from the following areas: Africa, Australasia, Latin America, Middle East, Central Asia, East Asia, South Asia, and a special interest area (Native America, African America, Caribbean, and sections of Europe traditionally not covered in an average student's classroom experience). By offering a broad yet substantial introduction to literatures produced beyond their traditional Western experience, the minor provides students with a bridge to new cultures and languages. Through a careful examination of literary traditions produced by others, 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 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. World literature courses offered by the English department study different non-English language-literatures. No prior foreign language training is assumed or required.

The minimum requirement for a minor in World Literature is 21 credits with a least 9 credit hours drawn from each department.

All texts and instruction for courses from the Department of English and for 200-level and 400-level courses from the Department of Foreign Languages, Literatures and Cultures are in English. All other courses offered by the Department of Foreign Languages, Literatures and Cultures are taught in the target language, allowing students to study literature in the original language.

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 Department of Foreign Languages, Literatures and Cultures 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., GHUM 200. Great Works) and only those sections indicated in the schedule of classes will satisfy the world literature requirement.

Required Courses	Credit Hours
GHUM 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) ¹	

¹ Students should consult the coordinator for a list of courses available in each area.

Center for Materials Science

Dr. Ronald Kander and Dr. Christopher Hughes, Interim Directors

Phone: (540) 568-2723, 8776, 6328

Web site: <http://www.jmu.edu/materialsscience/>

Professors

R. Amenta, T. DeVore, O. Egekwu, B. Gabriel, J. Gilje, A. Henriksen, R. Kander, L. Kearns, J. Miles, D. Warne, D. M. Zarrugh

Associate Professors

B. Augustine, T. Chen, W. Hughes, G. K. Lewis, D. Mohler, B. Reisner, J. Sochacki, P. Warne

Assistant Professors

K. Caran, S. Paulson, A. Tongen, B. Utter

Mission Statement

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.

Goals

- To develop an undergraduate interdisciplinary, multidisciplinary 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:

- A choice of an entry-level introductory course in materials science.
- A 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/ISAT 430. Materials Science in Manufacturing	
MATS/CHEM/PHYS 275. An Introduction to Materials Science	
MATS/GEOL 395. Geologic Perspectives in Materials Science	
Choose one of the following:	3
MATS/ISAT 436. Micro-Nanofabrication and Applications	
ISAT/MATS 432. Selection and Use of Engineering Materials and Manufacturing Processes	
MATS/PHYS 381. Materials Characterization	
Materials Science Electives	9
Research or Additional Materials Science Laboratory Course	3
	<hr/> 18

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, or physics.

Courses	Credit Hours
Choose one of the following:	3
MATS/ISAT 430. Materials Science in Manufacturing	
MATS/CHEM/PHYS 275. An Introduction to Materials Science	
MATS/GEOL 395. Geologic Perspectives in Materials Science	
MATS Electives	6
Research or Materials Science Laboratory Course	3
	<hr/> 12

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/ISAT 436. Micro-Nanofabrication and Applications	3
MATS/ISAT 431. Manufacturing Processes	3
MATS/ISAT 432. Selection and Use of Engineering Materials and Manufacturing Processes	3
MATS/PHYS 381. Materials Characterization (Lecture/Lab Course)	3
MATS 382. Microfabrication Laboratory (Lecture/Lab Course)	3
MATS/PHYS 337. Solid State Physics	3
PHYS 380. Thermodynamics and Statistical Mechanics or CHEM 331. Physical Chemistry I	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
PHYS 497. Topics in Physics (materials science)	1-4
MATS 498R. Undergraduate Materials Science Research	3

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 at James Madison University

Majors in Environmental Science Studies

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.

See Page 189 for more information.

Engineering (B.S.)

The JMU engineering program empowers and motivates students to engineer systems for sustainable societies.

See Page 92 for more information.

Minors in Environmental Science Studies

Environmental Information Systems

The interdisciplinary 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.

See Page 103 for more information.

Environmental Management

The interdisciplinary 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.

See Page 104 for more information.

Environmental Science

The 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.

See Page 104 for more information.

Environmental Studies

The environmental studies minor provides an interdisciplinary education engaging socio-cultural, scientific and technical issues raised by the oft-conflicting needs and desires of globally interacting societies.

See Page 105 for more information.

Centers and Institutes in Environmental Science Studies

Center for Environment, Health and Safety

Contact Dr. Steven Frysinger, Department of Integrated Science and Technology.

Institute for Conservation Law Enforcement

Contact Dr. Steven Frysinger, Department of Integrated Science and Technology.

Center for Energy and Environmental Sustainability

Contact Dr. Christie-Joy Brodrick, Department of Integrated Science and Technology.

Visit <http://www.cisat.jmu.edu/cees/> for more information.

Institute for Health and Environmental Communication

Contact Dr. Peter Bsumek or Dr. Sharlene Thompson, School of Communication Studies, for more information.

Institute for Environment

Dr. Steven Frysinger, Chair

The Institute for Environment is a collegial association of environmental faculty from James Madison University, crossing departmental, college and academic program boundaries.

Mission

The Institute for Environment (IFE) will promote synergism and faculty/student collaboration in environmental research, projects, and degree programs, helping to ensure that JMU is identified as an institution with a world-class environmental presence which is both coordinated and diverse.

Activities

The IFE conducts a variety of activities intended to foster communication and collaboration among the JMU environmental faculty and students, as well as their external stakeholders. Examples of these activities include:

- Maintenance of a World Wide Web presence (www.jmu.edu/InstituteForEnvironment), which serves as an electronic "front door" to environmental programs and activities at JMU.
- Facilitation of dialog about the various environmental programs offered or proposed.
- Operation of a directory and e-mail list to help institute members discover each other's expertise and communicate with each other.

- Dissemination of news of interest to institute members via either electronic or paper means.
- Maintenance of a resource list to help faculty and students locate environmental instruments, equipment and software on campus.
- Organization of mini-conferences/workshops on the environment to showcase student and faculty work from all academic units.
- Sponsorship of scholarships/grants to help students with research expenses, conference travel, etc.

Related Programs

JMU offers the following environmental programs:

- Environmental Information Systems minor
- Environmental Management minor
- Environmental Studies concentration (Geography program)
- Environmental Studies minor (Geology Department)
- Environmental and Natural Resource concentration (Economics program)
- Environment concentration (Integrated Science and Technology program)

Membership

Faculty members from all colleges of the university participate in the IFE. A complete and current roster may be found at www.jmu.edu/InstituteForEnvironment/.

JMU Environmental Education Center

Dr. Steven Frysinger, Faculty Sponsor

The JMU Environmental Education Center (EEC) is located on the JMU farm in Port Republic, consisting 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 EEC conducts operations in community and in-service teacher environmental education, taking advantage of the pavilion located on the property to provide shelter for these activities when necessary.

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The EEC conducts operations in community and in-service teacher environmental education, taking advantage of the pavilion located on the property to provide shelter for these activities when necessary.

Institute for Innovation in Health and Human Services

Dr. Rhonda M. Zingraff, Director

Phone: (540) 568-2705

E-mail: zingarm@jmu.edu

Mission

It is the mission of the Institute to:

- foster a culture that values cross-disciplinary interaction, communication, and collaboration to enrich teaching, learning, research, and service delivery in the area of health and human services.
- build university-community partnerships that are responsive to the communities we represent.
- enhance educational relevance of health and human services initiatives.

Goals

The IIHHS will:

- have the internal and external organizational structures to achieve its vision.
- secure and maintain the human, financial and physical resources to achieve its vision.
- engage local, state, regional, national and international constituencies in *collaborative* outreach activities.
- be a recognized leader in the provision of health and human services education.
- impact health and human service practice and policy by effectively communicating its achievements.
- be a recognized leader in health and human services research and scholarship.

The following centers, programs and activities are related to the mission of the Institute for Innovation in Health and Human Services.

Adult Health and Development Program (AHDP)

Nancy Owens, Director

The Adult Health and Development Program is an intergenerational program designed to promote health in older adults (those 55+). College students work one-on-one with older adults from the local community. An individualized program is designed to meet each program participant's unique needs. The program develops a sense of positive health and well-being in the older adult and promotes a sense of community on a broader scale.

Alpha Epsilon Delta (AED)

Deborah Ford, Program Coordinator

Alpha Epsilon Delta, the largest honor society exclusively serving pre-professional health students, has its national headquarters at JMU. It has 186 chapters and a membership of more than 145,000. *The Scalpel*, the AED journal, is published twice a year. AED is a member society of the Association of College Honor Societies.

Alvin V. Baird Attention and Learning Disabilities Center (ALDC)

TBA, Director

The Alvin V. Baird Attention and Learning Disabilities Center is

Web site: <http://www.iihhs.jmu.edu/>

dedicated to service, training and research focused on individuals with attention-deficit hyperactivity disorders (ADHD) and learning disabilities. There are many services provided including the Challenging Horizons Program, Learning Leaders, and Center for Learning Strategies. The Challenging Horizons Program is a school-based treatment program for middle school youth with ADHD and is a treatment outcome research project. Learning Leaders is a mentoring and remedial education program for children with ADHD and learning disabilities. The Center for Learning Strategies provides evaluation and consultation services for young adults enrolled in a college or university.

Alvin V. Baird Attention and Learning Disorders Clinical Services

TBA, Coordinator

The Alvin V. Baird Attention & Learning Disabilities Center provides educational, familial and social interventions for children (ages five to eighteen) with attention and behavior disorders. Services include parent training, teacher consultation, in-home tutoring, and diagnostic evaluation of attention problems, disruptive behaviors, and learning disabilities. Its goal is to improve academic competencies, family relationships and home-school communication.

Center for Biomedical and Healthcare Informatics

Dr. Rhonda Zingraff, Director

The center is designed to provide an infrastructure for promoting, coordinating and facilitating learning opportunities, initiatives and projects in the area of Bio and Health Informatics.

Blue Ridge Area Health Education Center (AHEC) at James Madison University

TBA, Executive Director

The Blue Ridge Area Health Education Center 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.

Caregivers Community Network (CCN)

Vickie Landes, Director

Caregivers Community Network 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 to care for themselves as well as their loved ones.

Claude Moore Precious Time Pediatric Respite Care Program

Professor Cathy Webb, Director

The Claude Moore foundation was awarded a three-year grant to provide respite care to families who have special needs children. This respite program will use students from nursing, social work, psychology and other health and human service majors to provide caregivers with needed breaks from the demands of their family responsibilities.

Community Health Interpreter Service (CHIS)

TBA, CHIS Coordinator

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 (CAPS)

Dr. Tim Schulte, Director

Counseling and Psychological Services 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

Michelle Witt, Director

Crossroads to Brain Injury Recovery is a three-year, region-wide grant to provide case management and supportive services to families and individuals recovering from brain injuries.

Health Policy Center

Dr. David Cockley, Director

The JMU Health Policy Center is a research and education arm of the Institute for Innovation in Health and Human Services. It provides research expertise on the tracking, development and analysis of relevant local, regional and federal public health policies. Particular emphasis is placed on addressing policies that impact rural communities, disadvantaged populations, and the geriatric and immigrant populations that are prominent in the western Virginia region. The center also supports the education arm of the university by providing interdisciplinary resources for the instruction and application of health policy in organizational and community settings.

Healthy Families Page County (HFPC)

Emily Akerson, Director

Healthy Families Page County is based on a national program model and provides education, resources and support for the most vulnerable first time parents in Page County through voluntary home visiting services.

Interprofessional Services for Learning Assessment

Dr. Tim Schulte, Director

The Center for Learning Strategies offers diagnostic evaluation, consultation and support services for adults enrolled in a college or university. Diagnostic evaluation and testing services are provided by inter-professional evaluation teams consisting of professionals

from clinical psychology, communication sciences, clinical neuropsychology, special education and nursing. The Center for Learning Strategies works closely with individuals to build on strengths, identify areas of need, and design positive ways to promote meaningful learning and educational experiences.

Lifelong Learning Institute (LLI)

Nancy Owens, Director

The Lifelong Learning Institute, a partnership between JMU and adults over the age of 50 from the region, offers participants college level courses on a non-credit basis. Undergraduate students can assist in the classroom by enrolling in a one-credit workshop course.

Office on Children and Youth (OCY)

Kim Hartzler-Weakley, Director

The Office on Children and Youth, a partnership program, provides information and referral services to children and youth with the goal of promoting positive development. OCY is a central contact point for services in the Shenandoah Valley to support, coordinate, and examine the needs of our children and youth. OCY administers the Youth Data Survey bi-annually in the Harrisonburg City and Rockingham County schools.

Promotoras de Salud (Lay Health Promoters)

Joyce Sanchez, Coordinator

Through a 40-hour curriculum in basic health promotion and disease prevention, Hispanic women are empowered to take greater control of their health and to assist members of their community by providing health information and directing them to appropriate community resources.

The Reading Road Show, Gus Bus Program

Pat Kennedy, Program Director

This grant-funded initiative is a mobile literacy program that brings books and literacy skills to the community targeting the 0- to 5-year-old population and their families. The program serves Harrisonburg, Rockingham County and Page County with a book exchange program that visits low-income neighborhoods and day care centers throughout the area.

Ryan White II Care Act Grant

Jane Hubbell and Gary Race, Co-Lead Agents

The Institute for Innovation in Health and Human Services administers Ryan White II Care Act funds for northwest Virginia. The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act is federal legislation that addresses the unmet health needs of persons living with HIV disease by funding primary health care and support services. The CARE Act was named after Ryan White, an Indiana teenager whose courageous struggle with HIV/AIDS and against AIDS-related discrimination helped educate the nation.

Shenandoah Valley Child Development Clinic (CDC)

Penny Critzer, Director

The CDC provides individualized, interdisciplinary 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. By partnering with families and community service providers, the CDC provides care coordination services to assist children/adolescents and families in accessing medical,

educational, social and mental health services. Services are provided on a sliding fee scale and Medicaid/FAMIS are accepted. The CDC serves as a resource to the community by providing consultation, training and advocacy for children, adolescents, families and service providers. Training opportunities are available in the CDC for students from a variety of disciplines.

Shenandoah Valley Migrant Education Program (MEP)

Kim Hartzler-Weakly, Director

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

Dr. Carol Dudding, Director

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. For over 25 years this center has provided assistance to 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.

Success By 6 Academy

Pat Kennedy, Director

The Success By 6 Academy is a grant-funded program through the Virginia Early Childhood Foundation. The goal of this program is to help work in partnership with parents to have their children ready to enter school successfully by age 6. In collaboration with the community, the academy provides training resources, educational opportunities and support for families to ensure that all children will be healthy and ready to learn when they enter school.

Teen Pregnancy Prevention Initiative

Kim Hartzler-Weakley, Director

The grant-funded Teen Pregnancy Prevention program is a region-wide initiative to reduce teen pregnancies and educate youth concerning health and wellness issues. Working in the schools and community, the program serves the Shenandoah Health District and works with thousands of youth each year, providing "Vision of You" classes as well as the "Baby Think it Over" doll program.

The Health Place (THP)

Emily Akerson, Director

The Health Place, an initiative of the Institute for Innovation in Health and Human Services, serves as a resource that promotes the provision of interdisciplinary health and human services that are affordable, accessible, responsive to, and advance the physical, mental and developmental health of Page County residents.

Programs and services provided through or supported by THP are characterized by their responsiveness to community-identified needs, quality, dignity and respect accorded each individual.

Training /Technical Assistance Centers (T/TAC)

Cheryl Henderson and Melinda Bright, Co-directors

The mission of Virginia's Training/Technical Assistance Centers 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 (VAN)

Shannon Porter, Executive Director

The Valley AIDS Network (VAN) provides support service to people living with HIV and/or AIDS in the Central Shenandoah Valley. VAN provides case management, medical and dental assistance, transportation support, client advocacy, housing assistance, and nutritional support. Through information, education, outreach, and referral, VAN aims to prevent the spread of the HIV virus in the Central Shenandoah Valley.

Valley Program for Aging Services (VPAS)

Cathy Galvin, Director of Senior Services for Harrisonburg and Rockingham

The mission of VPAS is to assist individuals age 60 and older to maintain or improve the quality of their lives by providing them with educational and support services, which enable them to live as independently as possible. VPAS' services which promote personal dignity, privacy and individuality, include the following: adult day care; information and assistance; care coordination; disease prevention and health promotion; emergency assistance; health education and screening; home delivered meals, personal care, and homemaker services in a person's home; legal assistance; congregate meals, socialization, recreation and transportation in senior centers; insurance counseling; elder abuse prevention, and the Long Term Care Ombudsman program; medication management; and public information and education.

Virginia Center for Health Outreach (VCHO)

Christopher Nye, Executive Director

The Virginia Center for Health Outreach is developing an infrastructure to strengthen the practice, policy and research of the Community Health Worker (CHW) field in Virginia. CHWs are trained laypersons that serve as health resource persons in the communities where they live and work. The center works to acknowledge and help CHWs capitalize upon the key roles they play in improving public health through the provision of preventive services and facilitating access to primary care.

Youth Suicide Prevention Program

Dr. Jane Wiggins, Program Coordinator

This grant-funded program provides education concerning depression and suicide prevention throughout the region. The goal is to educate school personnel, students and communities about warning signs of suicide, coping skills for depression and resources for the Shenandoah Valley to reduce incidences of youth suicide.

Pre-professional Health Programs

Dr. Sharon Babcock, Coordinator

The Institute for Innovation in Health and Human Services offers advising and evaluation services for students pursuing professional health careers. Pre-professional health programs are not majors or minors; they are preparation programs that outline a set of JMU courses and requirements that commonly serve as prerequisites for admission to graduate-level professional programs. Schools of professional health are most concerned with the overall scope and quality of a student's undergraduate performance and it is important that students select a major based on their interests and aptitudes. Program coordinators are available to assist students in making career decisions. Additional information about each pre-professional health program is available on the Web at www.iihhs.jmu.edu.

Service activity and experience in a health-care setting 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 coordinator for guidance. Student organizations provide multiple venues to participate in community service and to interact with health professionals; thus, students are encouraged to participate in AED (Health Pre-professional Honor Society), Pre-Dental Organization, Pre-Medical Association, Pre-Occupational Therapy Society, Pre-Pharmacy Society, Pre-Physical Therapy Society, or the Pre-Veterinary Society.

The pre-professional programs outlined here are intended as guidelines only and will fulfill the admissions requirements of many, but not all, graduate professional programs. Since different professional schools often have unique requirements, students must inquire with their school(s) of interest for definitive admission policies and requirements.

Pre-dentistry¹

Dr. Jeanne Wenos, Coordinator

	Credit Hours
BIO 114. Organisms	4
BIO 214. Cell and Molecular Biology	4
CHEM 131-132. General Chemistry (including laboratory 131L-132L)	8
CHEM 341-342. Organic Chemistry (including laboratory 346L)	8
PHYS 140-150. General Physics (including laboratory 140L-150L)	8
Mathematics (calculus and statistics)	6
English (ENG, <i>G</i> ENG, <i>G</i> HUM 200, or <i>G</i> WRIT)	6
Students are encouraged to take additional course work in genetics (BIO 224 or BIO 230), physiology (BIO 270 or BIO 370) and/or biochemistry (CHEM 361).	

Pre-forensic Studies¹

Dr. Leslie Harlackner and Dr. Donna Amenta, Coordinators

Forensic studies refer to a wide array of disciplines that apply the knowledge and techniques of science to the investigation of crime and the courts of law. Preparation guidelines are provided below for four common areas of graduate study in forensic studies.

Forensic Biology

A biology or chemistry major is recommended with the following course work:

	Credit Hours
BIO 114. Organisms	4
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4
BIO 430. Human Genetics	3
BIO 442. 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 course work:

	Credit Hours
CHEM/PHYS/MATS 275. Introduction to Materials Science	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 (biological anthropology concentration) or biology major is recommended with the following course work:

	Credit Hours
<i>G</i> ANTH 196. Biological Anthropology	3
BIO 290. Human Anatomy	4
BIO 270. Human Physiology or BIO 370 Animal Physiology	4
BIO 325/ANTH 395. Forensic Anatomy	4
Choose two of the following:	
MATH 321. ANOVA and Exp. Design	3
MATH 324. Applied Nonparametric Statistics	3
MATH 421. Applied Multivariate Statistics	3

Students are encouraged to take additional course work in anatomy such as BIO 410. Advanced Anatomy.

Pre-medicine¹

Dr. Sharon Babcock, Coordinator

	Credit Hours
BIO 114. Organisms	4
BIO 214. Cell and Molecular Biology	4
CHEM 131-132. General Chemistry (including laboratory 131L-132L)	8
CHEM 341-342. Organic Chemistry (including laboratory 346L)	8
PHYS 140-150. General Physics (including laboratory 140L-150L)	8
Mathematics (calculus and statistics)	6
English (ENG, <i>G</i> ENG, <i>G</i> HUM 200, or <i>G</i> WRIT)	6
Students are strongly encouraged to take additional course work in genetics (BIO 224 or BIO 230), physiology (BIO 270 or BIO 370) and biochemistry (CHEM 361).	

Pre-occupational Therapy¹

Dr. Jeffrey Loveland, Coordinator

	Credit Hours
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 120+L. Concepts in Chemistry and lab	4
MATH 220. Elementary Statistics	3
Choose one:	3-4
PHYS 125. Principles of Physics with Biological Applications I	
PHYS 140. General Physics (including laboratory 140L) or	
HTH 441/KIN 407. Rehabilitative Biomechanics	
GPSYC 160. Life Span Human Development	3
PSYC 250. Abnormal Psychology	3
GSOCI 210. Social Issues in a Global Context, or	3
GSOCI 240. Individual in Society	

NOTE: Students interested in applying to the JMU Occupational Studies concentration (health science concentration that can lead toward the Master of Occupational Therapy degree at JMU) should refer to pages 195-196.

Pre-optometry¹**Dr. Jeffrey Andre, Coordinator**

	Credit Hours
BIO 114. Organisms	4
BIO 214. Cell and Molecular Biology	4
BIO 280 or 380. Microbiology	4
CHEM 131-132. General Chemistry (including laboratory 131L-132L)	8
CHEM 341-342. Organic Chemistry (including laboratory 346L)	8
PHYS 140-150. General Physics (including laboratory 140L-150L)	8
Mathematics (calculus and statistics)	6
English (ENG, GENG , GHUM 200 , or GWRTC)	6
GPSYC 101. General Psychology	3

Students are strongly encouraged to take additional course work in anatomy (BIO 290 or BIO 320), physiology (BIO 270 or BIO 370), and biochemistry (CHEM 361).

NOTE: Students should check admission requirements of individual optometry schools for additional recommended courses.

Pre-pharmacy¹**Dr. Donna Amenta, Coordinator**

	Credit Hours
BIO 114. Organisms	4
BIO 214. Cell and Molecular Biology	4
CHEM 131-132. General Chemistry (including laboratory 131L-132L)	8
CHEM 341-342. Organic Chemistry (including laboratory 346L)	8
GCOM 121. Fundamental Human Communication: Presentations, or GCOM 122. Fundamental Human Communication: Individual Presentations	3
MATH 220. Elementary Statistics	
Choose one:	6
MATH 155-MATH 205. College Algebra and Introductory Calculus	
MATH 231-232. Calculus with Functions	
PHYS 140-150. General Physics (including laboratory 140L-150L)	8
English (ENG, GENG , GHUM 200 , or GWRTC)	6
Electives ¹	18

¹ Requirements depend on program.

Pre-physical Therapy¹**Dr. Kristi Lewis, Coordinator**

	Credit Hours
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 131-132. General Chemistry (including laboratory 131L-132L)	8
MATH 205. Introductory Calculus I	3
MATH 220. Elementary Statistics	3
PHYS 140-150. General Physics (including laboratory 140L-150L)	8
English (ENG, GENG , GHUM 200 , or GWRTC)	6
GPSYC 101. General Psychology	3
GPSYC 160. Life Span Human Development	3
PSYC 250. Abnormal Psychology	3
GSOCI 210. Social Issues in a Global Context	3
NOTE: Physical therapy schools often have varying prerequisite requirements for admission. Classes listed here may differ from what some PT schools require.	

Pre-physician Assistant¹**James Hammond, Coordinator**

	Credit Hours
BIO 114. Organisms	4
BIO 124. Ecology and Evolution	4
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 131/132. General Chemistry (including laboratory 131L-132L)	8
CHEM 221+L. Concepts of Organic Chemistry	4
CHEM 222. Concepts of Biochemistry	3
(CHEM 222L recommended, 1 credit)	
HTH 300. Medical Terminology	3
MATH 220. Statistics	3

Pre-veterinary Medicine¹**Dr. Christopher Rose, Coordinator**

	Credit Hours
BIO 114. Organisms	4
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4
BIO 370. Animal Physiology	4
BIO 380. General Microbiology	4
CHEM 131/132. General Chemistry (including laboratory 131L-132L)	8
CHEM 341/342/346. Organic Chemistry	8
CHEM 361. Biochemistry	3
MATH 220. Elementary Statistics	3
MATH 231/232. Calculus with Functions	8
PHYS 140/150. General Physics (including laboratory 140L-150L)	8

¹ These pre-professional health programs do not ensure that all requirements at all professional schools, including JMU, are met. Consult with each professional school of interest to establish a full listing of prerequisites for that program.

Institute for Infrastructure and Information Assurance

Dr. John B. Noftsinger, Jr., Vice Provost and Executive Director

Phone: (540) 568-2700

Fax: (540) 568-1784

E-mail: noftsijb@jmu.edu

Web site: <http://www.jmu.edu/iiia>

Mission

The Institute for Infrastructure and Information Assurance (IIIA) emphasizes collaborative interdisciplinary research that focuses on developing technologies with student participation and that have potential for public benefit and possible commercialization. Further, the Institute focuses on the integrative, interdisciplinary nature of real-world problems and strives to bridge traditional academic departments to develop solutions to the critical security problems facing our nation. IIIA facilitates development, coordination, integration and funding of homeland security activities and capabilities of the James Madison University academic community to enhance information and critical infrastructure assurance at the federal, state and local levels.

Vision

A society strengthened and enriched by increasingly dependable infrastructure fostered by a strong university role in leadership, interdisciplinary education, research and problem-solving.

Programs

Critical Infrastructure Protection Program

The Critical Infrastructure Protection Program seeks to fully integrate the disciplines of law, policy, and technology for enhancing the security of cyber-networks, physical systems and economic processes supporting the nation's critical infrastructures. The CIP Program grant is used to fund basic and applied research as well as support information and outreach activities related to the key components of the national research agenda. Among the many topics explored, key areas of focus have been cyber security, physical security, information sharing between public and private sectors, regional, state & local issues and privacy concerns.

Institute for National Security Analysis

The Institute for National Security Analysis is funded through the Department of Defense to provide support for the development of a multi-disciplinary curriculum and related research and service endeavors focused on educating and training the national security workforce of the 21st century with an emphasis on the intelligence community. The curriculum requires in-depth study of data collection and analysis techniques, technology applications, world cultures and languages, and critical thinking. This effort directly addresses major needs in workforce development for the Intelligence Community along with providing an innovative and unique research and development program. The Institute for National Security Analysis balances critical thinking, technology and social perspectives to address issues within the intelligence field.

Activities

- Ongoing research and analysis projects
- Annual research symposium held at the National Academies
- Development of a new academic major: Information Analysis
- Recognition of Distinguished Scholars through the IIIA Fellows program
- Publication of annual Citizen's Guide
- Engage public and private partnerships to pursue solutions in critical infrastructure protection
- Build strategic alliances with institutions of higher education, businesses, and public sector agencies

International Beliefs and Values Institute

Dr. Craig Shealy, Executive Director

Phone: (540) 568-6477

Location: Eastover House

E-mail: ibavi@jmu.edu

Web site: <http://www.jmu.edu/ibavi>

Mission

The mission of the International Beliefs and Values Institute (IBAVI) is to examine, describe and explain the linkages between the implicit or explicit beliefs and values of individuals, groups, organizations, governments and societies around the world and those actions, policies or practices that are demonstrably grounded in or legitimized by these specific beliefs and values. This mission and the concomitant activities of the IBAVI shall be deliberately pluralistic, critically-minded and self-reflective, grounded in sound scholarship, and informed by reasoned dialogue.

Purpose

The purpose of the IBAVI is to demonstrate that human beliefs and values are:

- central mediating processes for behavior at individual and societal levels, but they may or may not be "known" (i.e., may be implicit or non-conscious), and are not necessarily logically grounded.
- determined by an individual's history, larger culture and unique Zeitgeist, inculcated over time, and may or may not transcend (i.e., may be relative to) a specific time and place.
- acquired and maintained via complex interactions among developmental, affective and attributional processes.
- inextricably and ultimately linked to the actions, policies and practices of individuals, groups, organizations, governments and societies.

Rationale

Analysis of recent events and available evidence suggests that it is neither unreasonable nor alarmist to conclude that we are placing ourselves at increasing risk of causing negative and potentially irreversible consequences for humanity and our planet. As such, a critical mass of the world's population must come to understand that the actions, practices, and policies of individuals, groups, organizations, governments, and societies are mediated by beliefs and values that may be highly subjective, non-conscious and self-serving rather than just, equitable, rational and sustainable. Such understanding must be sufficiently achieved in the near future by a substantial proportion of the world's population - as well as those who are in positions of relative power and influence - and subsequently translated into relevant actions, practices, and policies. To accomplish these goals, the international academic community - in concert with allied individuals and organizations in the public and private sectors - must become much more proactive and deliberate, in order to organize and direct its vast analytic capacity toward an understanding of these real world issues, and subsequently translate what we discover and assemble into terms that can be readily apprehended by the academy, policy makers and the public at large.

Toward these ends, and more specifically, the International Beliefs and Values Institute maintains that we must establish a more just, equitable, rational and sustainable world order, in which:

- conflicts can be resolved through dialogue, reason, mutual understanding and reconciliation;
- human and minority rights are demonstrably respected and protected;
- the ecosystem and natural resources upon which life depends are secured and preserved;
- individuals and groups are neither persecuted nor denied equal access to education or social, legal, political and economic resources for arbitrary and capricious reasons (e.g., of ethnicity, gender, age, sexual orientation, political views, religious faith or lack thereof, social and economic status, or family lineage);
- educational systems deliberately expose students of all ages to the perspectives and experiences of individuals, groups and cultures around the world; and
- tolerance and understanding supplant hatred and violence in matters of cultural difference and religious faith.

Scholarship

The IBAVI engages in a range of scholarly activities, including but not limited to the promotion of interdisciplinary and cross-cultural research regarding the etiology and maintenance of beliefs, values, and worldviews, translation of such research into accessible media and materials, development of web-based resources, and co-sponsorship of relevant scholarly events.

Education

Consistent with its mission, rationale, and purpose - and complementary with its scholarly emphasis - the IBAVI sponsors and engages in a range of educational activities and initiatives designed to promote a greater understanding of the "what," "how" and "why" of beliefs and values. That is, the IBAVI is interested not only in showing what human beings believe and value around the world (a descriptive level of analysis), but exploring and providing credible answers as to how, why, and under what circumstances human beliefs and values are acquired, maintained, and/or transformed (an explanatory level of analysis). In addition to these descriptive and explanatory issues, the IBAVI is interested in promoting efforts to translate such belief/value information so that it may be integrated within various processes and experiences across the educational continuum.

Mahatma Gandhi Center for Global Nonviolence

Dr. Sushil Mittal, Director

Phone: (540) 568-4060

Location: Cardinal House

Mission

In pursuing the threefold mission of education, research and engagement, the Mahatma Gandhi Center for Global Nonviolence at James Madison University seeks to advance the understanding of, appreciation for, and practice of nonviolence, by exploring the significance for the contemporary world of the great task Mahatma Gandhi set for himself and for all of us as an experiment and an actual experience. "My mission," he said, "is to convert...the world to non-violence for regulating mutual relations, whether political, economic, social, or religious."

Leadership

The Gandhi Center is led by director Sushil Mittal. The team working with the director to set the intellectual agenda of the center includes the advisory board and the board of trustees. The advisory board serves as a consulting body to the director. The board includes Nobel Laureates, former heads of state, high civil servants, CEO's of international corporations, academicians, scientists, social activists and artists from five continents, who pool their different experiences from a wide range of backgrounds to promote a culture of nonviolence and peace. The board of trustees provides governance of the business and affairs of the center, safeguards the independence of the center's work, helps to increase community awareness of the center and its programs, and assists the philanthropic activities of the center. The board is composed of distinguished business executives, academics and community leaders.

Programs

The Gandhi Center engages in a wide variety of local, national and international educational, research and engagement programs in support of its mission. The center's work is interdisciplinary, cross-cultural and cross-civilizational. Listed below are some of the programs in which the center is currently involved:

- Teaching: In addition to the broad range of learning opportunities, each academic semester the director offers an interdisciplinary course, "Gandhi, Nonviolence and Global Transformation."
- Research: The center supports research across disciplines in five broad areas with particular emphasis on scholarship that bridges theory and practical application: theories and critiques of Gandhi; transnational and cross-cultural dimensions of Gandhi and his legacy and relevance; nonviolent praxis through everyday modes of living; alternative visions of nonviolent approaches to human relations and world affairs; and alternative moral and political theories.
- Conferences: The center organizes and hosts an international conference and a student conference in alternate years.
- Lecture Series: The center has two established lecture series: Tolstoy Lecture Series in Global Nonviolence, and Lecture Series in Religious Traditions.
- Publications Program: The center publishes the International Journal of Gandhi Studies, and a series of publicly available online publications: Working Papers Series and Project

E-mail: GandhiCenter@jmu.edu

Web site: <http://www.jmu.edu/gandhicenter>

Gandhiana.

- Research Scholars Program: This program brings faculty, post-doctoral candidates and advanced graduate students from outside the university in temporary residence to lecture, teach and work on their own research projects.
- Student Internship Program: The internship offers unique and diverse opportunities for undergraduate students who are interested in the center's work. The program has special appeal for those who wish to combine academic study with practical application and experience.
- Engagement Program: The center's engagement program includes the following: the summer camp, which prepares children to appreciate the value of nonviolence, the potential of nonviolent action to address conflicts, the value of social responsibility, the interconnected nature of human experience and the planet's natural environment as they participate in an eclectic blend of exciting activities; the worldwide drawing and painting contest, which fosters a culture of nonviolence and peace among children; and the Gandhi-King prison initiative, which introduces inmates to Martin Luther King, Jr.'s philosophy of nonviolence and the teachings of Mohandas K. Gandhi that influenced King's vision.

Student Affiliate

The Gandhi Center is proud to offer support and encouragement to its student affiliate, Global Nonviolence Club, which has implemented several campus-wide events.

The King Library

The Martin Luther and Coretta Scott King Library at the Gandhi Center serves the needs of the center and its programs. The King Library is also open to researchers and the interested public. It is primarily a non-circulating library.

Gandhi Statue at JMU

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 the Ambassador of India to the United States. The statue is the first of Mahatma Gandhi in the Commonwealth of Virginia.

The Gandhi 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 Gandhi Award is given every two years. The inaugural award was given in 2007 to the Most Reverend Desmond M. Tutu, 1984 Nobel Peace Laureate, South Africa.

Nelson Institute for International and Public Affairs

Dr. J. Peter Pham, Director

Phone: (540) 568-2281

Fax: (540) 568-2977

E-mail: phamjp@jmu.edu

Web site: <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. By supporting scholarship in the social sciences and humanities and providing an environment that will encourage interdisciplinary discourse on some of today's vital global and national concerns, the Institute contributes to the advancement and diffusion of knowledge that the JMU's namesake held constituted "the only guardian of true liberty."

Goals

The Institute seeks to foster engagement and discussion by faculty, students, and members of the community of the major issues affecting American interests broadly defined, including:

- maintaining and strengthening national security at home and abroad.
- encouraging the understanding of and support for countries committed to the core values that inspired the American founding, including political, economic, social, and religious pluralism.
- fostering greater awareness and engagement with developing countries and peoples on the part of the United States.

- promoting a culture of respect for authentic human rights;
- and advancing an open global economy, governed by both an ethic of responsibility and the rule of law.

The Institute's interests focus on global challenges that impact the overall strategic position of the United States and other responsible members of the international community, with programming focused especially on:

- Terrorism and national security
- Africa
- Religion and global politics
- International ethics and justice

Activities

The Institute draws upon and fosters the resources of the academic community – including the educational vocation of the university and the research of its faculty – to offer enhancement opportunities to JMU faculty and students as well as initiatives aimed at policymakers, other scholars, and the public at large through a variety of programs, including:

- Ongoing research and analysis projects
- Publications and other media activities
- Distinguished Scholars in Residence and Fellows programs
- The Guardian Lecture Series
- An annual conference

School of Accounting

Dr. Paul A. Copley, Director

Phone: (540) 568-3081

Fax: (540) 568-3017

Location: Zane Showker Hall, Room 334

E-mail: copleypa@jmu.edu

Web site: <http://www.jmu.edu/cob/accounting/>

Professors

C. Baril, P. Copley, D. Fordham, A. Gabbin, T. Louwers, N. Nichols, D. Riordan, M. Riordan, B. Roof

Associate Professors

J. Briggs, R. Richardson

Assistant Professors

L. Betancourt, S. Cereola, D. Hayes, W. VanDenburgh

Instructors

M. Brown, K. Foreman, L. Manktelow, E. Shifflett

Mission Statement

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: (1) students develop both technical and interpersonal skills necessary for successful professional accounting careers; (2) faculty create and disseminate meaningful intellectual contributions and actively participate in the academic and professional communities; and (3) 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 scholarships 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
- Comptroller
- Computer Systems Consultant
- Consultant
- Controller
- Cost Accountant
- Cost Analyst
- Division Controller
- EDP Auditor
- Fraud Examiner
- Information Systems Coordinator
- Internal Auditor
- Systems Consultant
- System Security Manager
- Tax Adviser
- Tax Partner

Our graduates find employment with all of the “Big Four” international public accounting firms, dozens of local and regional public accounting firms 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 honor fraternity for accounting majors.
- Institute of Management Accountants is open to all accounting students.
- Association of Information Technology Professionals services students with a technology/consulting interest.

Programs of Study

Two programs are available to accounting majors. The first is the four-year major in accounting, leading to the Bachelor of Business Administration (B.B.A.) degree. The second is 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. Students should meet with their adviser during their junior year to discuss these options.

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, or five years, of post-secondary education are required to sit for the Certified Public Accountant’s examination 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 assurance, taxation or systems; 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. Student may apply following their junior year and early application for admission is encouraged.

Special Admission Requirements

To register for ACTG 302. Introduction to the Profession: Role of Accountants and ACTG 303. Basic Spreadsheet Skills for Accountants, a student must have a 2.8 grade point average, have completed 56 credit hours, and have completed COB 241. Financial Accounting and COB 242. Managerial Accounting with a “B” or better in both.

Accounting Major Progression Standards

- 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 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 ¹	44-45
Accounting major requirements	24
Free elective ²	3
General Education courses ³	41
Non-business electives	7-8
	<hr/> 120

¹ 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.

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

Core Courses	Credit Hours
ACTG 302. Introduction to the Profession: Role of Accountants	3
ACTG 303. Basic Spreadsheet Skills for Accountants	1
ACTG 304. Advanced Spreadsheet Skills for Accountants	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
Choose one of the following:	3
ACTG 410. Auditing	
ACTG 420. Operational Auditing	
ACTG 475. Accounting Decision Making and Control	3
Choose one of the following:	3
BLAW 495. Business Law I	
ACTG 450. Governmental and Nonprofit Accounting and Reporting	
	<hr/> 26

Non-Business Electives

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 (*GECON* 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 departments outside the College of Business. Students should carefully select these nonbusiness electives to help them gain additional knowledge and expertise for their careers and personal lives. A list of approved electives is available from the College of Business Academic Services Center.

Students are responsible for their own progress towards 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 complete the 29-30 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 the lower-division core curriculum will be completed during the first two years of study along with all, or 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 until at least the second semester of the junior 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
ACTG 302. Introduction to the Profession: Role of Accountants	1
ACTG 343. Corporate Financial Reporting I	3
	<hr/> 16

Second Semester	Credit Hours
ACTG 303. Basic Spreadsheet Skills for Accountants	1
ACTG 344. Corporate Financial Reporting II	3
ACTG 313. Accounting Information Systems	3
General Education or non-business electives	9
	<hr/> 16

Fourth Year

First Semester	Credit Hours
ACTG 304. Advanced Spreadsheet Skills for Accountants	1
ACTG 377. Federal Income Tax Accounting	3
ACTG 410. Auditing	3
BLAW 495. Business Law I	3
Any 300 level accounting course not already scheduled, General Education or non-business electives	6
	<hr/> 16

Second Semester	Credit Hours
ACTG 475. Accounting for Decision Making and Control	3
COB 487. Strategic Management	3
Any remaining accounting course not already completed, General Education or non-business electives	9
	<hr/> 15

Concentration

Public Administration Concentration

JMU offers a specialty concentration in public administration. This concentration requires two alternative courses (ACTG 420 and ACTG 450) and a public administration (PPA) non-business elective. These courses offer the student the opportunity to gain more knowledge about the government environment.

Students will examine the standards under which the government financial manager performs accounting, financial reporting, and budget functions, as well as how to organize and conduct operational audits. Student completing the public administration concentration will pursue careers in government, internal audit and not-for-profit organizations.

This concentration is not currently available. Refer to the School of Accounting office for more information.

Required Courses	Credit Hours
ACTG 420. Operational Audit	3
ACTG 450. Governmental and Nonprofit Accounting and Reporting	3
PPA elective	3

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. Students taking the CPA exam in Virginia must meet a 150 hour education requirement, including 30 credits in accounting and 24 in business. Forty-five states require students to meet the 150 hour educational requirement. The five year professional program is highly recommended for those electing a career in public accounting. Alternatively, the combination of an Accounting B.B.A. with a minor in computer information systems can also satisfy CPA exam education requirements.

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.

Student Computers

The College of Business advises that it is unrealistic for students to expect to rely on university-provided computer labs for access to computers. Students should plan to purchase or otherwise arrange access to a personal computer no later than the beginning of their sophomore year.

The accounting program policy states that e-mail sent to a student's JMU e-mail account is assumed to be received by the student within 24 hours of its dispatch. Students are responsible for checking their e-mail in a timely fashion and maintaining sufficient available capacity in their e-mail quotas to allow for incoming messages at all times.

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 (ACTG 343 or ACTG 344) courses. Contact the accounting adviser for more information on transfer credit.

Adult Degree Program

Pamela G. Brown, Learning Services Coordinator

Phone: (540) 568-6824

Location: Memorial Hall, Room 3305

E-mail: brownp@jmu.edu

Web site: <http://www.jmu.edu/adultdegree/>

Mission Statement

The Adult Degree Program (ADP) provides returning adult students with the opportunity to complete their bachelor's degree. This program differs from other degree programs presently offered at JMU in that ADP students tailor their major to meet their career and educational goals while still meeting JMU general education and degree requirements.

Admission

Applicants must have a lapse of at least three years in their full-time formal education and a minimum of 30 credit hours with a grade of "C" or better for each credit hour of college work. Applicants should be 25 or older.

Degrees Offered

ADP students have the opportunity to earn a Bachelor of Individualized Study (B.I.S.), a Bachelor of Arts (B.A.), or a Bachelor of Science (B.S.). 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 Individualized Study Major office for approval while enrolled in the IS 200 course.
- A minimum of 41 general education credit hours in the seven areas of social and behavioral science, humanities, natural science, written communication, oral communication, mathematics and U.S. history must be completed. (See the General Education section for complete details.)
- 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.
- 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.
- A minimum of 30 credit hours in a particular concentration or field of study, at least 24 of which must be upper-division credits, is planned around some type of conceptual or cultural framework. Certain concentrations may require that students demonstrate competency in a "common body of knowledge" which may require course work or testing beyond the 30 hours.

- No more than 30 credit hours of course work can be selected from courses taught by the College of Business (CoB). 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 498/499, 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 "C" minimum grade. A final oral report must be presented on the project.
- ADP requires all students to take the Information Seeking Skills Test, the Tech Level I exam to demonstrate technology competencies and 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 residence requirement; however, program agreements that extend beyond six years may need to be amended if university policies change that affect the original program agreements.

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
- Prior learning assessment
- Credit for sponsored learning or independent studies
- Regular course work
- Credit for experiential learning
- Credit for educational programs of the Armed Forces
- College Level Examination Program (CLEP)
- American Council on Education College Credit Recommendation Service (ACE)

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 are to be presented no later than midterm of the semester prior to that in which the Individualized Study major plans to graduate. Experiential learning credit is not transferable to a traditional degree program. Majors requesting experiential learning credit must complete IS 203, Portfolio Development. A fee is charged for each learning component evaluated by academic units for credit.

College Credit Recommendation Service

The Adult Degree Program accepts credit 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 Web site.

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. Requests for specific information on CLEP examinations should be directed to:

College Level Examination Program
Box 592
Princeton, NJ 08540

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 average. 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.

Service-members Opportunity College

JMU has been designated as an institutional member of Service-members Opportunity College. As an SOC member, the university recognizes the unique nature of the military lifestyle and has committed itself to easing the transfer of relevant course credits, providing flexible academic residency requirements and crediting learning from appropriate military training and experiences.

Second Degree Requirements

Students who hold a baccalaureate degree from a regionally accredited college or university may earn a second degree through this program following the general guidelines on Page 24 in this catalog. Second-degree students must complete a minimum of 33 credits, including a 30-hour concentration and IS 200, ISM Program Development. If appropriate, eight non-traditional hours may be included in the 30 hour concentration. Second-degree students requesting experiential learning credit must complete IS 203, Portfolio Development.

BIS Social Science Concentration

Within the BIS major there is an optional social science concentration that provides a more structured alternative for BIS majors. ADP students selecting the Social Sciences concentration will complete:

- 41 credits in General Education, including core courses PSYC 101, MATH 220 and GPOSC 225
 - Students seeking to earn a Bachelor of Science in Individualized Study will complete the baseline 41 credits in general education and an additional 3 credits in math and 3 credits in natural sciences.
 - Students seeking a Bachelor of Arts must complete 3 credits in philosophy and 6 credits of a foreign language at a 200-level or higher.
- 36 to 48 credits earned by completing all courses in two of the focus areas
- 12 credits in any two additional supporting focus areas
- IS 498
- 24 general elective credits.

Contact the program coordinator for information on the social science concentration.

General Education

General Education course work is designed to provide returning adult students with knowledge and skills that form the foundation for completing a baccalaureate degree, including a professional concentration, in the individualized study major.

	Credit Hours
Social/Behavioral Science	6
Any course with a number other than "000" in the areas of sociology, psychology, economics, history, anthropology, geography and political science	
Humanities	6
Any course with a number other than "000" in the areas of philosophy, religion and GHUM courses. Only the following type courses from the art, foreign languages, English, music and dance/theatre academic units count as humanities credit: art appreciation, art history, literature, theatre and dance history, theatre and dance appreciation, foreign language literature or culture, music appreciation or history.	
Scientific Literacy requirement	6
Any course with a number other than "000" in the areas of biology, chemistry, geology, physics and GSCI.	
Written Communication	6
Any course with a number other than "000" in the area of English composition. (If GWRTC 103 [formerly GWRT 103] is waived through writing assessment, credits may be earned in advanced composition or Writing, Rhetoric and Technical Communication. Choose from ENG 290, ENG 299, ENG 347, ENG 390, ENG 392, ENG 393, ENG 396, WRTC 210, WRTC 211, WRTC 240, WRTC 250, WRTC 320, WRTC 340, WRTC 410, WRTC 411, WRTC 412, WRTC 413, WRTC 460 or WRTC 480.)	
Oral Communication	3
Choose from GCOM 121, GCOM 122, SCOM 121, SCOM 122, SCOM 242 or SCOM 243.	
Quantitative requirement	3
Any course with a number other than "000" in the area of mathematics.	
U.S. History	4
Choose from GPOSC 225 or GHIST 225.	
Additional General Education credit	7
May be fulfilled through exceeding minimum in categories 1-7 or by courses accepted by General Education.	

School of Art and Art History

Leslie Bellavance, Director

Phone: (540) 568-6216

Location: Duke Hall, Room 215

E-mail: art-arthistory@jmu.edu

Web: www.jmu.edu/artandarthistory/

Professors

L. Bellavance, G. Chatelain, T. Cole, C. Diop, L. Halpern, J. McCaslin, P. Ratner, K. Schwartz, K. Szmagaj, C. Welter, W. Wightman, S. Yoon

Associate Professors

D. Banks, R. Daniel, D. Ehrenpreis, D. Hachenski, L. Katzman, J. Ott, M. Rooker, M. Shanahan, G. Stewart, W. Tate, S. Zurbrigg

Assistant Professors

S. Brooks, S. Choi, G. Freeburg, R. Hilliard, R. Silberman, K. Stevens, A. Taylor, K. Tollefson-Hall, L. Tubach

Mission Statement

The School of Art 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.

Goals

The School of Art 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 and Art History offers three degrees, a choice of two majors, and a number of select areas of emphasis. Teaching licensure in art is available as part of all degree programs. 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" on Page 29. Currently available degrees, majors and areas of emphasis are as follows.

Bachelor of Arts

- Art History
- Studio Art

Bachelor of Fine Arts

- Studio Art with an emphasis in General Fine Arts, Graphic Design or Interior Design

Bachelor of Science

- Studio Art with an emphasis in General Fine Arts or Industrial Design

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 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
- Artist
- Art Critic
- Art Educator
- Art Historian
- Ceramist
- Computer Animator
- Conservator
- Gallery Owner
- Graphic Designer
- Illustrator
- Industrial Designer
- Interior 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.

Special Admission Requirements

Studio Art Majors

In addition to meeting JMU admission requirements as stated on Pages 13-17, entering first year students who intend to major in studio art are encouraged to submit a portfolio for review and be interviewed for evidence of their interest and potential for future success in art. First year students admitted through regular or early action admission processes who do not submit a portfolio will be accepted into the studio art major if the major is declared prior to the start of the fall semester.

Transfer students or students who are currently enrolled at JMU under another major and who wish to declare a studio art major must submit a portfolio to the school's director. Transfer and change of major portfolios will be reviewed once each fall and spring semester. Transfer and change of major students who are not recommended for admission to the Studio Art major may reapply the following semester.

Students interested in entering the B.F.A. graphic design emphasis are required to submit a portfolio representing work completed in GRPH 200, 202 and 206. For additional details, see the B.F.A. graphic design emphasis admission requirements as stated on Page 139.

Students interested in entering the B.F.A. interior design emphasis are required to submit a portfolio representing work completed in INDE 200 and INDE 202 for additional details, see the B.F.A. interior design emphasis admission requirements on Page 141.

Portfolio reviews for transfer, change of major and graphic design students are held approximately two weeks prior to pre-registration. To obtain the schedule of portfolio and interview sessions for entering first year students, as well as other specific information about the admission process, contact the School of Art and Art History.

Art History Majors

Students intending to major in art history are not required to submit a portfolio or additional material for review, but should follow the regular JMU admissions process.

Accreditation

Supplementing JMU's general accreditation, all degrees offered by the School of Art and Art History are professionally accredited by the National Association of Schools of Art and Design. In addition, the B.F.A. interior design emphasis is professionally accredited by the Council for Interior Design Accreditation (formerly the Foundation for Interior Design Educational Research).

Degree and Major Requirements

Bachelor of Arts in Art History

Dr. John Ott, Coordinator

Phone: (540) 568-6319

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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 Studies 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 interdisciplinary education and actively supports students who double major with other disciplines.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives ³	23-37
Major requirements (listed below)	39
	<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, Literature and Culture's placement test.

³ 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 courses, as the following chart shows.

Required Courses	Credit Hours
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey of World Art II: Renaissance to Modern	3
ARTH 300. Art History Seminar ¹	3
Non-Western Electives (choose one of the following):	3
Any course in African, Far Eastern, Oceanic Art or Art of the Americas	
Western Electives	12
Pre-Renaissance Art (choose one of the following):	
Any course in Ancient or European Art pre-1400	
Renaissance to Baroque Art (choose one of the following):	
Any course in European Art 1400-1750 (including JMU Semester Abroad courses)	
Eighteenth and Nineteenth Century Art (choose one of the following):	
Any course in European or American Art 1700-1900 (including JMU semester abroad courses)	
Modern and Contemporary Art (choose one of the following): Any course in 20th Century or Contemporary Art	
Art history electives (300-400 level) ²	9
Studio art electives (any level)	6
	<hr/> 39

¹ This course fulfills the College of Visual and Performing Arts writing-intensive requirement for the major.

² 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.

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.

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.

Recommended Schedule for Majors

First Year	Credit Hours
Choose one of the following:	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	
GARTH 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
	<hr/> 30

Second Year	Credit Hours
Choose one of the following:	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	
GARTH 206. Survey of World Art II: Renaissance to Modern	
Choose one of the following:	6
Foreign language courses (if needed)	
General elective	
General Education courses	18
Studio Art Elective	3
	<hr/> 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
	<hr/> 30

Fourth Year	Credit Hours
Art History electives	12
General electives	18
	<hr/> 30

Bachelor of Arts in Studio Art

Mark Rooker, Coordinator

Phone: (540) 568-6410

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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 ¹	41
Foreign Language courses (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	17-31
Major requirements (listed below)	45
	<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, 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. Foundations Seminar ¹	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 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 230. Weaving and Other Fiber Arts	
ART 240. Metal and Jewelry	
ART 280. Sculpture	
Studio art courses (300-400 level) ²	6
General art electives (any level) ³	15
Art history elective (300-400 level) ⁴	3
	<hr/> 45

1 This course fulfills the College of Visual and Performing Arts writing-intensive requirement for the major.

2 The six credits of studio art electives (300-400 level) must be taken in a single studio area. Graphic design and interior design course credits cannot count as a concentration area. Studio art credits cannot be double-counted.

3 The 15 credits of general art electives (any level) must include a minimum of nine credit hours in studio art.

4 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
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
Cluster One: Skills for the 21st Century	9
General Education courses	9
	<hr/> 30

Second Year	Credit Hours
GARTH 206. Survey of World Art II: Renaissance to Modern	3
ART 205. Foundations Seminar	3
Required studio art course	3
Foreign language courses (if needed)	6
General Education courses	12
General art electives (any level)	3
	<hr/> 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

Fourth Year	Credit Hours
Studio art courses (300-400 level)	6
Art or general electives	24
	<hr/> 30

Bachelor of Fine Arts in Studio Art

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 emphasis should enroll.

The degree major of studio art allows students to study one of three areas of emphasis: general fine arts, graphic design and interior design.

These areas of emphasis 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.

Bachelor of Fine Arts – General Fine Arts Emphasis

Mark Rooker, Coordinator

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General fine arts students develop competency in several media (painting, drawing, 3-D computer animation, 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 ¹	41
University elective	1
Major requirements (listed below)	78
	<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.

Major and Emphasis Requirements

The general fine arts emphasis requires 78 credit hours in art, art history and art related courses, as the following list 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 108. Drawing II	3
ART 205. Foundations Seminar ¹	3
ART 305. Seminar in Aesthetics	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey of World Art II: Renaissance to Modern	3
Studio art courses (choose six of the following) ² :	18
ART 210 or ART 212. Animation	
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 260. Introductory Photography: Black and White	
ART 270, ART 272 or ART 274. Printmaking	
ART 280. Sculpture	
ART 350. Figure Drawing	
ART 353. Painting	
GRPH 200. Computer Graphics	
Studio Concentration (choose one of the following) ³ :	15
Ceramics	
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 up to 9 credits)	
Computer Animation	
ART 210. Animation: 3-D Modeling	
ART 212. Animation: 3-D Character Animation	
ART 410. Animation: Advanced Animation (repeatable up to 9 credits)	
ART 449. Senior Project in 3-D Animation	
Fiber Arts	
ART 230. Weaving and Other Fiber Arts	
ART 330. Intermediate Weaving and Other Fiber Arts	
ART 430. Advanced Fiber Arts (repeatable up to 9 credits)	
Metals and Jewelry	
ART 240. Metal and Jewelry	
ART 340. Intermediate Metal and Jewelry	
ART 440. Advanced Metal and Jewelry	
Complete an additional 6 credits in ART 340 and/or ART 440	
Painting and Drawing	
ART 350. Figure Drawing	
ART 353. Painting	
ART 452. Advanced Painting	
Complete an additional six credits from 400-level painting and drawing courses	
Photography	
ART 260. Introductory Photography: Black and White	
Complete two of the following courses:	
ART 360. Intermediate Photography: Experimental Black and White	
ART 362. Intermediate Photography: Digital	
ART 364. Intermediate Photography: Large Format	
Complete two of the following courses:	
ART 460. Advanced Photography: Alternative Processes	
ART 462. Advanced Photography: Color	
ART 464. Advanced Photography: Portfolio Development	
Printmaking	
ART 270. Printmaking: Screenprinting	
ART 272. Printmaking: Relief, Intaglio and Monotype	
ART 274. Printmaking: Lithography	
ART 470. Advanced Printmaking (repeatable up to 6 credits)	
Sculpture	
ART 280. Sculpture	
ART 380. Intermediate Sculpture	
ART 480. Advanced Sculpture (repeatable up to 9 credits)	
Art History electives (300-400 level) ⁴	6
Art and art-related electives ⁵	15
	<hr/> 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 may 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
ART 205. Foundations Seminar	3
Cluster One: Skills for the 21st Century	9-12
General Education courses	3-6
	<hr/> 30
Second Year	Credit Hours
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey II: Renaissance to Modern	3
Required two- and three-dimensional studio art electives	9
Studio concentration	6
General Education courses	9
	<hr/> 30
Third Year	Credit Hours
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
	<hr/> 30
Fourth Year	Credit Hours
Art history elective (300-400 level)	3
Studio concentration	6
General or art electives	9
General Education courses	12
	<hr/> 30

Bachelor of Fine Arts – Graphic Design Emphasis

Trudy Cole, Coordinator

Phone: (540) 568-3488

E-mail: coletl@jmu.edu

The graphic design program at JMU provides professional education within a liberal arts environment. Students learn the vocabulary, visual perception, methods, processes, craft and technology of graphic design, which includes specialized courses in print design, advertising, computer graphics, illustration, web design, package design and special topics courses addressing current design issues and problems.

The study of the historical and cultural context of the designer broadens students' knowledge base and nurtures their creativity. Frequent field trips, guest speakers and internship opportunities provide students with exposure to the professional field.

Admission Requirements

Admission to the B.F.A. emphasis 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 studio art as a major and completion of lower-division (100-200) prerequisite art courses does not guarantee admission into the program. Admission to upper-division GRPH courses is based on completion of all prerequisite art courses and merit as determined by a faculty review of portfolios submitted in satisfaction of the course 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 two weeks prior to pre-registration. Students should contact their faculty advisor or the coordinator of graphic design to determine the exact time and location for each semester's GRPH 208 portfolio review.

NOTE: Any art major may take GRPH 200, GRPH 202 or 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 GRPH upper-division courses for the following semester. Students not accepted will have one opportunity to reapply in the following semester or may choose to continue in another emphasis within the School of Art and Art History. For additional admission procedures, see Page 140.

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
University electives	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 Emphasis Requirements

The graphic design emphasis requires 78 credit hours in art, art history and art-related courses. Of these hours, 27 must be in graphic design courses, as the following list 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 108. Drawing II	3
ART 205. Foundations Seminar ¹	3
ART 305. Seminar in Aesthetics	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey of World Art II: Renaissance to Modern	3
Required two-dimensional studio art courses (choose two of the following):	6
ART 210 or ART 212. Animation	
ART 260. Introductory Photography: Black and White	
ART 270, ART 272 or ART 274. Printmaking	
ART 350. Figure Drawing	
ART 353. Painting	
Required three-dimensional studio art courses (choose two of the following):	6
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	

Concentration Courses (required)	21
GRPH 200. Computer Graphics	
GRPH 202. Design Methodology	
GRPH 206. Introduction to Typography	
GRPH 208. Portfolio Review	
GRPH 306. Intermediate Typography	
GRPH 406. Advanced Typography	
GRPH 408. Type and Image	
GRPH 410. Graphic Design Portfolio	
Concentration Courses (Electives)	6
GRPH 300. Illustration	
GRPH 340. Poster Design	
GRPH 304. Package Design	
GRPH/SMAD 312. Web Design	
GRPH 390. Independent Studies in Graphic Design	
GRPH 490. Independent Study in Graphic Design	
GRPH 496. Internship in Graphic Design ²	
Art and art-related electives ³	9
Art history electives (300-400 level) ⁴	6
	78

¹ This course fulfills the College of Visual and Performing Arts writing-intensive requirement for the major.
² A maximum of six credit hours of practicum or internship may count toward the degree.
³ Studio art and art related electives may include courses from general fine arts, interior design, graphic design and internships, but excludes courses taken to fulfill the studio concentration.
⁴ Excludes ARTH 490, ARTH 495, 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
ART 108. Drawing II	3
ART 205. Foundations Seminar	3
Cluster One: Skills for the 21st Century	9
General Education courses	6
	30
Second Year	Credit Hours
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey of World Art II: Renaissance to Modern	3
Required two- and three-dimensional studio art electives	6
Studio concentration	9
General Education courses	9
	30
Third Year	Credit Hours
Art history elective (300-400 level)	3
Required two- and three-dimensional studio art electives	6
Studio concentration	9
General or art elective (any level)	3
ART 305. Seminar in Aesthetics	3
General Education courses	6
	30
Fourth Year	Credit Hours
Studio concentration	6
General or art related electives	12
General Education courses	12
	30

Bachelor of Fine Arts – Interior Design Emphasis

Ronn Daniel, Coordinator

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JMU's interior design program educates leaders in the profession of interior design. The program offers an intensive education in the design process. The curriculum instills purpose, craft, technological competence and versatile thinking. The graduates are passionately dedicated to the creation of meaningful interiors.

Graduates of the program are encouraged to take the National Council for Interior Design Qualification exam after two years of work experience.

Admission Requirements

Admission to the B.F.A. emphasis in Interior Design is selective and competitive for a limited number of reserved seats in upper-division (300-400 level) interior design courses. Declaration of studio art as a major and completion of lower-division (100-200) prerequisite art courses does not guarantee admission into the program. Admission to upper-division INDE 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 INDE 208, Portfolio Review.

INDE 208 is a 0 credit, pass/fail course that functions as a prerequisite to enrollment in 300-400 level interior design courses. Students should enroll in INDE 208 during the semester in which they are enrolled in INDE 202. INDE 208 portfolios are reviewed during the spring semester (March) prior to pre-registration. Students should contact their faculty advisor or the area head of interior design to determine the exact time and location for the INDE 208 portfolio review.

NOTE: Any art major may take INDE 200 and INDE 202, but is restricted from taking any 300-400 level interior design course until INDE 208 has been taken and passed.

Accepted students who receive a passing grade for INDE 208 will be able to register for INDE 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 emphasis within the School of Art and Art History. For additional admission procedures, see Page136.

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
University electives	1
Major requirements (listed below)	78
	<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.

Major and Emphasis Requirements

The interior design emphasis requires 78 credit hours in art, art history and art-related courses. Of these credit hours, 45 must focus on interior design, 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 108. Drawing II	3
ART 205. Foundations Seminar ¹	3
ART 305. Seminar in Aesthetics	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey of World Art II: Renaissance to Modern	3
Choose three of the following:	9
ART 210. Animation: 3-D Modeling or	
ART 212. Animation: 3-D Character Animation	
ART 220. Introductory Ceramics: Potter's Wheel or	
ART 222. Introductory Ceramics: Handbuilding	
ART 240. Metal and Jewelry	
ART 260. Introductory Photography: Black and White	
ART 270, ART 272 or ART 274. Printmaking	
ART 280. Sculpture	
GRPH 200. Computer Graphics	
INDE 392. Topics in Interior Design	
INDE 420. CAD III: Digital Design	
INDE 470. Contemporary Design Theory	
INDE 490. Independent Studies in Interior Design	
MKTG 380. Principles of Marketing	
Required Concentration Courses ²	45
INDE 200. Interior Design Studio I	
INDE 202. Interior Design Studio II	
INDE 208. Portfolio Review	
INDE 210. Architectural Graphics	
INDE 220. CAD I: Digital Design	
INDE 320. CAD II: Digital Design	
INDE 300. Interior Design Studio III	
INDE 302. Interior Design Studio IV	
INDE 330. Materials and Methods I	
INDE 332. Materials and Methods II	
INDE 370. History of Interior Design	
INDE 400. Interior Design Studio V	
INDE 402. Interior Design Studio VI	
INDE 440. Professional Practice	
INDE 496. Internship	
ARTH 476. Modern Architecture	

78

¹ This course fulfills the College of Visual and Performing Arts writing-intensive requirement for the major.

² A maximum of six credit hours of practicum or internship may count towards the degree.

Recommended Schedule for Majors

First Year	Credit Hours
General Education	15
ART 205. Foundations Seminar	3
Art/Art History Foundation	12
	<hr/> 30

Second Year	Credit Hours
INDE 200. Interior Design Studio I	3
INDE 202. Interior Design Studio II	3
INDE 208. Portfolio Review	0
INDE 210. Architectural Graphics	3
INDE 220. CAD I: Digital Design	3
INDE 370. History of Interior Design	3
General Education	12
Art/Art History Foundation	6
	<hr/> 33

Third Year	Credit Hours
INDE 300. Interior Design Studio III	3
INDE 302. Interior Design Studio IV	3
INDE 320. CAD II: Digital Design	3
INDE 330. Materials and Methods I	3
INDE 332. Materials and Methods II	3
ARTH 476. Modern Architecture	3
General Education	9
Art/Art History Foundation	3
INDE 496. Internship	3
	<hr/> 33

Fourth Year	Credit Hours
INDE 400. Interior Design Studio V	3
INDE 402. Interior Design Studio VI	3
INDE 440. Professional Practice	3
Interior Design Electives	9
General Education	6
	<hr/> 24

Bachelor of Science in Studio Art

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 degree major of studio art allows students to study in one of two areas of emphasis: general fine arts or industrial design.

The emphasis in general fine arts seeks to:

- Develop students' visual vocabulary.
- Provide a range of elective options that complement the major in studio art.

The emphasis in industrial design 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.

Bachelor of Science – General Fine Arts Emphasis

Mark Rooker, Coordinator

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Degree Requirements

Required Courses	Credit Hours
General Education requirements ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3
University electives	28
Major requirements (listed below)	45
	<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 In addition to course work taken to fulfill General Education requirement.

Major and Emphasis Requirements

The general fine arts emphasis 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. Foundations Seminar ¹	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 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 230. Weaving and Other Fiber Arts	
ART 240. Metal and Jewelry	
ART 280. Sculpture	
Studio art electives (300-400 level) ²	6
General art electives (any level) ³	15
Art history elective (300-400 level) ⁴	3
	<hr/> 45

¹ This course fulfills the College of Visual and Performing Arts writing-intensive requirement for the major.

² The six credits of studio art electives (300-400 level) must be taken in a single studio area. Graphic design and interior design course credits cannot count as a concentration area. Studio art credits cannot be double-counted.

³ Must include a minimum of nine credit hours in studio art. Up to six hours in art history may be included.

⁴ 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
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
Cluster One: Skills for the 21st Century	9-12
General Education	6-9
	<hr/> 30

Second Year	Credit Hours
GARTH 206. Survey of World Art II: Renaissance to Modern	3
ART 205. Foundations Seminar	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
	<hr/> 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
	<hr/> 30
Fourth Year	Credit Hours
Studio art electives (300-400 level)	6
General electives	9-12
General Education courses	12-15
	<hr/> 30

Bachelor of Science – Industrial Design Emphasis

William Tate, Coordinator

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Degree Requirements

Required Courses	Credit Hours
General Education requirements ^{1,2}	41
Quantitative requirement ^{3,4}	3
Scientific Literacy requirement ³	3
Major requirements (listed below)	78
	<hr/> 125 ⁵

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 and GISAT courses may double count in the emphasis.

3 In addition to course work taken to fulfill General Education requirement.

4 May be fulfilled by successfully completing GISAT 141.

5 The total credit hours are typically fewer because of the option of double counting several courses with General Education.

Major and Emphasis Requirements

The industrial design emphasis requires 60 credit hours in art and art history courses and a combined 18 credits in electives from ISAT and COB, as the following list 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. Foundations Seminar	3
GARTH 205. Survey of World Art I: Prehistoric to Renaissance ¹	3
GARTH 206. Survey of World Art II: Renaissance to Modern ¹	3
Art and Design Electives (choose four of the following):	12
ART 210. Intermediate 3-D Computer Animation	
ART 240. Metal and Jewelry	
ART 280. Sculpture	
ART 220. Introductory Ceramics: Potter's Wheel	
INDE 200. Interior Design Studio I	
INDE 202. Interior Design Studio II	
INDE 210. Architectural Graphics	
INDU 320. CAD II: Digital Design	
INDU 420. CAD III: Digital Design	
INDU 496. Internship in Industrial Design	
Art and Design Requirements	15
INDU 390. Industrial Design Studio (repeat three times)	
INDU 220. CAD I: Digital Design	
GRPH 200. Computer Graphics	
Art and art-related electives (200-400 level) ⁴	9

Art history electives (300-400 level) ³	6
ARTH 303. History of Design (required)	
Choose one of the following:	
HIST 327. History of Technology in America	
INDE 370. History of Interior Design	
ARTH 372. Modern Art from 1900-1945	
ARTH 472. Modern Art since 1945	
ARTH 476. Modern Architecture	
ISAT electives (choose five of the following):	15
GISAT 151. Analytical Methods I ²	
ISAT 152. Analytical Methods II	
ISAT 211. Issues in Modern Production	
ISAT 311. Role of Energy in Modern Society	
ISAT 331. Automation in Manufacturing	
ISAT 410. Sustainable Energy Development	
ISAT 411. Energy Economics and Policy	
ISAT 430. Manufacturing Processes	
ISAT 431. Materials Science in Manufacturing	
ISAT 435. Integrated Product and Process Development	
ISAT 471. Transportation: Energy, Environment and Society	
ISAT 480. Selected Topics in Integrated Science and Technology	
College of Business electives (choose one of the following):	3
COB 191. Business and Economic Statistics	
COB 218. Legal Environment of Business	
MKTG 380. Principles of Marketing	
	<hr/> 78

1 May double-count toward General Education Cluster Two.

2 May double-count toward General Education Cluster Three.

3 Excludes ARTH 490, ARTH 495 and ARTH 499

4 Art and art-related electives may include courses from general fine arts, interior design, graphic design and internships, but excludes courses taken to fulfill the studio concentration. Up to six hours in art history may be included.

Recommended Schedule for Majors

First Year	Credit Hours
ART 102. Two Dimensional Design	3
ART 104. Drawing I	3
Cluster One: Skills for the 21st Century	9
Cluster Two: Art and Humanities ¹	6
G HIST 101. World History to 1500	
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	
Cluster Three: The Natural World ¹	10
GISAT 112. Environmental Issues in Science and Technology	
GISAT 113. Issues in Science and Technology: Living Systems	
GISAT 141. Analytical Methods	
	<hr/> 31

1 May double-count toward General Education program

Second Year	Credit Hours
GARTH 206. Survey of World Art II: Renaissance to Modern	3
ART 106. Three Dimensional Design	3
ART 205. Foundations Seminar	3
ISAT elective	3
Cluster Two: Arts and Humanities	3
Cluster Four: Social and Cultural Processes	7
Cluster Five: Individuals in the Human Community	6
	<hr/> 31

Third Year	Credit Hours
INDU 390. Industrial Design Studio	3
INDU 222. CAD I: Digital Design	3
Concentration elective	3
Art electives	3
ARTH 303 or Art History elective (300-400 level)	3
ISAT electives	6
COB electives	3
	<hr/> 27

Fourth Year	Credit Hours
INDU 390. Industrial Design Studio	6
Concentration electives	9
ARTH 303 or Art History elective (300-400 level)	3
Art electives	3
ISAT electives	6
General electives	4
	<hr/> 31

Teaching Licensure

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In addition to the general education and academic major requirements, students desiring PK-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.
- Twelve credits must be earned in two-dimensional media.
- Twenty-seven studio credits, with a minimum of six credits in each of three separate studio areas, must be earned.

Course Requirements

The following is a list of the required courses leading to PK-12 art licensure and a suggested sequence of when each may be taken.

	Credit Hours
ARED 300. Art Activities in the Elementary School (fall, third year)	3
ARED 302. Secondary Art Education Methods (spring, third year)	3
ART 304. Methods of Art Criticism (spring, second 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)	3
	<hr/> 15

Required Education & Psychology Courses	Credit Hours
GPSYC 160. Life Span Human Development ¹	3
EDUC 360. Foundations of American Education	3
READ 420. Content Area Literacy	2
EDUC 480. Student Teaching (spring, fourth year)	16
	<hr/> 24

¹ GPSYC 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 art, graphic design, industrial design, or interior design courses, as the following chart shows. 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) ¹	12
	<hr/> 18

¹ Art studio courses are restricted to ART, GRPH, INDE and INDU courses

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. The student's minor program is subject to approval by the program director.

Required Courses	Credit Hours
GARTH 205. Survey of World Art I: Prehistoric to Renaissance	3
GARTH 206. Survey of World Art II: Renaissance to Modern	3
Art history courses (300-400 level) ¹	12
	<hr/> 18

¹ Required ARTH courses in Art emphasis program may count toward the Art History minor. Excludes ARTH 490, ARTH 495 and ARTH 499.

Department of Biology

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Assistant Professors

M. Bechtel, T. Bloss, J. Brown, R. Chodrow, S. Cresawn, K. Gobetz, H. Griscom, C. May, K. Seifert

Instructor

A. Pesce

Mission Statement

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
- Biotechnology¹
- Botany
- Clinical Laboratory Sciences
- Dentistry
- Ecology and Environmental Science
- Epidemiology
- Forensic Science
- Forestry²
- 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

¹ See additional information regarding this affiliate program on Page 90.

² See additional information regarding this affiliate program on Page 148.

Students interested in pursuing any of the career opportunities mentioned above should contact the biology office at (540) 568-6225. An appropriate adviser will be assigned for mentoring and course selection purposes.

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: **GBIO** 103, **BIO** 114, **BIO** 124, **BIO** 214, **BIO** 224, **CHEM** 131, **CHEM** 131L, **CHEM** 132 and **CHEM** 132L. In order to be considered as possible transfer credit for **BIO** 114 and 124, the entire year of a freshman course must be completed at the "C" or higher level. Matriculated JMU students may not obtain **BIO** 114 and 124 through transfer credit. In order for **BIO** 270 and 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. A maximum of four hours of lower division biology elective credit applicable toward the major or minor may be transferred as BIO 200. 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.

Degree and Major Requirements

Bachelor of Science 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 20 credit hours at the 300 and 400 level. Specific requirements include four core courses (BIO 114, BIO 124, BIO 214 and BIO 224), 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 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 ¹	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major requirements (listed below) and electives	70-74
	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 Requirements

Core Courses	Credit Hours
BIO 114. Organisms	4
BIO 124. Ecology and Evolution	4
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4

Cognate Requirements

The following five groups of support courses are required for the biology major. Consult your academic adviser about which courses are appropriate.

	Credit Hours
1) Complete all of the following:	8
CHEM 131. General Chemistry I	3
CHEM 131L. General Chemistry Laboratory	1
CHEM 132. General Chemistry II	3
CHEM 132L. General Chemistry Laboratory	1
2) Complete all of the following:	8
CHEM 341. Organic Chemistry Lecture I	3
CHEM 342. Organic Chemistry Lecture II	3
CHEM 346L. Organic Chemistry Laboratory	2
Note: Chemistry beyond the minimum requirement, especially biochemistry, is recommended in many areas of biology. Consult with your adviser about which courses are appropriate.	
3) Choose one of the following sets of courses:	4-8
MATH 231. Calculus with Functions I	4
MATH 232. Calculus with Functions II	4
OR	
MATH 235. Calculus I	4
Note: Mathematics beyond the minimum requirement is desirable in many areas of biology. Consult your adviser about which courses are appropriate.	
4) Choose one of the following courses:	3-4
MATH 220. Elementary Statistics	3
MATH 285. Data Analysis	4
MATH 318. Introduction to Probability and Statistics	4
Note: Statistics beyond the minimum requirement is desirable in many areas of biology. Consult your adviser about which courses are appropriate.	
5) Choose one of the following sets of courses:	8
PHYS 125. Principles of Physics with Biological Applications I	4
PHYS 126. Principles of Physics with Biological Applications II	4
OR	
PHYS 140-140L. College Physics I with Laboratory	4
PHYS 150-150L. College Physics II with Laboratory	4

Upper-level Biology Course Requirements

Students in the biology major must complete at least 20 credit hours at the 300 and 400 level. One course must be from a group of courses on organismal diversity. Two courses must have a laboratory component. Three credits of independent research (BIO 495, 497 and/or 499) may be used for one, but only one, of the laboratory courses.

1) Choose at least one course from the following list of organismal diversity courses:	
BIO 305. Ornithology	
BIO 310. General Entomology	
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 380. General Microbiology	
BIO 386. Field Botany	
BIO 409. Marine and Freshwater Invertebrates	
BIO 470. Morphology of Nonvascular Plants	
BIO 486. Systematics of Vascular Plants	
2) Choose at least two courses from the following list of laboratory courses:	
BIO 305. Ornithology	
BIO 310. General Entomology	
BIO 316. Principles of Animal Development	
BIO 320. Comparative Anatomy of Vertebrates	
BIO 340. Morphology and Anatomy of Vascular Plants	
BIO/MATH 342. Mathematical Models in Biology	
BIO 345. Animal Field Biology	
BIO 365. Laboratory in Human Uses of Plants (must be taken with BIO 364)	

BIO 370. Animal Physiology
BIO 380. General Microbiology
BIO 386. Field Botany
BIO 403. Animal Communication
BIO 410. Advanced Human Anatomy
BIO 421. Medical Parasitology Laboratory (must be taken with BIO 420)
BIO 443. Immunology Laboratory (must be taken with BIO 442)
BIO 445. Neurobiology
BIO 451. Ecological Systems
BIO 452. Population Ecology
BIO 455. Plant Physiology
BIO 456. Landscape Ecology
BIO 458. Comparative Animal Physiology
BIO 459. Freshwater Ecology
BIO 460. Plant Cell and Tissue Culture
BIO 470. Morphology of Nonvascular Plants
BIO 480. Advanced Molecular Biology
BIO 482. Human Histology
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, Burruss 242. These can be repeated with a change in topic. Only up to 12 credits can be applied toward the 40-hour biology course requirement.

Elective Biology Courses

Additional biology courses must be selected to complete the 40 credit hour program. 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 with a faculty mentor (to a maximum of eight credits).

A maximum of eight credits of BIO 494, 495, 496, 497, 499 and ISCI 450 can be counted toward the biology major.

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 114, 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 114. Organisms ¹	4
BIO 124. Ecology and Evolution	4
CHEM 131-132. General Chemistry Lectures ¹	6
CHEM 131L-132L. General Chemistry Laboratories	2
Mathematics courses ¹	4-8
General Education: Cluster One	9-12
	<hr/> 29-33

¹ Fulfills General Education: Cluster Three.

Second Year	Credit Hours
BIO 214. Cell and Molecular Biology	4
BIO 224. Genetics and Development	4
CHEM 341-342. Organic Chemistry Lecture	6
CHEM 346L. Organic Chemistry Laboratory	2
Mathematics course	3-4
General Education: from Clusters Two, Four and Five	12
	<hr/> 31-32

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
	<hr/> 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
	<hr/> 31

Concentration in Ecology and Environmental Biology

Students choosing a concentration in ecology and environmental biology (biology/EEB majors) must complete 40 credit hours of biology courses. Specific requirements include four core courses and at least 24 credit hours chosen from a list of elective courses at the 300 and 400 level. This must include one course with an emphasis on organismal diversity and at least two upper-division laboratory or field courses. Three credit hours of independent research (BIO 497 and/or 499) may be used for one, but only one, of the laboratory courses.

In addition, biology/EEB majors must choose from a set of cognate courses that include chemistry, geography, mathematics, statistics and physics. Students are encouraged to participate in independent research with a faculty mentor. Credits earned doing research will count toward the biology/EEB major, but some restrictions apply.

The biology/EEB concentration differs from the biology major in the following ways:

- Students must take two additional cognate courses:
MATH 321. Analysis of Variance and Experimental Design
or BIO 454. Introduction to Biometrics
GEOG 366. Introduction to Geographic Information Science
or BIO 457. Biological Applications of Geographic Information Systems
- For their upper-level Biology course requirements, students must complete at least 24 credit hours from the following list. At least one of these must be an organismal diversity course¹ and at least two must be laboratory/field courses². 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. Students are encouraged to participate in independent research with a faculty mentor (to a maximum of eight credits). In addition to the courses listed below, a maximum of eight credits of BIO 494, 495, 496, 497, 499 and ISCI 450 can be counted toward the biology/EEB concentration.
BIO 305. Ornithology^{1,2}
BIO 310. General Entomology^{1,2}
BIO 320. Comparative Anatomy of Vertebrates^{1,2}
BIO 340. Morphology and Anatomy of Vascular Plants^{1,2}
BIO/MATH 342. Mathematical Models in Biology
BIO 345. Animal Field Biology
BIO 370. Animal Physiology²
BIO 380. General Microbiology^{1,2}
BIO 386. Field Botany^{1,2}
BIO/PSYC 395. Comparative Animal Behavior
BIO 403. Animal Communication
BIO 404. Evolutionary Analysis
BIO 409. Marine and Freshwater Invertebrates¹
BIO 451. Ecological Systems²
BIO 452. Population Ecology²
BIO 453. Microbial Ecology and Evolution

- BIO 454. Introduction to Biometrics
- BIO 455. Plant Physiology²
- BIO 456. Landscape Ecology
- BIO 457. Biological Applications of Geographic Information Systems²
- BIO 458. Comparative Animal Physiology²
- BIO 459. Freshwater Ecology²
- BIO 465. Environmental Toxicology²
- BIO 466. Toxicology Seminar
- BIO 470. Morphology of Nonvascular Plants^{1, 2}
- BIO 486. Systematics of Vascular Plants^{1, 2}

Note: It is highly recommended that students take additional upper-level degree elective courses in geography/GIS (such as GEOG 466, GIS & 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.

Biotechnology

Dr. Jonathan Monroe, Director

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Web site: <http://www.jmu.edu/biology/biotechnology.shtml>

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, interdisciplinary B.S. degree program for a major in biotechnology. 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 must complete 47-53 credit hours of science foundation courses, 17 credit hours of biotechnology transition and core courses, and 15 credit hours of concentration courses. With the advice and approval of a concentration adviser, each student selects the courses for his or her concentration area. Three broad areas of concentrations are suggested to serve a spectrum of student needs and desires. A research concentration would prepare students for graduate school or entry into a research laboratory. An industry concentration would prepare students for entry into the biotechnology industry. A custom concentration can be assembled for a specialized area of study such as bioinformatics, genomics or agricultural biotechnology.

For a complete description of the biotechnology major, see Page 90.

Dual Degree Programs

Forestry

Mark Hudymx, James Madison University Liaison

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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 96 credit hours, all JMU general education requirements, the biology core requirements, BIO 455 and five additional hours in biology. Also, the student must take the cognate courses for biology majors in chemistry, mathematics and physics, courses in business (ACTG 241, ECON 201 and GECON 200) 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 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, then they will be admitted into the graduate program of the Department of Forestry at Virginia Tech, where they will spend approximately three semesters (12 months) taking additional forestry and forestry-related 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

See Page 101 for the description of the interdisciplinary biochemistry and molecular biology minor.

Biology Minor

Students choosing to minor in biology must complete a program of at least 20 credit hours including:

	Credit Hours
BIO 114. Organisms	4
BIO 124. Ecology and Evolution	4
BIO 214. Cell and Molecular Biology	3-4
or BIO 220. Cell Biology	
Biology electives	8-9
	<hr/> 20

Credit by Examination

When evidence of sufficient background or preparation is presented, the Department of Biology offers credit by examination in most of its 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 section of the catalog.

Department of Chemistry and Biochemistry

Dr. Richard D. Foust, Department Head

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Location: Physics and Chemistry Building, Room 1186

Web site: www.jmu.edu/chemistry/

Professors

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Associate Professors

B. Augustine, K. Caran, S. Lewis, K. Minbiole, D. Mohler, B. Reisner

Assistant Professors

K. Layman, V. Mariani, Y. Zhang

Lecturer

D. Warnaar

Mission Statement

The Department of Chemistry and Biochemistry offers the B.S. degree for a major in chemistry, biochemistry and in chemistry/chemical education. 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)

Degree and Major Requirements

Bachelor of Science in Chemistry

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major requirements (listed below) and electives	70-74
	<hr/> 120

NOTE: The credit hours for major requirements will vary based on the chosen concentration.

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

	Credit Hours
CHEM 131-132. General Chemistry I-II	6
CHEM 135L. Special General Chemistry Lab ¹	1
CHEM 136L. Special General Chemistry Lab ¹	2
CHEM 331. Physical Chemistry I	3
CHEM 341-342. Organic Chemistry Lecture	6
CHEM 351. Analytical Chemistry	4
CHEM 361. Biochemistry I	3
CHEM 370. Inorganic Chemistry I	3
CHEM 387L-388L. Integrated Inorganic/Organic Laboratory	4
CHEM 481-482. Literature and Seminar I-II	2
¹ CHEM131L 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 particular attention being given to junior and/or senior research projects.

Concentrations

Concentration I: American Chemical Society Accredited Programs

Required Courses for all ACS Certified Degrees

Core Chemistry Courses

CHEM 352. Instrumental Analysis

CHEM 352L. Instrumental Analysis Laboratory

CHEM 432. Physical Chemistry II

CHEM 438L. Physical Chemistry Laboratory

In addition, to ensure a sound background in physics and mathematics the following courses are required:

MATH 235-236. Calculus I-II (or Math 231, 232, 236) 8-2

PHYS 240-250. University Physics I-II 6

PHYS 140L-150L. General Physics Laboratory 2

These courses may not be taken credit/no-credit.

Program-Specific Courses

ACS Certified Chemistry Major:

CHEM 300. Numerical Methods in Chemistry 1

CHEM 470. Inorganic Chemistry II 3

ACS Certified Biochemistry Major:

BIO 380. General Microbiology 4

BIO 480. Molecular Biology 4

CHEM 362. Biochemistry II 3

CHEM 366L. Biochemistry Laboratory 2

This program also meets the recommended undergraduate degree requirements of the American Society for Biochemistry and Molecular Biology for a major in biochemistry.

ACS Certified Materials Chemistry

CHEM 275. Introduction to Materials Science 3

CHEM 445. Polymer Chemistry 4

PHYS 381. Substituted for CHEM 438L/Materials 3

Characterization Lab

MATH 237. Calculus III 4

MATH 238. Linear Algebra/Diff. Equations 4

ISAT 432. Materials Design & Selection 3

ACS Certified Degree in Chemical Education:

See "Licensure Programs," Page 69.

Concentration II: General

Students following the general concentration must take, in addition to the core courses, the following:

CHEM 336L. Applied Physical Chemistry Laboratory 1

CHEM 352. Instrumental Analysis 3

CHEM 352L. Instrumental Analysis Laboratory 2

Choose one:

MATH 235-236. Calculus I-II 8

MATH 231-232. Calculus with Functions I-II and 12

MATH 236. Calculus II

PHYS 240-250. University Physics I-II¹ 6

PHYS 140L-150L. General Physics Laboratory 2

Upper division chemistry elective 3

¹ Students electing the general concentration are urged to take the same physics courses recommended under Concentration I; however, in special cases, PHYS 140-150 may be substituted with approval of the student's department adviser.

Concentration III: Chemistry/Business

This program is designed for business-oriented chemistry students preparing for careers in patent law, technical sales, technical service and related areas. Students following the chemistry/business concentration must take, in addition to core courses, the following courses:

COB 241. Financial Accounting 3

COB 242. Managerial Accounting 3

CHEM 336L. Applied Physical Chemistry Laboratory 1

ECON 201. Principles of Economics (Micro) 3

GECON 200. Introduction to Macroeconomics 3

FIN 345. Managerial Finance 3

MATH 231-232 or MATH 235. Introductory Calculus I-II¹ 8 or 4

MGT 305. Management and Organizational Behavior 3

MKTG 380. Principles of Marketing 3

PHYS 140-150. College Physics I-II 6

PHYS 140L-150L. General Physics Laboratory 2

Chemistry or approved science courses 5

Although business electives may be taken by students in this concentration, the total number of business credit hours may not exceed 27.

¹ Additionally, MATH 236 is strongly recommended.

Recommended Schedule for Majors

First Year Credit Hours

CHEM 131-132. General Chemistry I-II 6

CHEM 135L-136L. Special General Chemistry Laboratory (or 131L-132L) 3

MATH 235-236. Calculus I-II 8

General Education courses or electives 14

31

Second Year Credit Hours

CHEM 341-342. Organic Chemistry Lecture 6

CHEM 370. Inorganic Chemistry I 3

CHEM 387L-388L. Integrated Inorganic/Organic Laboratory 4

PHYS 240-250. University Physics I-II 6

PHYS 140L-150L. General Physics Laboratory 2

General Education courses or electives 9

30

Third Year Credit Hours

CHEM 331. Physical Chemistry I 3

CHEM 351. Analytical Chemistry 4

CHEM 352-352L. Instrumental Analysis with Laboratory 5

CHEM 481-482. Literature and Seminar I-II 2

General Education courses or electives 16

30

Fourth Year Credit Hours

CHEM 361. Biochemistry I 3

CHEM 432. Physical Chemistry II 3

CHEM 438L. Physical Chemistry Laboratory 2

General Education courses or electives 21

29

Minor Requirements

Biochemistry and Molecular Biology

Minor

See Page 101 for the description of the interdisciplinary biochemistry minor.

Chemistry Minor

The requirements for a chemistry minor are 24 credit hours in chemistry, distributed as follows:

CHEM 131-132. General Chemistry I-II

CHEM 131L-132L. General Chemistry Laboratories

Choose from the following:

CHEM 221-221L. Concepts of Organic Chemistry with Laboratory

CHEM 341-342-346L. Organic Chemistry Lecture with Laboratory

CHEM 331. Physical Chemistry I

CHEM 351. Analytical Chemistry

Choose from the following:

CHEM 336L. Applied Physical Chemistry Laboratory

CHEM 432. Physical Chemistry II with

CHEM 438L. Physical Chemistry Laboratory

An approved elective such as:

CHEM 370. Inorganic Chemistry I

CHEM 361. Biochemistry I

Any 3 credit 300 or 400 level chemistry course

In order to complete this program, prerequisite courses in mathematics and physics are required.

Materials Science Minor

See Page 116 for the description of the interdisciplinary material sciences 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

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Professors

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Associate Professors

R. DePaolis, D. Halling, J. Marler, C. O'Donoghue, J. Spindel

Assistant Professors

C. Dudding, K. Johnson, A. Rout

Instructors

S. Ingram, C. Jacobson, M. Powell

Mission Statement

The Department of Communication Sciences and Disorders is committed to providing 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 provides 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 its Applied Laboratory the department seeks to provide outreach services to the region as part of the clinical teaching component of its mission and to provide 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 (1) graduate study in the areas of speech-language pathology or audiology, (2) graduate school in a related discipline and (3) a liberal education in the discipline of communication sciences and disorders.
- Offering a minor in communication sciences and disorders for undergraduate students majoring in related fields.

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 department's 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. Effective 2007, ASHA will require 75 post-baccalaureate credits for clinical certification in audiology and in 2012 a doctoral degree will be required.

Applied Speech, Hearing and Language Laboratory

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 Activities and Organizations

- National Student Speech-Language-Hearing Association
- National Association of Future Doctors of Audiology

Degree and Major Requirements Bachelor of Arts in Communication Sciences and Disorders

Degree Requirements

Required Courses	Credit Hours
General Education ^{1,2}	41
Foreign Language classes (intermediate level required) ³	0-14
Philosophy course(s) (in addition to General Education courses)	3
University electives	28-34
Major requirements (listed below)	48
	<hr/> 120

1 A biological sciences course is required. It may be taken as part of the General Education courses or as a non-departmental required course.

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 310. Biostatistical Methods for Communication Sciences and Disorders	3
CSD 318. Aural Rehabilitation	3
CSD 314. Phonological and Language Disorders	3
CSD 415. Neuroanatomy and Neurogenic Communication Disorders	3
CSD 416. Organic Speech Disorders	3
CSD 470. Methods and Observation	3
CSD 471. Methods and Observation in Audiology	3
GPSYC 101. General Psychology	3
GPSYC 160. Life Span Human Development	3
EXED 200. Nature and Issues of Disabilities	3
	<hr/> 48

Bachelor of Science in Communication Sciences and Disorders

Degree Requirements

Required Courses	Credit Hours
General Education ^{1,2}	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 (listed below)	48
	<hr/> 120

1 A biological sciences course is 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.

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 310. Biostatistical Methods for Communication Sciences and Disorders	3
CSD 318. Aural Rehabilitation	3
CSD 314. Phonological and Language Disorders	3
CSD 415. Neuroanatomy and Neurogenic Communication Disorders	3
CSD 416. Organic Speech Disorders	3
CSD 470. Methods and Observation	3
CSD 471. Methods and Observation in Audiology	3
GPSYC 101. General Psychology	3
GPSYC 160. Life Span Human Development	3
EXED 200. Nature and Issues of Disabilities	3

Recommended Schedule for B.A. and B.S.

Majors

First Year	Credit Hours
Cluster One: Skills for the 21st century	9-12
GPSYC 101. General Psychology	3
General Education courses	15
	<hr/> 27-30

Second Year	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
GPSYC 160. Life Span Human Development	3
SPED 200. Nature and Issues of Disabilities	3
General Education courses	9
Electives	4
	<hr/> 31

Third Year	Credit Hours
CSD 300. Language Development	3
CSD 301. Audiology	3
CSD 310. Biostatistical Methods for CSD	3
CSD 318. Aural Rehabilitation	3
General Education courses	10
Electives	9
	<hr/> 31

Fourth Year	Credit Hours
CSD 314. Phonological and Language Disorders	3
CSD 415. Neuroanatomy and Neurogenic Communication Disorders	3
CSD 416. Organic Speech Disorders	3
CSD 470. Methods and Observation	3
CSD 471. Methods and Observation in Audiology	3
Electives	15-18
	<hr/> 30-33

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 for courses.

School of Communication Studies

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Associate Professors

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Assistant Professors

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Lecturers

E. Armstrong, A. Brickner, M. Brigham, E. Clarke, A. Conis, M. Gulotta, G. Hazard, T. Herron, C. Johnson, J. Krauklis, P. Mabry, L. Mayfield, A. Noland, K. Owens, A. Roth, S. Smitherman, S. Sylvest, T. Wray, K. Young

Mission Statement

The School of Communication Studies provides students with opportunities to study message analysis and intervention resulting from human interactive processes involving content and relationship dimensions of sources, receivers, channels and contexts. Practical application of communication skill competencies across modern concentrations prepare students for global citizenship, the workplace of the 21st century, and personal growth and development. Examination of research traditions in social science, historical/critical methods and art as well as ethics and professional standards complement student preparation for graduate and professional schools and careers.

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.

Below is a complete list of the school's activities and organizations.

Activities

- Institute for Conflict Analysis and Interventions: Activities concern the use of methods of alternative dispute resolution for resolving conflicts.
- Communication Evaluation Conference: An annual, student-organized program in which student research papers on communication topics are presented.
- 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.
- Health Communication Institute: Students interested in effective communication with health communication professionals can work with the institute in a practicum or directed project.

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.

Admission to the Major

Admission to JMU does not guarantee admission to the School of Communication Studies. Students must submit an application for admission to the major during the semester in which they complete the SCOM course requirements. The School of Communication Studies reviews applications for admission to the major each semester. All students interested in majoring in the program must apply for a limited number of spaces. Admission to the major or minor is based on availability to the most qualified students. Applicants with an average of 2.7 in SCOM 240 and SCOM 245 and a cumulative 2.7 GPA at JMU will be automatically admitted. Other applicants will be admitted based on qualifications and availability of spaces.

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 245, to her/his major.

Policy for Students Transferring from Another Institution

Admission to JMU does not guarantee admission to the School of Communication Studies. The School of Communication Studies reviews applications for admission to the major and minor each semester. All transfer students interested in majoring or minoring in the program must apply for a limited number of spaces. Admission to the major or minor is based on availability to the most qualified students. Applicants with an average of 2.7 in SCOM 240 and SCOM 245 and a cumulative 2.7 GPA at JMU will be automatically admitted. Other applicants will be admitted based on qualifications and availability of spaces. Once admitted to the School of Communication Studies, a transfer student may petition for SCOM credit for courses taken at previous institutions.

Minimum Grades

Any course taken to fulfill a degree requirement in communication studies must be completed with a minimum grade of "C" (2.0). A communication studies course completed with a grade of "C-" or "D," including courses to fulfill JMU's baccalaureate degree requirements, may be credited toward graduation but may not be included as course work toward a communication studies major or minor.

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.

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:

- Fifteen hours of required courses
- Successful completion of SCOM 394, 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.
- 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 ¹	41
Foreign language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives ³	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. The Process of Human Communication	3
SCOM 242. Presentational Speaking	3
SCOM 245. Signs, Symbols and Social Interaction	3
SCOM 280. Introduction to Communication Research ¹	3
SCOM 341. Persuasion	3
SCOM 394. Core Assessment in Communication Studies	0
Depth Requirement: (15 hours required from the depth areas below)	
Communication Skills (choose one of the following)	3
SCOM 243. Oral Interpretation	
SCOM 247. Small Group Communication	
SCOM 261. Public Relations Techniques I: Written	
SCOM 332. Mediation	
SCOM/JUST 333. Negotiation	
SCOM 340. Principles and Processes of Interviewing	
SCOM 342. Argument and Advocacy	
SCOM 358. Business and Professional Communication Studies	
SCOM 361. Public Relations Techniques II: Visual	
SCOM 367. Advanced Public Relations Writing	
SCOM 449. Communication Training	
Communication Research (choose one of the following)	3
SCOM 381. Communication Criticism	
SCOM 383. Communication Research Methodologies	
SCOM 385. Qualitative Communication Research Method	
SCOM 386. Communication Survey Research	
Communication Theory and Context (choose three of the following) ²	9
SCOM 231. Introduction to Alternative Dispute Resolution	
SCOM 248. Intercultural Communication	
SCOM 260. Introduction to Public Relations	
SCOM 270. Introduction to Health Communication	
SCOM/ANTH 305. Language and Culture	
SCOM 313. Topics in Communication Studies (1-3 credits)	
SCOM 320. Introduction to Interpersonal Communication	
SCOM 330. Special Topics in Interpersonal Communication	
SCOM 331. Communication and Conflict	

SCOM 345. Nonverbal Communication
SCOM 346. Free Speech in America
SCOM 347. Communication, Diversity and Popular Culture
SCOM/WMST 348. Communication and Gender
SCOM 349. Ethnographic Approaches to Communication Studies
SCOM 350. Organizational Communication
SCOM/WRIT 351. Visual Rhetoric
SCOM 352. Communication and Social Movements
SCOM 353. American Political Culture and Communication
SCOM 354. Communication, Environment and Environmentalism
SCOM 371. Talking through Tough Cases: Ethical Principles and Practices in Communication Studies
SCOM 395. Study Abroad Seminar
SCOM/WMST/WRITC 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 448. Seminar in Cultural Communication
SCOM 450. Advanced Studies in Organizational Communication
SCOM 460. Public Relations Management
SCOM 461. Public Relations Campaigns
SCOM 463. International Public Relations
SCOM 467. Global Public Relations Seminar
SCOM 470. Health Communication Campaigns
SCOM/SMAD/POSC 472. Media and Politics

Additional communication studies electives	9
	39

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 ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
University electives ³	21-46
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. 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 with a grade of "C" (2.0) or better. MATH 220 can count as either a General Education or a B.S. quantitative requirement, but not both.

Major Requirements

Courses	Credit Hours
Core Requirements	
SCOM 240. The Process of Human Communication	3
SCOM 242. Presentational Speaking	3
SCOM 245. Signs, Symbols and Social Interaction	3
SCOM 280. Introduction to Communication Research ¹	3
SCOM 341. Persuasion	3
SCOM 394. Core Assessment in Communication Studies	0

Depth Requirement: (15 hours required from the depth areas below)

Communication Skills (choose one of the following)

3

- SCOM 243. Oral Interpretation
- SCOM 247. Small Group Communication
- SCOM 261. Public Relations Techniques I: Written
- SCOM 332. Mediation
- SCOM/JUST 333. Negotiation
- SCOM 340. Principles and Processes of Interviewing
- SCOM 342. Argument and Advocacy
- SCOM 358. Business and Professional Communication Studies
- SCOM 361. Public Relations Techniques II: Visual
- SCOM 367. Advanced Public Relations Writing
- SCOM 449. Communication Training

Communication Research (choose one of the following)

3

- SCOM 381. Communication Criticism
- SCOM 383. Communication Research Methodologies
- SCOM 385. Qualitative Communication Research Method
- SCOM 386. Communication Survey Research

Communication Theory and Context (choose three of the following)²

9

- SCOM 231. Introduction to Alternative Dispute Resolution
- SCOM 248. Intercultural Communication
- SCOM 260. Introduction to Public Relations
- SCOM 270. Introduction to Health Communication
- SCOM/ANTH 305. Language and Culture
- SCOM 313. Topics in Communication Studies (1-3 credits)
- SCOM 320. Introduction to Interpersonal Communication
- SCOM 330. Special Topics in Interpersonal Communication
- SCOM 331. Communication and Conflict
- SCOM 345. Nonverbal Communication
- SCOM 346. Free Speech in America
- SCOM 347. Communication, Diversity and Popular Culture
- SCOM/W MST 348. Communication and Gender
- SCOM 349. Ethnographic Approaches to Communication Studies
- SCOM 350. Organizational Communication
- SCOM/WRIT 351. Visual Rhetoric
- SCOM 352. Communication and Social Movements
- SCOM 353. American Political Culture and Communication
- SCOM 354. Communication, Environment and Environmentalism
- SCOM 371. Talking through Tough Cases: Ethical Principles and Practices in Communication Studies
- SCOM 395. Study Abroad Seminar
- SCOM/W MST/WRITC 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 448. Seminar in Cultural Communication
- SCOM 450. Advanced Studies in Organizational Communication
- SCOM 460. Public Relations Management
- SCOM 461. Public Relations Campaigns
- SCOM 463. International Public Relations
- SCOM 467. Global Public Relations Seminar
- SCOM 470. Health Communication Campaigns
- SCOM/SMAD/POSC 472. Media and Politics

Additional communication studies electives at the 300-400 levels

9

39

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

Conflict Analysis and Intervention

This concentration prepares students to analyze conflict interaction and explore various methods of formal and informal conflict intervention in interpersonal, workplace and legal contexts. Included among the conflict intervention processes studied are negotiation and mediation. A concentration in conflict analysis and intervention can prepare students for careers in human services, human resources, government, and dispute resolution, and is also useful for students who wish to pursue the study of law or careers in management and international relations.

In addition to the 15 hours of required communication studies courses, students studying conflict analysis and intervention 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 231. Introduction to Alternative Dispute Resolution	3
SCOM 331. Communication and Conflict	3
SCOM 332. Mediation	3
SCOM 385. Qualitative Communication Research Methodologies	3
SCOM 431. Legal Communication	3
SCOM 432. Senior Seminar in Conflict and Mediation	3
	<hr/> 18

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 15 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 347. Communication, Diversity and Popular Culture	3
SCOM 349. Ethnographic Approaches to Communication Studies	3
SCOM 381. Communication Criticism	3
SCOM 448. Seminar in Cultural Communication	3
Choose one of the following:	3
SCOM/W MST 348. Communication and Gender	
SCOM 352. Communication and Social Movements	
	<hr/> 18

Health Communication Studies

This concentration prepares students to study communication in a variety of contexts within the health care environment. Students analyze communication interaction between health professionals and patients/clients and health promotion communication strategies.

This concentration prepares students for a variety of careers including public relations director in a health care context, hospice manager, health director for corporations and many others.

In addition to the 15 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 270. Introduction to Health Communication	3
SCOM 350. Organizational Communication	3
SCOM 470. Health Communication Campaigns	3
Choose one of the following:	3
SCOM 381. Communication Criticism	
SCOM 385. Qualitative Communication Research Methods	
	<hr/> 18

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 prepare 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 15 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. Interpersonal Communication	3
SCOM 340. Principles and Processes of Interviewing	3
SCOM 345. Nonverbal Communication	3
SCOM 440. Family Communication	3
Choose one of the following:	3
SCOM 231. Introduction to Alternative Dispute Resolution	
SCOM 247. Small Group Communication	
SCOM 248. Intercultural Communication	
SCOM 270. Health Communication	
Choose one of the following research requirements:	3
SCOM 381. Communication Criticism	
SCOM 383. Communication Research Methodologies	
SCOM 385. Qualitative Communication Research	
SCOM 386. Communication Survey Research	
	<hr/> 18

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 15 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
SCOM 425. Leadership Communication	3
SCOM 449. Communication Training	3
SCOM 450. Advanced Organizational Communication	3
Communication research course (depth requirement)	3
	<hr/> 18

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 361. Public Relations Techniques II: Visual	3
SCOM 386. Communication Survey Research	3
SCOM 460. Public Relations Management	3
SCOM 461. Public Relations Campaigns	3
	<hr/> 18

Public Communication Studies

This concentration is concerned with the presentation and management of messages in public contexts. Analysis, preparation and criticism of public messages prepare students for participation in public life. Professional preparation 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 communications must complete the following 15 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. Communication Criticism	3
SCOM 431. Legal Communication	3
	<hr/> 15

Minor Requirements

Admission to the Minor

Admission to JMU does not guarantee admission to the School of Communication Studies. Students must submit an application for admission to the minor during the semester in which they complete the SCOM course requirements. The School of Communication Studies reviews applications for admission to the minor each semester. All students interested in minoring in communications studies, conflict analysis and intervention, or health communication must apply for a limited number of spaces. Admission to the minor is based on availability to the most qualified students. Applicants with an average of 2.7 in SCOM 240 and SCOM 245 and a cumulative 2.7 GPA at JMU will be automatically admitted. Other applicants will be admitted based on qualifications and availability of spaces.

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 245, to her/his minor.

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 and SCOM 245, and a minimum of nine hours at the 300 level or above. Before a student begins a minor in communication studies, the school director and the student's adviser must approve his or her planned program of study.

Conflict Analysis and Intervention

The minor in conflict analysis and intervention prepares students to analyze conflict interaction and explore various methods of formal and informal conflict intervention in interpersonal, workplace, and legal contexts. The program is intended for students not majoring in communication studies who wish to supplement and augment their major area of study. The requirements for a conflict analysis and intervention studies minor are 18 credit hours.

Courses	Credit Hours
SCOM 231. Introduction to Alternative Dispute Resolution	3
SCOM 240. Process of Human Communication	3
SCOM 245. Signs, Symbols and Social Interaction	3
SCOM 331. Communication and Conflict	3
SCOM 332. Mediation	3
Choose one from the following:	3
SCOM 247. Small Group Communication	
SCOM 248. Intercultural Communication	
SCOM 270. Introduction to Health Communication	
SCOM 345. Nonverbal Communication	
SCOM/WMST 348. Communication and Gender	
SCOM 350. Organizational Communication	
SCOM 352. Communications Social Movements	
SCOM 353. American Political Culture and Communication	
SCOM 431. Legal Communication	

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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. Processes of Human Communication	3
SCOM 245. Signs, Symbols, and Social Interaction	3
SCOM 248. Intercultural Communication	3
SCOM 349. Ethnographic Approaches to Communication Studies	3
SCOM 448. Seminar in Cultural Communication	3
Choose one from the following:	3
SCOM 347. Communication, Diversity and Popular Culture	
SCOM/WMST 348. Communication and Gender	

 18

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. In addition, the minor should provide students with knowledge of the functions of communication within health care organizations. It is designed for students pursuing careers in health communication or other health care fields.

Courses	Credit Hours
SCOM 240. Process of Human Communication	3
SCOM 245. Signs, Symbols and Social Interaction	3
SCOM 270. Introduction to Health Communication	3
SCOM 350. Organizational Communication	3
SCOM 450. Advanced Organizational Communication	3
SCOM 470. Health Communication Campaigns	3

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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 "Interdisciplinary Programs" on Page 112. This minor is exempt from the School of Communication Studies minor admissions policy.

Department of Computer Information Systems and Management Science

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Instructors

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Mission Statement

The computer information systems and management science program prepares students for careers in designing, developing, implementing and managing information systems. The field of CIS, using the latest computer-based technology, centers on significant problems in organizing, representing and manipulating data, information and knowledge.

Students majoring in CIS will have the opportunity to study a variety of programming languages, Internet technologies, object-oriented concepts, database design, computer security, networking, telecommunications and mathematical modeling. The course work focuses on business applications and analysis. Students are offered the opportunity to gain practical technical experience through internships and co-op programs.

The CIS & MS faculty use a variety of teaching methods including lectures, cases, projects and business simulations to prepare graduates with strong technical, analytic, and problem-solving skills, effective communication and presentation skills, hands-on experience, and the ability to work effectively in individual and team-oriented environments.

Objectives

- Students will demonstrate proficiency in the programming of object-oriented, event-driven, database-enabled applications with graphical user interfaces in at least two modern programming languages. Programming proficiency will include conceptual design, elegant and efficient coding, complete testing and debugging, and meaningful documentation
- Students will demonstrate understanding of database concepts and proficiency in developing effective data models, designing and implementing relational databases, and manipulating data using structured query language.
- Students will demonstrate the ability to use appropriate systems analysis and design tools and techniques.
- Students will understand the concept of systems life cycle and the importance of involving users in systems design.

- Students will demonstrate proficiency in understanding system architectures, including hardware components, operating systems, data representations, administration and performance monitoring. Demonstration of this proficiency will include conceptual knowledge and practical applications. Students will demonstrate advanced proficiency in using at least one software application.
- Students will demonstrate proficiency in understanding technical fundamentals of telecommunications, data, and voice communications, with particular focus on communications networks and transmission media. Students will gain in-depth experience of networking and telecommunications fundamentals including local area networks, metropolitan area networks, wide area networks, intranets, the Internet and the World Wide Web. Students will practice the installation, configuration, systems integration and management of infrastructure technologies in hands-on lab sessions.
- Students will demonstrate the communication, interpersonal relationship, management, problem solving and professional skills needed to effectively complete assignments independently and in groups.

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 with the organization.

- Business Analyst
- Consultant
- Data Administrator
- Information Systems Manager
- Information Technology Trainer
- Project Manager

- Security Specialist
- Software Developer
- Systems Administrator
- Systems Analyst
- Telecommunications Analyst
- Web Developer

CIS 454. Systems Analysis and Design	3
CIS 484. Information Systems Development and Implementation	3
Two computer information systems electives	6
	<hr/> 28

Co-curricular Activities and Organizations

The Association for Information Technology Professionals (AITP) is the oldest and most successful IT professional association. AITP is comprised of over 200 local chapters in the United States and Canada with over 13,000 professional and student members. The James Madison University Chapter of the AITP, founded in 1980, provides a valuable link to the business world by giving students exposure to career opportunities in the computer information systems field. JMU students are active participants in the Annual AITP National Collegiate Conference.

Degree and Major Requirements

The B.B.A. in computer information systems is accredited by the Accreditation Board for Engineering and Technology (ABET)'s Computing Accreditation Commission.

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 typically 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 (GECON courses must be counted as economics) and three hours of COB 191, Business and Economic Statistics. 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. The credit hour requirements for each of the program components are listed below.

Degree Requirements

	Credit Hours
B.B.A. core courses ¹	39
CIS major requirements	28
General Education courses ²	41
Non-business electives	12
	<hr/> 120

¹ Assumes that MATH 205 and GECON 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.

Major Requirements

Core Courses	Credit Hours
CIS 221. Principles of Programming	3
CIS 301. Operating Systems and Server Administration	1
CIS 304. Information Technology	3
CIS/CS 320. Computing and Telecommunications Networks	3
CIS 330. Database Design and Application	3
CIS 331. Intermediate Computer Programming	3

Computer Information Systems

Electives	Credit Hours
CIS 354. Advanced Visual BASIC Programming	3
CIS/MS 363. Business Process Management	3
CIS/MS 364. Decision Support Systems	3
CIS 366. Web Development	3
CIS 383. Introduction to UNIX and PERL	3
CIS 411. Computer Forensics for Business	3
CIS 434. Information Technology Consulting	3
CIS 420. Computer-Based Networking	3
CIS 424. Computer Security Management	3
CIS 463. Business Intelligence	3
CIS 464. Information Systems Project Management	3
CIS 466. Advanced Web Development	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

Dr. Donald L. Musselman, Coordinator

The cooperative education concentration in CIS & MS 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 & MS curriculum and for six credits of special topics (CIS 498 or MS 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 grade point average, 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 & MS office.

Students who want to participate in a co-op program must apply both to the CIS & MS 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 & MS 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

The minor in computer information systems is structured to provide the student not majoring in CIS with the opportunity to develop the working knowledge necessary to apply information technology to business opportunities and problems. Students with a major in accounting may substitute ACTG 440 for the CIS elective.

Computer Information Systems Minor

Required Courses	Credit Hours
COB 204. Computer Information Systems	3
CIS 221. Principles of Programming	3
CIS 304. Information Technology	3
CIS 330. Database Design and Application	3
CIS 454. Systems Analysis and Design	3
CIS elective	3
	<hr/> 18

Management Science Minor

Dr. Scott P. Stevens, Coordinator

Management science is a scientific approach to analyzing problems and making business-related decisions. It uses statistics and mathematical modeling to forecast the implications of various choices and identify the best alternatives. Management scientists focus on the effective use of data and information to drive positive business actions. The minor in management science 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. The program is open to any undergraduate with an interest in management science. The minor consists of nine credit hours of required course work and nine credit hours of management science (MS) electives. At most three courses can be used to satisfy both the management science minor and a student's major requirements.

Required Courses	Credit Hours
Choose one of the following:	3-4
COB 191. Business and Economic Statistics	
MATH 220. Elementary Statistics	
MATH 285. Data Analysis	
MATH 318. Introduction to Probability and Statistics	
COB 291. Introduction to Management Science	3
CIS 221. Principles of Programming	3
Electives (choose three of the following):	9
CIS/MS 363. Business Process Management	
CIS/MS 364. Decision Support Systems	
MS 391. Quantitative Business Modeling	
MS 393. Business Analytics: Data Mining	
	<hr/> 18-19

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 29-30 hour 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. Information Technology	3
	<hr/> 15

Second Semester	Credit Hours
CIS 320. Computing and Telecommunications Networks	3
CIS 330. Database Design and Application	3
CIS 331. Intermediate Computer Programming	3
Two General Education electives	6
	<hr/> 15

Fourth Year

First Semester	Credit Hours
CIS 361. Computer Information Systems Internship	0
CIS 454. Systems Analysis and Design	3
CIS 484. Information Systems Development and Implementation	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
COB 487. Strategic Management	3
One Computer Information Systems elective	3
CIS 301. Operating Systems and Server Administration	1
Two General Education or non-business electives	6
	<hr/> 13

Department of Computer Science

Dr. Malcolm Lane, Department Head

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Professors

D. Bernstein, P. Cushman, C. Fox, S. Frysinger, J. Harris, M. Heydari, M. Lane, J. Marchal, R. Mata-Toledo

Associate Professors

M. Aboutabl, R. Grove, M. Norton, B. Tjaden

Assistant Professors

F. Buchholz, S. Wang

Lecturers

H. Daughtrey, N. Harris

Mission Statement

To help persons discover whether they have ability and interest in computing, and to empower those who do to extend the application of computers to the problems of society.

Goals

- “To help persons discover”: Computer science is skill-oriented. Individuals only grow when they actively participate in the application of knowledge. We are committed to providing a variety of active learning experiences.
- “Whether they have the ability and interest in computing”: The rapid advancement of computing creates a broad spectrum of novel opportunities and roles for computer scientists in our society. We are committed to providing a rich environment that allows individuals to find a niche in this spectrum suited to their aptitudes and interests.
- “And to empower those who do”: Empowerment implies knowledge of the machines, algorithms and applications already developed so our students can build on the work of their predecessors. To apply a computer to a problem is a practical matter, not just a theoretical one. Because of the complexity of the systems that are being created, empowerment implies the ability to manage persons, time and other resources to accomplish such goals within allocated means.
- “To extend the application of computers”: By extending is meant not just any use of computers, but some use that claims new ground. For example, entering data into a spreadsheet does not extend the use of computers, while setting up a spreadsheet to perform a customized data analysis extends the application of computers to that particular problem. Stronger examples would include developing applications, even extending the concept of computing itself, to open previously unknown application domains. Computing professionals must be leaders in the development of computing and the application of computing to new problems.

- “To the problems of society”: A wide-ranging liberal education is particularly valuable for computer scientists, since often their task is to apply computing to a problem domain in some other discipline, or even more frequently, across several disciplines at once. The ability to communicate with experts in a broad range of social and scientific disciplines is critical. Our efforts flourish in the context of the wider university, and are particularly needful of integration with other departments. We therefore participate as computer scientists in the application of computing to the research of our colleagues, and as educators in maintaining, designing and implementing the wider mission of the university.

Marketable Skills

The program puts students in the middle of the exploding information revolution where they study technological advances such as object-oriented software, communication networks, multimedia systems, information security and artificial intelligence. Students learn about computing technologies used by today's professionals and how to use these technologies to solve real-world problems. They learn to analyze problems, design solutions, implement solutions using multiple computing technologies, test and install those solutions, and communicate those solutions to others in written and verbal presentations.

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.

Degree and Major Requirements
Bachelor of Science in Computer
Science

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement (in addition to General Education)	3
Major requirements (listed below)	49-51
University electives	21-27
	<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.

Major Requirements

	Credit Hours
CS/MATH 227. Discrete Structures I	3
CS/MATH 228. Discrete Structures II	3
CS 239. Advanced Computer Programming (CS 139 or equivalent is a prerequisite for CS 239)	4
CS 240. Algorithms and Data Structures	3
CS 345. Software Engineering	3
CS 350. Computer Organization	3
CS 430. Programming Languages	3
CS 450. Operating Systems	3
CS 460. Local Area Networks	3
CS 474. Database Design and Applications	3
Computer Science electives above CS 300	9
WRTC 210. Technical and Scientific Communication	3
Choose one of the following:	3-4
MATH 205. Introductory Calculus I	
MATH 231. Calculus with Functions I	
MATH 235. Calculus I	
Choose one of the following statistics courses:	3-4
MATH 220. Elementary Statistics	
MATH 318. Introduction to Probability and Statistics	

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. Students must achieve a cumulative grade point average of 2.0 or better in all courses used to satisfy the above 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 sequence 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

Dr. H. Taz Daughtrey, Minor Adviser

	Credit Hours
CS 139. Algorithm Development	4
CS 239. Advanced Computer Programming	4
Choose one of the following:	3
CS 345. Software Engineering	
CS 350. Computer Organization	
Choose three of the following:	9
CS 240. Algorithms and Data Structures	
CS 252. Discrete Structures or CS/MATH 228. Discrete Structures II	
Computer Science courses above CS 300	
	<hr/> 20

Telecommunications Minor

Dr. Malcolm Lane, Minor Adviser

The Department of Computer Science, in cooperation with other departments, offers an interdisciplinary 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 "Interdisciplinary Programs," Page 114.

Department of Early, Elementary and Reading Education

Dr. Martha Ross, Head

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Web site: <http://www.jmu.edu/coe/eere>

Professors

T. Harris, G. Ivey, D. Martin, M. Ross

Associate Professors

M. Baker, D. Carrington, G. Font, M. Hughes, J. Kindig, D. Sluss

Assistant Professors

N. Brubaker, J. Ohn, H. Pence, P. Sullivan

Instructors

S. Barnes, S. Hutchinson

Early Childhood Education

The early childhood education four year program is being phased out. Please contact the department head for more information.

Inclusive Early Childhood Education

Birth - Age Five

The inclusive early childhood 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 interdisciplinary 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 the following three 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 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 and have passed Praxis I 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 2.5 GPA or better in IECE course work, demonstration of professional behaviors, 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 the designated person in the Department of Early, Elementary and Reading Education or Exceptional Education, declare the pre-professional licensure program in inclusive early childhood education, be assigned a date to start the program, and be assigned an adviser in inclusive early childhood education in addition to their first year or major adviser. A limited number of candidates can start the program each semester; therefore, candidates should meet with the department head during their first semester of enrollment at JMU.

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 or 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

General Education requirements ¹	41
Interdisciplinary Liberal Studies Major	37
Inclusive Early Childhood Licensure Pre-professional Course Work	49
Graduate Degree Course Work	30

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.

For a listing of course work required for the IECE program, refer to the Web site at www.jmu.edu/coe/eere/IEC.shtml.

Elementary Education

PreKindergarten Through Sixth Grade Master’s Level Licensure Program

The Elementary Education Master of Arts in Teaching 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 interdisciplinary 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 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 and have passed Praxis I to begin the ELED course work.

Assessment occurs each semester and performance will be reviewed at the end of each semester. Candidates must demonstrate satisfactory performance before moving on to the next semester. Satisfactory performance includes a 2.5 or better in education course work, demonstration of professional behaviors, acceptable performance in practicums 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 program and be assigned an adviser in elementary education. A limited number of candidates can start the program each semester, therefore, candidates should meet with the department head during their first semester of enrollment at JMU.

Degree and Major Requirements

Candidates in the Elementary Education program will complete the IDLS major or equivalent and the pre-professional undergraduate courses and be accepted for graduate study. The program of study for elementary education is as follows:

	Credit Hours
Undergraduate Degree	
General Education ¹	41
Interdisciplinary Liberal Studies Major	39
Elementary Pre-professional Program	30
Electives	10
M.A.T. Program	
Graduate Level Professional Studies	31
	<hr/> 153-161

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.

Recommended Schedule for Elementary Education

Students should take General Education, core requirements and EDUC 360 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. Considering Diversity in Elementary Education	3
ELED 311. Practicum in Learners and Learning	3
READ 366. Early Literacy Development and Acquisition	3
Major requirements/Electives	15
	<hr/> 30

Fourth Year	Credit Hours		Credit Hours
ELED 432. Children and Science	3	ELED 501/601 Special Topics	3
ELED 433. Children and Math I: Number, Operations, Algebraic and Geometric Reasoning	3	ELED 510. Creativity and the Arts	3
ELED 434. Children and Social Sciences	3	ELED 533. Children and Math II: Data, Chance, and Space	3
ELED 411. Practicum in Curriculum Integration	3	ELED 570. Curriculum Planning, Integration and Learning in the Elementary Classroom	3
READ 436. Literacy Learning in the Elementary Grades	3	ELED 621. Practicum in Teachers and Learners as Inquirers	2
Major requirements/Electives	15	ELED 622. Seminar: Inquiry Projects	1
	<hr/> 30	ELED 632. Inquiry in Elementary Education	3
		ELED 641. Families, Schools, and Communities	2
		ELED 690. Internship in Teaching	8
		EXED 520. Differentiation of Instruction	3
		READ 590. Reading Across the Curriculum	3
			<hr/> 33

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.

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

Dr. Ehsan Ahmed, Head

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Associate Professors

J. Doyle, S. Elwood, R. Jerome, S. Milliman

Assistant Professors

B. Brunton, N. Cavusoglu, W. Grant, A. Smith, J. Subrick

Instructor

P. Heap

Mission Statement

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. The Department of Economics also stresses the importance of economic explanation by promoting interdisciplinary perspectives. 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 appreciation and understanding of economic theory and policy at a level appropriate to each program of study. 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 interdisciplinary and cross-disciplinary forms of instruction.
- Seek continuous improvement in the quality of classroom instruction.
- Serve the community cost-effectively 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 with wide applicability in a 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)

Degree and Major Requirements

Economics majors may 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 administration.

The B.B.A. degree in economics 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 (*GECON* courses must be counted as economics) and three hours of COB 191, Business and Economic Statistics. The remaining hours 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.

Admission to the Major in Economics

B.A. and B.S. Degree Programs

Students wishing to pursue a B.A. or B.S. degree program in economics must be formally admitted to the program in order to enroll in required core courses, ECON 331, ECON 332 and ECON 385. Quantitative finance majors can enroll in ECON 331, ECON 332 and ECON 385 without declaring an economics major. In order to be admitted to the economics major, a student must meet all four of the following criteria:

- have a cumulative grade point average of 2.500 or higher in all JMU course work.
- have a 2.500 grade point average in all economics courses completed at the time of application.
- have earned a grade of "B" or better in MATH 205, MATH 231 or MATH 235 and in COB 191 or MATH 220, if the courses have been completed at the time of admission.
- Once admitted, must spend at least three additional semesters at JMU in order to complete the degree requirements.

B.B.A. Degree Program

Students who wish to pursue a B.B.A. degree program in economics must meet all of the College of Business admission requirements (described in the College of Business section of the catalog) as well as the economics requirements detailed in B.A. and B.S. Degree Programs).

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 434.

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.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course(s) (in addition to General Education courses)	3
Major requirements (listed below) and electives	63-74
	<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, Literatures and Cultures' placement test.

Major Requirements

Required Courses	Credit Hours
ECON 201. Principles of Economics (Micro)	3
ÆCON 200. Introduction to Macroeconomics	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
	<hr/> 33

For a B.A. degree in economics, students must complete each of the courses ECON 331, ECON 332 and ECON 385 with a grade of at least "C."

For a B.A. degree in economics, students must complete the foreign language and philosophy requirements found on Page 29. Also, all students must complete the General Education program described on Pages 81-88.

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 and the following required courses in economics:

ECON 201. Principles of Economics (Micro)

ÆCON 200. Introduction to Macroeconomics

Other required course work that should be completed during the first and second years includes:

COB 191. Business and Economic Statistics

Choose one of the following:

MATH 205. Introductory Calculus I

MATH 231. Calculus with Functions I

MATH 235. Analytic Geometry and Calculus

Third and Fourth Years

B.A. economics majors should complete ECON 331, Intermediate Microeconomic Theory and ECON 332, Intermediate Macroeconomic Theory, 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.

First Year

Fall Semester	Credit Hours
ECON 201. Principles of Economics (Micro)	3
Choose one of the following:	3-4
MATH 205. Introductory Calculus I	
MATH 231. Calculus with Functions I	
MATH 235. Analytic Geometry and Calculus	
General Education courses, free electives and B.A. degree requirements	9
	<hr/> 15-16

Spring Semester

ÆCON 200. Introduction to Macroeconomics	3
General Education courses, free electives and B.A. degree requirements	11
	<hr/>
	14

Second Year

Fall Semester	Credit Hours
COB 191. Business and Economic Statistics	3
Choose one of the following:	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
General Education courses, economics elective, free electives and B.A. degree requirements	9
	<hr/> 15

Spring Semester

Choose one from the following:	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
General Education courses, economics elective, free electives and special degree requirements	9-12
	<hr/> 15

Third Year

Fall Semester	Credit Hours
Choose one of the following (if not completed):	0-3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
ECON 385. Econometrics	
Economics electives	3-6
General Education courses, free electives and B.A. degree requirements	6-12
	<hr/> 15

Spring Semester

Choose one of the following (if not completed):	0-3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
ECON 385. Econometrics (if not completed)	
Economics electives	3-6
General Education courses, free electives and	6-12
B.A. degree requirements	
	<hr/> 15

Fourth Year

Fall Semester	Credit Hours
Economics electives (400 level)	3-6
General Education courses, free electives and B.A. degree requirements	9-12
	<hr/> 15

Spring Semester	Credit Hours
Economics electives (400 level)	3-6
General Education courses, free electives and B.A. degree requirements	9-12
ECON 488. Senior Capstone Seminar in Economics	3
	<hr/> 15-18

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.

Degree Requirements

Required courses	Credit Hours
General Education ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
Major requirements (listed below) and electives	73-77
	<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 In addition to course work taken to fulfill General Education requirement.

Major Requirements

Required Courses	Credit Hours
ECON 201. Principles of Economics (Micro)	3
GECON 200. Introduction to Macroeconomics	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
	<hr/> 33

For a B.S. degree in economics, students must complete each of the courses ECON 331, ECON 332 and ECON 385 with a grade of at least "C." For a B.S. degree in economics, students must complete six credit hours of quantitative courses and an additional three to four credit hours in scientific literacy courses. Information on these degree requirements is found on Page 29. Students must also complete the General Education program requirements described on Pages 81-88.

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 and the following required courses in economics:

ECON 201. Principles of Economics (Micro)

GECON 200. Introduction to Macroeconomics

Other required course work that should be completed during the freshman or sophomore years includes:

COB 191. Business and Economic Statistics

Choose one of the following:

MATH 205. Introductory Calculus I

MATH 231. Calculus with Functions I

MATH 235. Analytic Geometry and Calculus

Third and Fourth Years

B.S. economics majors should complete ECON 331, Intermediate Microeconomic Theory, and ECON 332, Intermediate Macroeconomic Theory, by the end of their junior year. While most majors will complete the 400 level requirement 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.

First Year	Credit Hours
Fall Semester	
ECON 201. Principles of Economics (Micro)	3
Choose one of the following:	3-4
MATH 205. Introductory Calculus I (three credits)	
MATH 231. Calculus with Functions I	
MATH 235. Analytic Geometry and Calculus I (four credits)	
General Education courses, free electives and B.S. degree requirements	9
	<hr/> 15-16

Spring Semester	Credit Hours
GECON 200. Introduction to Macroeconomics	3
General Education courses, free electives and B.S. degree requirements	11
	<hr/> 14

Second Year	Credit Hours
Fall Semester	
COB 191. Business and Economic Statistics	3
Choose one of the following:	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
General Education courses, economics elective, free electives and B.S. degree requirements	9
	<hr/> 15

Spring Semester	Credit Hours
Choose one from the following:	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
General Education courses, economics electives, free electives and special degree requirements	9-12
	<hr/> 15

Third Year	Credit Hours
Fall Semester	
Choose one of the following (if not completed):	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
ECON 385. Econometrics	3
Economics electives	3-6
General Education courses, free electives and B.S. degree requirements	6-9
	<hr/> 15

Spring Semester	Credit Hours
Choose one of the following (if not completed):	0-3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
ECON 385. Econometrics	3
Economics electives	3-6
General Education courses, free electives and B.S. degree requirements	0-9
	<hr/> 15

Fourth Year	Credit Hours
Fall Semester	
Economics electives (400 level)	3-6
General Education courses, free electives and B.S. degree requirements	9-12
	<hr/> 15

Spring Semester	Credit Hours
Economics electives (400 level)	3-6
ECON 488. Senior Capstone Seminar in Economics	3
General Education courses, free electives and B.S. degree requirements	9-12
	<hr/> 15-18

Bachelor of Business Administration in Economics

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 outlined on Page 62. The credit hour requirements for each of the components are as follows.

Degree Requirements

	Credit Hours
B.B.A. core courses ¹	44-45
Economics major requirements	27
General Education courses ²	42-45
Non-business electives ³	4-8
	<hr/> 120

¹ 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.

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 May include no more than one 200-level economics course in addition to ECON 201, GECON 200 and any other course(s) not offered by the College of Business.

Major Requirements

Required Courses	Credit Hours
ECON 201. Principles of Economics (Micro)	3
GECON 200. Introduction to Macroeconomics	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
	<hr/> 33

For the B.B.A. degree in economics, each of the required courses ECON 331, ECON 332 and ECON 385 must be completed with a grade of at least "C." The B.B.A. degree in economics 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 a total of nine hours in economics (GECON courses must be counted as economics) and three hours of COB 191, Business and Economic Statistics. The remaining hours 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.

Recommended Schedule for B.B.A. in Economics Majors

First Two Years

Students planning to major in economics must complete the 29-30 hour, lower-division B.B.A. core curriculum on Page 63 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 all, or 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 until at least the second semester of the junior year.

Third and Fourth Years

Economics 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.

Third Year

Fall 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
Choose one of the following (if not completed):	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
	<hr/> 15

Spring Semester	Credit Hours
Choose one of the following (if not completed):	3
ECON 331. Intermediate Microeconomic Theory	
ECON 332. Intermediate Macroeconomic Theory	
Economics electives	3-6
General Education or non-business electives	6
	<hr/> 12-15

Fourth Year

Fall Semester	Credit Hours
ECON 385. Econometrics	3
Economics elective	3
Economics elective (400 level)	3
General Education or non-business electives	6
	<hr/> 15

Spring Semester	Credit Hours
COB 487. Strategic Management	3
ECON 488. Senior Capstone Seminar in Economics	3
Economics elective	3
General Education and non-business electives	6
	<hr/> 15

Concentrations

Concentration in Environmental and Natural Resource Economics

Required courses	Credit Hours
ECON 201. Principles of Economics (Micro)	3
GECON 200. Introduction to Macroeconomics	3
ECON 331. Intermediate Microeconomic Theory	3
ECON 332. Intermediate Macroeconomic Theory	3
ECON 305. Environmental Economics	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 401. Senior Assessment in Economics	0
ECON 488. Senior Capstone Seminar in Economics	3
ECON 490. Special Studies in Economics	3
Required courses total	<hr/> 33

In addition, students must choose Option A or Option B.

Option A	8
(for students with specific interests in forests, fisheries and wildlife):	
BIO 114. Organisms (4 credits)	
BIO 124. Ecology and Evolution (4 credits)	
	<hr/> 41

Option B	9-10
(for students with a more general interest in both environmental and natural resource issues):	
GEOG 210. Physical Geography and Lab (4 credits)	
GEOG 325. Environmental Ethics (3 credits)	
Choose one of the following: (2-3 credits)	
GEOG 310B. Environmental Impact – Vegetation/Wildlife	
GEOL 310C. Environmental Impact – Hydrosphere (water)	
	<hr/> 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 the other requirements for these degrees described on the previous page).

Required Economics Courses	Credit Hours
<i>GECON</i> 200. Introduction to Macroeconomics	3
ECON 201. Principles of Economics (Micro)	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 or)	3
	<hr/> 27

Required Finance Courses	Credit Hours
FIN 345. Managerial Finance ¹	3
FIN 360. Money and Capital Markets	3
FIN 365. Intermediate Finance	3
FIN 380. Elemental and Derivative Securities	3
	<hr/> 12

¹ May be taken as a part of COB 300.

Concentration in International Economics

Students who elect a major in economics (B.S., B.A. or B.B.A.) with a concentration in international economics are required to complete the following courses:

	Credit Hours
<i>GECON</i> 200. Introduction to Macroeconomics	3
ECON 201. Principles of Economics (Micro)	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. Economies in Transition	
ECON 312. Comparative Economic Systems	
ECON 365. Economic Development	
Two 400 level economics electives	6
	<hr/> 36

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 Socioeconomics

Students who elect a major in economics with a concentration in socioeconomics are required to complete the following courses.

	Credit Hours
<i>GECON</i> 200. Introduction to Macroeconomics	3
ECON 201. Principles of Economics (Micro)	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
	<hr/> 18

Credit Hours

12

Choose four of the following:

- ECON 301. Economies in Transition
- ECON 306. The Economics of Women and The Family
- ECON 307. The Economics of Aging
- ECON 360. Labor Economics
- ECON 365. Economic Development
- ECON 382. Urban Economics
- ECON 460. Human Resources

Choose four of the following:

- GANTH* 195. Cultural Anthropology
- SOCI 336. Race and Ethnicity
- SOCI/SOWK 348. Introduction to Developing Societies
- SOCI 337. Sociology of Gender
- SOCI 339. Sociology of Women
- SOCI 344. Work and Society
- SOCI 345. Sociology of Occupations and Professions
- SOCI 346. Leisure in Contemporary Society
- SOCI 358. Sociology of Consumption

12

Two 400 level economics electives

6

33-36

Minor Requirements

Economics Minor

The minimum requirement for a minor in economics is 18 credit hours in economics, including ECON 201, Principles of Economics (Micro); *GECON* 200, Introduction to Macroeconomics, 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:

	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
TSC 210. Introduction to Technical and Scientific Communication	3
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 201, Principles of Economics (Micro) will be granted to students who achieve a grade of 4 or 5 on the Advanced Placement Test in Microeconomics administered by the Educational Testing Service. Credit in *GECON* 200, Introduction to Macroeconomics, will be granted to students who achieve a grade of 4 or 5 on the Advanced Placement Test in Macroeconomics.

Department of English

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Professors

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Associate Professors

D. Bankert, S. Cote, S. Facknitz, M. Favila, L. Henigman, R. Majors, R. Osotsi

Assistant Professors

E. Bleeg, M. Canivell, K. Castellano, S. Duvivier, R. Gaughran, D. Goode, B. Hefner, D. Mookerjee-Leonard, M. Rankin, M. Rebhorn, M. Smith-Bermiss, M. Thompson, S. White

Mission Statement

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

- Consulting
- Editing
- Graduate school in English, creative writing and composition
- Law school
- Public relations
- Publishing
- Research
- 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)

Degree and Major Requirements

Students majoring in English earn the B.A. degree unless they are completing an English major with an interdisciplinary 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 courses 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 an interdisciplinary focus is 36 credit hours of course work; 24 of these hours must be in English courses, with 15 hours on 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 departmental head. For more information about the interdisciplinary focus, contact a departmental adviser.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	26-40
Major requirements (listed below)	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 Languages, Literatures and Cultures' placement test.

Major Requirements

All students must include in their program the following core courses:

Core Courses	Credit Hours
3 courses from among <i>GENG 235-GENG 260</i> , one of which must be either <i>GENG 235</i> or <i>GENG 247</i>	9

*ENG 299. Writing About Literature*¹ 3

Choose one course from each of the four categories listed below:

<i>Genre and Theory</i>	3
<i>ENG 302. Special Topics in Literature and Language</i> (when content is appropriate)	
<i>ENG 305. Mythology</i>	
<i>ENG 306. The Bible as Literature</i>	
<i>ENG 311. Medieval Literature and Culture</i>	
<i>ENG 312. Special Topics in Medieval Literature</i>	
<i>ENG 314. 17th-Century British Prose</i>	
<i>ENG 315. 17th-Century British Poetry</i>	
<i>ENG 316. Renaissance and 17th-Century British Drama</i>	
<i>ENG 322. Restoration and 18th-Century British Drama</i>	
<i>ENG 323. 18th-Century British Novel</i>	
<i>ENG 325. Romantic Poetry</i>	
<i>ENG 326. Romantic Era Prose</i>	
<i>ENG 327. The Gothic: Change and Continuity</i>	
<i>ENG 330. The 19th-Century English Novel</i>	
<i>ENG 331. Modern Poetry</i>	
<i>ENG 332. Contemporary Poetry</i>	
<i>ENG 333. Modern Drama</i>	
<i>ENG 334. Contemporary Drama</i>	
<i>ENG 340. Modern British Novel</i>	
<i>ENG 341. Contemporary British Novel</i>	
<i>ENG 352. The American Novel to 1914</i>	
<i>ENG 356. Modern American Novel</i>	
<i>ENG 357. Contemporary American Fiction</i>	
<i>ENG 358. Oral Literature</i>	
<i>ENG 361. African American Fiction Writers</i>	
<i>ENG 362. African American Poets</i>	
<i>ENG 367. Women's Poetry</i>	
<i>ENG 368. Women's Fiction</i>	
<i>ENG 370. Exploring Gay and Lesbian Literature</i>	
<i>ENG 383. Major Film Genres</i>	
<i>ENG 425. Survey of Literary Criticism to 1950</i>	
<i>ENG 426. Contemporary Practices in Literary Criticism</i>	
<i>ENG 467. Feminist Literary Theory</i>	

Author(s) 3

All majors should take in their senior year a 400-level major author course as a capstone course

<i>ENG 410. Major Author</i>	
<i>ENG 451. Chaucer</i>	
<i>ENG 456. Shakespeare's Tragedies and Romances</i>	
<i>ENG 457. Shakespeare's Comedies and Histories</i>	
<i>ENG 458. Shakespeare on the Page and Stage in London</i>	
<i>ENG 461. Milton</i>	

Alternative Canons 3

<i>GENG 239. Studies in World Literature</i>	
<i>GENG 260. Survey of African-American Literature</i>	
<i>ENG 302. Special Topics in Literature and Language</i> (when content is appropriate)	
<i>ENG 358. Oral Literature</i>	
<i>ENG 361. African American Fiction Writers</i>	
<i>ENG 362. African American Poets</i>	
<i>ENG 367. Women's Poetry</i>	
<i>ENG 368. Women's Fiction</i>	

<i>ENG 370. Exploring Gay and Lesbian Literature</i>	
<i>ENG 412. Special Topic Seminar</i> (when content is appropriate)	
<i>ENG 427. Studies in South Asian Literature</i>	
<i>ENG 429. Postcolonialism</i>	
<i>ENG 430. Studies in Comparative Literature</i>	
<i>ENG 431. Studies in Caribbean Literature</i>	
<i>ENG 432. Studies in African Literature</i>	
<i>ENG 433. Studies in Arabic Literature</i>	
<i>ENG/SPAN 434. Latin American Literature in Translation</i>	
<i>ENG/FR 435. Studies in French Literature</i>	
<i>ENG/GER 436. Studies in German Literature</i>	
<i>ENG/ITAL 437. Studies in Italian Literature</i>	
<i>ENG/RUS 438. Studies in Russian Literature</i>	
<i>ENG/SPAN 439. Major Authors of Literature in Spanish in Translation</i>	
<i>ENG 466. Studies in Women's Literature</i>	

Period 3

<i>ENG 302. Special Topics in Literature and Language</i> (when content is appropriate)	
<i>ENG 311. Medieval Literature and Culture</i>	
<i>ENG 312. Special Topics in Medieval Literature</i>	
<i>ENG 313. Poetry and Prose of the British Renaissance</i>	
<i>ENG 314. 17th-Century British Prose</i>	
<i>ENG 315. 17th-Century British Poetry</i>	
<i>ENG 316. Renaissance and 17th-Century British Drama</i>	
<i>ENG 321. Restoration and 18th Century British Prose and Poetry</i>	
<i>ENG 322. Restoration and 18th-Century British Drama</i>	
<i>ENG 323. 18th-Century British Novel</i>	
<i>ENG 325. Romantic Poetry</i>	
<i>ENG 326. Romantic Era Prose</i>	
<i>ENG 330. The 19th-Century English Novel</i>	
<i>ENG 331. Modern Poetry</i>	
<i>ENG 333. Modern Drama</i>	
<i>ENG 340. Modern British Novel</i>	
<i>ENG 342. Early American Literature</i>	
<i>ENG 343. Writers of the American Renaissance</i>	
<i>ENG 344. American Realism and Naturalism</i>	
<i>ENG 352. The American Novel to 1914</i>	
<i>ENG 355. Southern Literature</i>	
<i>ENG 356. Modern American Novel</i>	
<i>ENG 361. African American Fiction Writers</i>	
<i>ENG 362. African American Poets</i>	
<i>ENG 403. Studies in Old English</i>	
<i>ENG 412. Special Topic Seminar</i> (when content is appropriate)	

¹ This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

Although a course may be listed under multiple categories, it may be credited to only one category. In addition to the core courses, students must take at least 12 credit hours of electives, 9 hours of which must be at or above the 300 level.

Minimum English Electives	Credit Hours
Course on or above 200 level	3
Courses on or above 300 level	9
	<hr/> 12

Recommended Schedule for Majors

Prior to declaring a major in English, students should consult with an assigned English adviser to plan a course of study tailored to their interests and goals. Students should contact the department office (Keezell 215) to request an adviser. The following chart shows a typical four-year program.

First Year	Credit Hours
Foreign language courses	6-8
General Education courses	23
	<hr/> 29-31

Second Year	Credit Hours
Two of 3 required courses from among <i>GENG 235-GENG 260</i>	6
ENG 299. Writing About Literature	3
General Education courses	15
Foreign language courses	6
	<hr/> 30
Third Year	Credit Hours
Remaining requirement from General Education	3
English requirements/electives	12-15
Other electives	15
	<hr/> 30
Fourth Year	Credit Hours
English requirements/electives	12-15
Other electives	15-18
	<hr/> 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. Students should include any three of the following courses.

ENG 305. Mythology
 ENG 306. The Bible as Literature
 ENG 430. Studies in Comparative Literature
 ENG 431. Studies in Caribbean Literature
 ENG 432. 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, ENG 365 and ENG 412 may also satisfy these requirements when the content of the courses is appropriate.

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:

ENG/THEA 347. Playwriting
 ENG 392. Introduction to Creative Writing: Poetry
 ENG 393. Introduction to Creative Writing: Fiction
 ENG 483. Narrative Theory
 ENG 484. Poetic Craft and Creativity
 ENG 493. Creative Non-Fiction
 ENG 494. Advanced Poetry Writing
 ENG 495. Advanced Fiction Writing

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

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(*GENG 235, 236, 247 and 248*), and include among their electives the following:

ENG 396. Advanced Composition

Choose one of the following:

ENG 421. Traditional English Grammar

ENG 422. Modern English Grammar

Choose one of the following:

ENG 456. Shakespeare's Tragedies and Romances

ENG 457. Shakespeare's Comedies and Histories

ENG 458. 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

It is recommended that students seeking licensure take *GENG 239* to satisfy the *Alternative Canons* core requirement for the English major.

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.

Minor Requirements

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 General Education required course cannot double count as a minor requirement. A minor in English does not meet requirements for the Secondary Teaching License.

American Studies Minor

American Studies is an interdisciplinary program of study that promotes an enhanced understanding of the whole of American civilization, past and present through examination of the diverse aspects of our culture and changing patterns of ideas and values. Courses come from the departments within the College of Arts and Letters and students will take courses from within three groupings: Multicultural Studies, Ideas and the Arts, and History and Politics. For more information on the minor in american studies, refer to the section on "Interdisciplinary Programs" on Page 100.

Creative Writing Minor

The interdisciplinary 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. For more detailed information on the minor in creative writing, refer to the section on "Interdisciplinary Programs," on Page 102.

Film Studies Minor

The interdisciplinary 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. For more detailed information on the minor in film studies, refer to the section on "Interdisciplinary Programs" on Page 106.

Department of Exceptional Education

Dr. Laura Desportes, Head

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C. Beverly, D. Herr, R. Linn, K. Santos, M. Slade

Associate Professors

L. Desportes, M. Kyger, S. Lopes-Murphy

Assistant Professors

C. Bartholomew, S. Blatz, A. Kretlow, B. Quinn

Instructor

B. Fogus

The Department of Exceptional Education offers programs in special education, ESL and gifted education.

Special Education

Master's Level Licensure Program

The undergraduate, pre-professional program in special education complements a professionally oriented master's degree program designed to prepare special education teachers and is accredited by National Council for Accreditation of Teacher Education (NCATE). NCATE's performance-based system of accreditation fosters competent classroom teachers and other educators who work to improve the education of all P-12 students. 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.) degree program in special education. Completion of the M.A.T. program is required for licensure in special education: general curriculum K-12 or special education: inclusive early childhood education (birth-age 8). Candidates completing the special education IECE program will also be eligible for early childhood preK-3rd grade licensure.

Teacher candidates completing the professional licensure program must meet a set of content and specific teaching area criteria that has been established by the Commonwealth of Virginia as well as most other states. In order to meet these requirements, students are advised to major in a liberal arts or science major. The Interdisciplinary Liberal Studies (IDLS), a major that provides students in the pre-professional program extended breadth and integration across the content areas of English/language arts, history/social studies, mathematics and the natural sciences is recommended though other majors may be selected with the approval of the special education program.

The special education pre-professional program enables one to become knowledgeable about the characteristics, diagnosis and remediation of children with developmental delays, learning and behavior problems/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. The licensure program is designed to prepare resilient educators who are advocates for children and youth with disabilities, are qualified for the complexity of their professional roles and are reflective problem-solvers.

The program includes extensive field experiences. Assessment of candidate performance includes evaluation of performance in individual courses, as well as performance in practicum as well as other criteria. At various points throughout the program, there is a summative assessment where faculty committees review the overall performance of each candidate. In order to advance to the next sequences of courses and experiences, a candidate must be making satisfactory progress. 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 department head or undergraduate coordinator early during the first year or as soon thereafter as possible to obtain information concerning General Education, IDLS or 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 or 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 Exceptional Education 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

Dr. Cheryl Beverly, Program Coordinator

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General Curriculum K-12

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 IDLS/liberal arts or science 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.

The following courses are included for all candidates enrolled in the pre-professional (undergraduate) program in special education general curriculum K-12:

	Credit Hours
GPSYC 160. Life Span Human Development	3
EDUC 310. Teaching in a Diverse Society	3
EDUC 360. Foundations of American Education	3
EXED 200. Nature and Issues of Disabilities	3
EXED 300. Educational Technology for Students with Disabilities	1
EXED 341. Characteristics of High Incidence Disabilities	4
EXED 312. Field Experience in Special Education and Diversity	1
EXED 340. Classroom Observation in Special Education	1
EXED 350. Psychoeducational Assessment of Learning and Behavior Problems	3
EXED 440. Classroom Management & Professional Collaboration	3
EXED 443. Assistive Technology Use for Individuals with Disabilities	2
EXED 450. Principles of Specialized Reading Instruction	3
EXED 455. Collaborative Teaching for Learners with Disabilities	3
EXED 470. Directed Practicum in Special Education	3

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EXED 475. Individualized Education Programs and Curriculum-Based Assessment	3
EXED 485. Systematic Behavioral Interventions	3
MAED 430. Teaching Math in K-12 Grades	3
READ 430. Development, Assessment and Instruction of Literacy	3
TESL 426. Concepts in First and Second Language Acquisition	3

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 early in their senior year. In addition, candidates must meet all graduate level graduation requirements. See the Graduate Catalog for additional details. The following courses are included in the graduate portion of the K-12 licensure program in special education.

	Credit Hours
MSSE 630. Inquiry in Education	3
EXED 520. Differentiation of Instruction and Collaboration in Special Education	3
EXED 600. Instructional Methods in Special Education	3
EXED 610. Practicum in Special Education Instructional Methods	2
EXED 615. Transition Services for Students with Disabilities	3
EXED 650. Student Teaching in Special Education	6
EXED 650. Student Teaching in Special Education	6
EXED 670. Professional Practice Seminar	4

Recommended Schedule for EXED K-12 (based on IDLS major)

First Year	Credit Hours
Cluster One: Skills for the 21st Century	12
General Education courses/IDLS	21
	<hr/> 33

Second Year	Credit Hours
GPSYC 160. Life Span Human Development	3
EXED 200. Nature and Issues of Disabilities	3
EXED 312. Field Experience in Special Education and Diversity	1
EDUC 310. Teaching in a Diverse Society	3
EDUC 360. Foundations of American Education	3
General Education courses/IDLS	17
	<hr/> 30

Third Year (K-12)	Credit Hours
EXED 300. Educational Technology for Students with Disabilities	1
EXED 340. Classroom Observation in Special Education	1
EXED 341. Characteristics of High Incidence Disabilities	4
EXED 350. Psychoeducational Assessment of Learning and Behavior Problems	3
MAED 430. Teaching Math in K-12 Grades	3
READ 430. Development, Assessment and Instruction of Literacy: K-12	3
Major requirements	14
	<hr/> 29

	Credit Hours
TESL 426. First and Second Language Acquisition	3
EXED 440. Classroom Management and Professional Collaboration	3
EXED 450. Principles of Specialized Reading Instruction	3
EXED 455. Collaborative Teaching for Learners with Disabilities	3
EXED 470. Directed Practicum in Special Education	3
EXED 475. IEP and Curriculum-Based Assessment	3
EXED 485 Systematic Behavioral Intervention	3
Major requirements	9
	<hr/> 30

Early Childhood Special Education

The fifth-year early childhood special education program is being phased out and replaced with the inclusive early childhood education program (below). Please contact the program coordinator of special education programs for more information.

Inclusive Early Childhood Program

The inclusive early childhood 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 interdisciplinary 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 the following three 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 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 and have passed Praxis I 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 2.5 GPA or better in IECE course work, demonstration of professional behaviors, 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 the designated person in the department of Early, Elementary and Reading Education or Exceptional Education, declare the pre-professional licensure program in inclusive early childhood education, be assigned a date to start the program, and be assigned an adviser in inclusive early childhood education in addition to their first year or major adviser. A limited number of candidates can start the program each semester; therefore, candidates should meet with the department head during their first semester of enrollment at JMU.

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.

Gifted Education

The Department of Exceptional Education offers an add-on endorsement in gifted education at the graduate level only. See the graduate catalog for information.

Teaching English as a Second Language

Dr. Solange Lopes-Murphy, Program Adviser

Phone: (540) 568-2936

E-mail: lopesmsa@jmu.edu

The Teaching English as a Second Language (TESL) program is designed to enable students to complete the minor and add the TESL teaching area to another area in which they are licensed to teach. Although the focus of the program is on satisfying the requirements for teaching English as a Second Language, teacher candidates and students enrolled in other majors who are interested in second language acquisition may complete the TESL minor without completing all of the teacher licensure requirements. Candidates must complete requirements beyond those courses listed in the minor in order to be recommended for TESL licensure. Candidates interested in teacher licensure should consult with the program adviser.

The mission of the minor in Teaching English as a Second Language is to prepare students to work effectively in promoting English language acquisition by children and adults who have not used English as their primary language. The minor will also serve to develop knowledge of cross-cultural education. The TESL minor draws 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.

Required Courses	Credit Hours
SCOM 248. Intercultural Communication or another course in the field of diversity and multiculturalism	3
TESL 425/525. Cross-Cultural Education	3
TESL 426/526. Concepts in First and Second Language Acquisition	3
TESL 428/528. Assessment for Curriculum Development in English as a Second Language	3
EXED 401. Issues in Exceptional Education when topic is Linguistics for Language Teachers	3
READ 430. Development, Assessment and Instruction of Literacy	3
	<hr/> 18

Licensure to Teach ESL PreK-12

Through the state approved program at James Madison University, individuals who have completed requirements for an initial teaching license and for the TESL minor can complete the additional requirements to add English as a Second Language (ESL) to the license to teach in the public schools of Virginia. Candidates currently enrolled in initial teaching licensure programs may complete the TESL minor and licensure requirements in conjunction with completing their other preparation program or complete the additional teaching license requirements as post-baccalaureate students.

Individuals who complete the program are prepared to design activities to accommodate the linguistic and social needs of ESL students in PreK-12 and to serve as resource persons for classroom teachers.

The requirements for adding the ESL teaching endorsement are:

- Completion of teacher licensure requirements in another teaching area prior to completing this program.
- Completion of course work in a language other than English with proficiency at the intermediate level or above as determined by the JMU Foreign Language Department.
- Completion of the 18 credit hour minor in TESL (outlined above) and the 12 hours of professional courses given below.

Additional Requirements for Licensure	Credit Hours
A Modern Foreign Language	6
EDUC 381. Field Experience in English as a Second Language	3
EDUC 570. Methods of Language Teaching	3
	<hr/> 12

The ESL teacher preparation program is based upon three major assumptions:

- ESL teachers need to develop theories of teaching and learning, understand the nature of teacher decision-making in working with non-native language speakers, and develop their personal strategies for self-awareness and self-evaluation.
- ESL teachers should have proficiency at the intermediate level in at least one language other than English and possess a broad range of knowledge that provides the cultural context for teaching students from differing cultural backgrounds.

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- ESL teachers must be reflective decision- makers based upon professional preparation that develops critical thinking and problem-solving skills.

The primary mission of the Teaching English as a Second Language program is the preparation of ESL teachers for the public schools of Virginia. The teachers will have knowledge and experiences designed to help them serve in educational settings as resource personnel to help accommodate the linguistic and social needs of ESL students; assess the quality of curricular and teaching practices for non-native students in regular classrooms; and contribute to the development and improvement of ESL and content-based education to students of other languages.

Non-Teaching Minor Requirements Special Education Non-Teaching Minor

Dr. Cheryl Beverly, Program Adviser

Phone: (540) 568-6262

E-mail: beverlcl@jmu.edu

The non-teaching minor program in special 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. The completion of 18 credit hours of course credit is required for the minor.

Required Courses	Credit Hours
EXED 200. Nature and Issues of Disabilities	3
EXED 440. Classroom Management and Professional Collaboration	3
Choose two of the following	
EXED 310. Survey of Emotional/Behavioral Disorders	2
EXED 320. Survey of Learning Disabilities	2
EXED 330. Survey of Mental Retardation	2
EXED 375. Overview of Autism	3
	<hr/> 12

Electives (select six credits from the following):	6
EXED 202. Field Experiences in Special Education	
EXED 300. Educational Technology for Students with Disabilities	
EXED 306. Lifespan Issues for Individuals with Disabilities	
EXED 401. Issues in Exceptional Education	
EXED 465. Perspectives of Early Childhood Special Education.	
EXED 490. Special Studies in Special Education (requires permission of instructor)	
CSD 420. Introduction to Sign Language	
CSD 421. Sign Language II	
TESL 426. First and Second Language Acquisition	
	<hr/>

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Department of Finance and Business Law

Dr. Pamela Peterson Drake, Head

Phone: (540) 568-6530

Location: Zane Showker Hall, Room 335

E-mail: drakepp@jmu.edu

Web: www.jmu.edu/cob/finance/

Professors

J. Albert, P. Drake, A. Hamilton, H. Hobson, B. Marshall, D. Thomas

Associate Professors

J. Fink, K. Fink, Q. Liu

Assistant Professors

H. He, D. Parker, E. Semaan, Y. Zhang

Instructors

T. Kelley, S. Lowe

Mission Statement

The Program of Finance and Business Law strives to prepare students for decision-making roles in an increasingly technological and global environment.

Goals

To support its mission, the Program of Finance and Business Law is committed to the following:

- Creating an educational environment that fosters an intellectual curiosity about the functioning of commerce and the facilitating role of finance and business law.
- Using an integrative instructional approach to provide a quality comprehensive educational, cultural and social experience for students.
- Raising expectations and aspirations of students.
- Providing a proper balance between challenge and support in the education process.
- Providing the larger university community with access to the basic principles and applications of finance for essential life cycle decisions through courses designed for non-finance students and through innovative and contemporary curriculums.

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.

Corporate Finance

- Junior Analyst – Finance, Planning and Administration
- Financial Analyst – Revenue
- Financial Analyst – Capital Budgets
- Manager, Capital Budgeting
- Manager, Project Finance
- Manager of Financial Planning for Subsidiaries
- Manager, Financial Planning
- Vice President of Finance

Portfolio Management

- Securities Analyst – Common Stock

- Securities Analyst – Private Placements
- Direct Loan Analyst
- Securities Analyst – Publicly Traded Bonds
- Portfolio Analyst
- Manager, Pension Fund Investments
- Director, Investor Relations

Working Capital Management

- General Credit Manager
- Assistant Treasurer – Cash Control and Risk Management
- Senior Banking Analyst

Corporate Real Estate, Insurance and Miscellaneous

- Mortgage Analyst – Production
- Mortgage Analyst – Closing
- Director of Risk Management
- Corporate Model Analyst
- Consultant – Mergers and Acquisitions

Banking and Financial Institutions

- Corporate Banking Officer
- Lending Officer – European Corporate Banking
- Marketing Officer – Metropolitan Banking
- Vice President – Credit Policy (Financial Analysis Department)

Co-curricular Activities and Organizations

- Financial Management Association
- Madison Investment Fund

Degree and Major Requirements

The Program of Finance and Business Law offers programs leading to the Bachelor of Business Administration degree in finance and the B.S. 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 faculty in modifying curricula.

Bachelor of Business Administration in Finance

The B.B.A. degree 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 (*GECON* courses must be counted as economics) and three hours of COB 191, Business and Economic 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.

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

	Credit Hours
B.B.A. core courses ¹	44-45
Finance major requirements	24
Free elective ²	3
General Education courses ³	41
Non-business electives	7-11
	<hr/> 120

1 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.

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

FIN 360. Analytical Methods in Finance
 FIN 365. Intermediate Financial Management
 FIN 371. Principles of Investments
 FIN 488. Advanced Financial Policy
 Finance electives (12 hours)

A student majoring in finance must successfully complete the following finance major core courses: FIN 360, FIN 365, FIN 371 and FIN 488. In addition to these core courses, the student majoring in finance must successfully complete 12 credit hours of financed elective courses. Finance electives include any 300-level or 400-level finance course other than FIN 345 or 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 496, BLAW 497 ECON 331 and ECON 385. A finance major cannot take more than nine credit hours of FIN courses in any one semester without permission of the finance department chair.

Recommended Schedule for Majors

First Two Years

Students planning to major in finance must complete the 29 to 30 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 all, or 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 until at least the second semester of the junior year.

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 may choose 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 during the same semester as 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.

Junior 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
FIN 360. Analytical Methods in Finance	3
	<hr/> 15

Second Semester

Second Semester	Credit Hours
FIN 365. Intermediate Financial Management	3
FIN 371. Principles of Investment	3
Finance elective	3
General Education or non-business electives	6
	<hr/> 15

Senior Year

First Semester	Credit Hours
Finance electives	6
General Education or non-business electives	6
Free elective	3
	<hr/> 15

Second Semester

Second Semester	Credit Hours
COB 487. Strategic Management	3
FIN 488. Advanced Financial Policy	3
Finance elective	3
General Education or non-business electives	6
	<hr/> 15

Bachelor of Science in Quantitative Finance

The B.S. degree 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 program 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 an interdisciplinary major with many courses co-listed with the math department, is a highly structured program requiring minor fields in both mathematics and economics or a double major in mathematics and quantitative finance. If the double major is selected students are required to take *GECON* 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. The required courses for the B.S. in quantitative finance are listed.

Admission to the Quantitative Finance Major

Students wishing to pursue a B. S. in quantitative finance must be formally admitted to the program in order to enroll in the 300-level quantitative finance and finance courses required for the major. A student must meet all four of the criteria cited below to be admitted.

- Must have a cumulative grade point average of 2.5 or higher in all JMU course work.
- Must have a 2.5 grade point average in the following six courses: COB 241, ECON 201, **GECON 200**, MATH 235, MATH 236 and MATH 237.
- Must have no more than two “D,” “F:” and “WF” grades, including any courses for which there has been repeat-forgiveness to replace a grade in the student’s GPA for COB 241, ECON 201, **GECON 200**, MATH 235, MATH 236, and MATH 237.
- Must have completed at least one mathematics course from the following list:
MATH 238. Linear Algebra and Differential Equations
MATH 248. Computer Methods in Engineering and Science
MATH 318. Introduction to Probability and Statistics
MATH 440. Fourier Analysis and Partial Differential Equations

Degree Requirements

Quantitative Finance Major with a minor in Economics

	Credit Hours
General Education ¹	41
Scientific Literacy requirement ²	3
Free electives	11
Major requirements (listed below) and electives	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.

Quantitative Finance/Mathematics Double Major

	Credit Hours
General Education ¹	41
Scientific Literacy requirement ²	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

Quantitative Finance Major with a Minor in Economics

- General Required Course (3 credit hours)
COB 241. Financial Accounting
- Finance Courses (27 credit hours)
FIN 250. Principles of Quantitative Finance
FIN 365. Intermediate Financial Management
FIN 371. Principles of Investments
FIN 380. Elemental and Derivative Securities
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/MATH 465. Seminar in Actuarial Science I
FIN/MATH 466. Seminar in Actuarial Science II
FIN/ECON 372. International Finance and Payments
FIN 455. Advanced International Financial Management
FIN 471. Advanced Topics in Investments
FIN 475. Financial Modeling and Risk Analysis
FIN 488. Advanced Financial Policy
BLAW 470. Financial Products: Regulation and Protection
- Mathematics Courses (27 credit hours, 4 of which count for General Education)
MATH 235. Calculus I³
MATH 236. Calculus II
MATH 237. Calculus III
MATH 238. Linear Algebra and Differential Equations.
MATH 248. Computer and Numerical Algorithms

- MATH 318. Introduction to Probability and Statistics
MATH 440. Fourier Analysis and Partial Differential Equations
- Economics Courses (18 hours, 6 of which count for General Education)
GECON 200. Introduction to Macroeconomics⁴
ECON 201. Principles of Economics (Micro)⁵
ECON 331. Intermediate Microeconomic Theory
ECON 332. Intermediate Macroeconomic Theory
ECON 385. Econometrics or
MATH 322. Applied Linear Regression
Plus one upper-level economics elective
- Quantitative Finance/Mathematics Double Major**
General Required Course (3 credit hours)
COB 241. Financial Accounting
- Finance Courses (27 credit hours)
FIN 250. Principles of Quantitative Finance
FIN 365. Intermediate Financial Management
FIN 371. Principles of Investments
FIN 380. Elemental and Derivative Securities
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/MATH 465. Seminar in Actuarial Science I
FIN/MATH 466. Seminar in Actuarial Science II
FIN/ECON 372. International Finance and Payments
FIN 455. Advanced International Financial Management
FIN 471. Advanced Topics in Investments
FIN 475. Financial Modeling and Risk Analysis
FIN 488. Advanced Financial Policy
BLAW 470. Financial Products: Regulation and Protection
- Economics Courses (9 hours, 3 of which count for General Education and 3 of which count for the B.S. scientific literacy requirement)
GECON 200. Introduction to Macroeconomics⁴
ECON 201. Principles of Economics (Micro)⁵
ECON 331. Intermediate Microeconomic Theory
- Mathematics Courses (42-43 credit hours, 4 of which count for General Education)
MATH 235. Calculus I³
MATH 236. Calculus II
MATH 237. Calculus III
MATH 238. Linear Algebra and Differential Equations.
MATH 245. Discrete Mathematics
MATH 248. Computer and Numerical Algorithms
MATH 318. Introduction to Probability and Statistics
MATH 410. Advanced Calculus
MATH 430. Abstract Algebra I
MATH 440. Fourier Analysis and Partial Differential Equations
Mathematics elective (MATH 238 recommended)
Plus one of the following:
MATH 411. Advanced Calculus II
MATH 431. Abstract Algebra II
MATH 435. Introduction to Topology
MATH 441. Analysis and Dynamics of Differential Equations

3 General Education requirement Cluster Three.
4 General Education requirement Cluster Four.
5 Satisfies the scientific literacy requirement.

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 more than two finance courses, and in no case will transfer credit be awarded for FIN 488, Advanced Financial Policy. Contact the program director for more information on transfer credit.

Department of Foreign Languages, Literatures and Cultures

Dr. Giuliana Fazzion, Head

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Lecturers

E. Castro, K. Costello, K. Kline-Gabel, L. Morris, A. Noronjo, T. Regalado-López, J. Tkac

Mission Statement

The Department of Foreign Languages, Literatures and Cultures 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 interdisciplinary minors by offering courses for Russian studies, Latin American studies, world literature and classical studies.

Goals and Objectives

The department strives to fulfill that 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 data bases 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 interdisciplinary, 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 interdisciplinary 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.

All language majors are expected to meet certain objectives.

General

- To have a knowledge of critical thinking methods and to be able to apply these.
- To have had an introduction to computers that includes word processing as well as working with software devoted to grammar exercises, vocabulary development, literature and culture.
- To have developed an appreciation and affective feel for other cultures, not just an intellectual perspective.

Specific

The Department of Foreign Languages, Literatures and Cultures offers programs designed to:

- Teach students to understand and speak a language with facility.
- 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, international trade or for research leading to advanced degrees.

Career Opportunities

- Banking
- Criminal Justice
- Education
- Foreign Service
- Import/Export
- Law

- Management
- Marketing
- Medicine
- Ministry
- Museum work
- Public Relations
- Social work
- Translation

Co-curricular Activities and 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 Espanol
- Sigma Delta Pi

Degree Requirements

Bachelor of Arts in Modern Foreign Languages

A student can earn both a B.A. in Modern Foreign Languages and a minor in a specific language. Currently the department provides:

- Four years of instruction in French, German, Italian and Spanish
- Three years of instruction in Arabic and Chinese
- Two years of instruction in Ancient Greek, Japanese, Latin, Korean, Persian, Portuguese, Russian and Swahili

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 ¹	41
Foreign language classes (intermediate level required) ²	0-14
Second Foreign Language (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives ³	15-43
Major requirements (listed below)	33
	<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 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.

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) ¹	6
Two civilization courses (307 and 308)	6
Literature courses in the target language	6-12
Other courses as specified by the section ² (see lists for each language below)	9-15
	<hr/> 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.

French

FR 300. French Grammar and Communication ¹	3
FR 307. A History of French Civilization	3
FR 308. Contemporary French Civilization	3
FR 320. French Oral and Written Communication	3
FR 335. Introduction to Literature	3
Three 300- or 400-level FR literature courses	9
Three other 300- or 400-level FR courses	9
	<hr/> 33

¹ This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

German

GER 300. German Grammar and Communication ¹	3
GER 307. A 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 (second time)
- GER 330. Business German
- Any 400-level GER literature courses
- GER 341. German-English Technical/Commercial Translation (second time)

Group 2 (no more than one):

- ENG/GER 436. Studies in German Literature
- GHUM 200. (German works in translation)
- HIST 388. Germany Since 1871

33

¹ This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

Italian

ITAL 300. Italian Grammar and Communication ¹	3
ITAL 307. A History of Italian Civilization	3
ITAL 308. Contemporary Italian Civilization	3
ITAL 320. Italian Oral and Written Communication	3
ITAL 351. Italian-English Technical/Commercial Translation	3
Three 300- or 400-level ITAL literature courses	9
Three other 300- or 400-level ITAL courses	9
	<hr/> 33

¹ This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

Russian

Not available 2009-2010 academic year.

RUS 300. Russian Grammar and Communication ¹	3
RUS 315. Russian Phonetics	3
RUS 320. Russian Oral and Written Communication	3
RUS 400. Advanced Russian Conversation	3
RUS 405. Russian Literature of the 19th Century	3
RUS 426. Russian Literature of the 20th Century	3
Choose one of the following:	3

- RUS 308. Introduction to Russian Civilization
- GEOG 348. Russian and the Former U.S.S.R.
- HIST 385. Russian to 1855
- HIST 386. Russian since 1855

HIST 475. Soviet Russia

POSC 337. Russian Political System

Choose any four of the following: 12

GHUM 200. Great Works in Russian

RUS 490. Special Studies in Foreign Languages² (may be repeated)

RUS 405. Russian Literature of the 19th Century (second time)

RUS 426. Russian Literature of the 20th Century (second time)

TR 300. Introduction to Translation

TR 361. Russian-English Technical/Commercial Translation¹

TR 400. Text Revision

33

¹ This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

² For the RUS 490 course description, see FL 490.

Spanish

SPAN 300. Grammar and Communication ¹	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
	<hr/> 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 an education minor

In case 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 Culture's placement test. However, in this case, the student must proportionally increase the number of university electives as indicated in the B.A. Degree Requirement (Page 31.)

Teaching Licensure

Students interested in becoming teachers must meet specific curriculum requirements in their major as part of the undergraduate academic degree. In conjunction with the College of Education, the department offers programs leading to the teaching license in French, German, Italian and Spanish. The Collegiate Professional Teaching License in a modern foreign language requires 36 credits in language study.

In addition to the general education and academic major requirements, modern foreign language 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.

Minor Requirements

Modern Foreign Language Minor

A minor in a modern foreign language consists of 18 upper-division credit hours in a specific language.

Arabic

ARAB 300. Arabic Grammar and Communication	3
One 300- or 400-level ARAB literature course	3
Four other 300- or 400-level ARAB courses	12
	<hr/> 18

French

FR 300. French Grammar and Communication	3
FR 320. French Oral and Written Communication	3
FR 335. Introduction to Literature ¹	3
Three other 300- or 400-level FR courses	9
	<hr/> 18

¹ One other French literature course with permission of the department head.

German

GER 300. German Grammar and Communication	3
One 300- or 400-level GER literature course	3
Four other 300- or 400-level GER courses ¹	12
	<hr/> 18

Italian

ITAL 300. Italian Grammar and Communication	3
One 300- or 400-level ITAL literature course	3
Four other 300- or 400-level ITAL courses	12
	<hr/> 18

Russian

RUS 300. Russian Grammar and Communication	3
RUS 405. Russian Literature of the 19 th Century OR RUS 406. Russian Literature of the 20 th Century	3
Four other 300- or 400-level RUS courses	12
	<hr/> 18

Spanish

SPAN 300. Grammar and Communication	3
SPAN 335. Introduction to Spanish Literature	3
Four other 300- or 400-level SPAN courses	12
	<hr/> 18

Professional Minors

Business French

FR 300. French Grammar and Communication	3
FR 320. French Oral and Written Communication	3
FR 330. Business French	3
FR 308. French Civilization	3
FR 351. French/English Translation	3
One 300- or 400-level FR Course	3
	<hr/> 18

Business German

GER 300. German Grammar and Communication	3
GER 320. German Oral and Written Communication	3
GER 308. German Civilization	3
GER 330. German Business	3
GER 341. German/English Translation	3
One 300- or 400-level GER Course	3
	<hr/> 18

Business Italian

ITAL 300. Italian Grammar and Communication	3
ITAL 320. Italian Oral and Written Communication	3
ITAL 308. Contemporary Italian Civilization	3
ITAL 330. Business Italian	3
ITAL 351. Italian/English Translation	3
ITAL 375. Business and Society in Italy	3
	<hr/> 18

Business Spanish

SPAN 300. Spanish Grammar and Communication	3
SPAN 320. Spanish Oral and Written Communication	3
SPAN 307. Spanish Civilization or SPAN 308 Latin American Civilization	3
SPAN 330. Business Spanish	3
SPAN 321. Spanish/English Translation	3
One 300- or 400-level SPAN Course	3
	<hr/> 18

Law Enforcement Spanish

SPAN 300. Spanish Grammar and Communication	3
SPAN 320. Spanish Oral and Written Communication	3
SPAN 360. Law Enforcement Spanish	3
SPAN 490. Practical Law Enforcement Spanish	3
SPAN 321. Spanish/English Translation	3
One 300- or 400-level SPAN Course	3
	<hr/> 18

Legal Spanish

SPAN 300. Spanish Grammar and Communication	3
SPAN 307. Span Civilization or SPAN 308. Latin American Civilization	3
SPAN 320. Spanish Oral and Written Communication	3
SPAN 370. Legal Spanish	3
SPAN 435/TR 435. Translation Strategies	3
One 300- or 400-level SPAN course	3
	<hr/> 18

Medical Spanish

SPAN 300. Spanish Grammar and Communication	3
SPAN 320. Spanish Oral and Written Communication	3
SPAN 365. Medical Spanish	3
SPAN 490. Practical Medical Spanish	3
SPAN 321. Spanish /English Translation	3
One 300- or 400-level SPAN Course	3
	<hr/> 18

Spanish-English Translation and Interpretation

SPAN 300. Spanish Grammar and Communication	3
SPAN/TR 311. Contrastive Linguistics	3
SPAN/TR 312. Translation Competencies	3
SPAN 320. Spanish Oral and Written Communication	3
SPAN 435/TR 435. Translation Strategies	3
SPAN 436/TR 436. Community Interpretation	3
	<hr/> 18

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. 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 or 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 (and all later semesters)	Must retake test in spring of sophomore year or later in order to register for language classes for this semester and all later semesters

Department of Geology and Environmental Science

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Assistant Professors

A. Courtier, A. Hartshorn, E. Johnson, J. Haynes, S. Whitmeyer

Instructor

C. Kearns

Mission Statement

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, workshops – 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 will probe the philosophy of science and the history of geologic thought. These courses will incorporate critical thinking and an appreciation of the human environment.

Career Opportunities and Marketable Skills

- Earth Science Teacher
- Engineering Geologist
- Environmental Geologist
- Environmental Scientist/Specialist
- Geochemist

- Government or Industry Geologist
- Geological oceanographer
- Geomorphologist
- Geophysicist
- Hydrologist
- Meteorologist
- Science Museum Curator
- Paleoclimatologist
- Paleontologist
- Petroleum Geologist
- Soil Scientist

Co-curricular Activities and Organization

The department encourages majors and interested non-majors to participate in the student Geology Club, which sponsors field trip, 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 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 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. The B.S. degree has two concentrations: a general geology concentration designed for students that want to take a wider range of geology elective courses and an environmental and engineering geology concentration designed for students that 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 Requirements¹

Required Courses	Credit Hours
General Education ²	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major requirements (listed below) and electives	70-74
	<hr/> 120

¹ Students must follow the "Degree Requirements at James Madison University" as stated in this catalog.

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

The following are core courses required for B.S. degree students:

Core Requirements	Credit Hours
GEOL 110. Physical Geology	4
GEOL 230. Evolution of Earth	4
GEOL 280. Mineralogy	4
GEOL 300. Introduction to Petrology	3
GEOL 364. Stratigraphy and Basin Analysis	4
GEOL 365. Structural Geology	3
GEOL 399. Field Geology	6
Choose one from the following:	3-6
GEOL 491. Geological Literature Research	
GEOL 494. Internship in Geology	
GEOL 497. Problems in Geology	
GEOL 499. Honors in Geology	
	<hr/> 31-34

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
Choose one of the following:	8
MATH 231-232. Calculus with Functions I-II	
MATH 235-236. Calculus I-II	
Choose one of the following:	8
PHYS 140-140L; PHYS 150-150L. College Physics I-II with Laboratories	
PHYS 240-140L; PHYS 250-150L. University Physics I-II with Laboratories	
	<hr/> 24

Students planning graduate study in some areas of the geosciences should consider additional 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 12-13 credit hours chosen from one of the following two concentrations.

General Geology Concentration

GEOL 220. Genetic Mineralogy
 GEOL 340. Soils and Land Use
 GEOL 350. Invertebrate Paleontology
 GEOL 355. Geochemistry of Natural Waters
 GEOL 385. Geomorphology
 GEOL 390. Laboratory Techniques in Geology
 GEOL 395. Geological Perspectives in Materials
 GEOL 398. Topics in Geology (must be approved by adviser)
 GEOL 405. Vertebrate Paleontology
 GEOL 410. Engineering Geology
 GEOL 415. Geological Evolution of North America
 GEOL 460. Geohydrology

GEOL 489. Quantitative Methods in Geology

GEOL 440. Geophysics

Environmental and Engineering Geology Concentration

GEOL 340. Soils and Land Use
 GEOL 355. Geochemistry of Natural Waters
 GEOL 385. Geomorphology
 GEOL 390. Laboratory Techniques in Geology
 GEOL 395. Geological Perspectives in Materials
 GEOL 398. Topics in Geology (must be approved by adviser)
 GEOL 410. Engineering Geology
 GEOL 460. Geohydrology
 GEOL 489. Quantitative Methods in Geology
 GEOL 440. Geophysics

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 Requirements¹

Required Courses	Credit Hours
General Education ²	41
Foreign Language classes (intermediate level required) ³	0-14
Philosophy course(s) (in addition to General Education courses) ⁴	3
Major requirements (listed below) and electives	60-71
	<hr/> 120

¹ Students must follow the "Degree Requirements at James Madison University" as stated in this catalog.

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.

⁴ 100-, 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 required geology courses numbered 300 and higher.

The following are core courses required for B.A. degree students:

Core Requirements	Credit Hours
GEOL 110. Physical Geology	4
GEOL 167. History and Philosophy of the Geosciences	3
GEOL 211. Introduction to Oceanography	3
GEOL 230. Evolution of Earth	4
GEOL 320. Meteorology	3
GEOL 367. Genesis of Solid Earth Material	4
GEOL 377. Earth Surface Processes	3
GEOL 467. Stratigraphy, Structure and Tectonics	4
GEOL 477. Contemporary Issues in the Geosciences	3
ASTR 220. Astronomy	3

Choose one from the following:

GEOL 491. Geological Literature Research
 GEOL 494. Internship in Geology
 GEOL 497. Problems in Geology
 GEOL 499. Honors in Geology

31-34

The B.A. degree option requires that each student complete at least 16 hours of cognate science credit hours chosen from:

Biology

BIO/GEOL 350. Invertebrate Paleontology 4
 or BIO 114. Organisms

Chemistry

CHEM 131-131L. General Chemistry I	4
CHEM 132-132L. General Chemistry II	4

Physics

PHYS 140-140L. College Physics I	4
PHYS 150-150L. College Physics II or GEOL 440. Geophysics	3-4

The B.A. degree option requires that each student complete 6-8 credit hours of mathematics, including one of the following:

MATH 205. Introductory Calculus I	3
MATH 232. Calculus with Functions II	4
MATH 235. Calculus I	4
Cognate science and mathematics	22-25
	<hr/> 59-62

Recommended Minors for the Bachelor of Arts in Earth Science

- Astronomy
- Economics
- Environmental Information Systems
- Environmental Management
- Integrated Science and Technology
- Management Science
- Nonprofit Studies
- Secondary Education
- Technical and Scientific Communication

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 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.

**Recommended Schedule for Majors
B.S. Degree in Geology**

First Year	Credit Hours
CHEM 131-131L; 132-132L. General Chemistry I-II	8
GEOL 110. Physical Geology	4
GEOL 230. Evolution of Earth	4
Choose one of the following:	6-8
MATH 231-232. Introductory Calculus (six credits)	
MATH 235-236. Analytic Geometry and Calculus (eight credits)	
Cluster One: Skills for the 21st Century	9-12
	<hr/> 31-36
Second Year	Credit Hours
GEOL 280. Mineralogy	4
GEOL 364. Stratigraphy: Depositional Systems	4
Geology elective	3

Choose one of the following:	8
PHYS 140-140L; PHYS 150-150L. College Physics I-II with Laboratories	
PHYS 240-140L; PHYS 250-150L. University Physics I-II with Laboratories	
General Education courses	12
	<hr/> 31

Third Year	Credit Hours
GEOL 300. Introduction to Petrology	3
GEOL 365. Structural Geology	3
GEOL 399. Field Geology (May session)	6
Geology electives	8
General Education courses	9
Electives	3
	<hr/> 32

Fourth Year	Credit Hours
Choose from the following:	3-6
GEOL 491. Geological Literature Research (3 credits)	
GEOL 494. Internship (3 credits)	
GEOL 497. Problems in Geology (3 credits)	
GEOL 499. Honors (6 credits)	
Electives	9-20
	<hr/> 12-26

B.A. Degree in Earth Science

First Year	Credit Hours
Cluster One: Skills for the 21st Century	9-12
GEOL 110. Physical Geology	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
	<hr/> 27-30

Second Year	Credit Hours
GEOL 211. Oceanography	3
GEOL 320. Meteorology	3
GEOL 367. Genesis of Solid Earth Materials	4
GEOL 377. Surface Processes	3
Foreign language courses ¹	1-8
General Education courses	12
	<hr/> 25-32

Third Year	Credit Hours
GEOL 467. Stratigraphy, Structure and Tectonics	4
ASTR 220. Astronomy	3
Cognate science & mathematics	9-12
General Education courses	9
	<hr/> 25-28

Fourth Year	Credit Hours
GEOL 477. Contemporary Issues in the Geosciences	3
Cognate science	3-4
Choose one of the following:	3
GEOL 491. Geological Research Literature	
GEOL 494. Internship	
GEOL 497. Problems in Geology	
GEOL 499. Honors in Geology	
Geology electives	3-6
Electives	12-20
	<hr/> 24-36

¹ Foreign language at the intermediate level.

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.

Department of Health Sciences

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Instructors

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Lecturer

C. Rohrbaugh, L. Wilson

Affiliate Instructor

C. Nye

Mission Statement

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
- Occupational Therapist (Graduate Program)
- Physician Assistant (Graduate Program)
- Public Health Educator
- Substance Abuse Prevention Professional

Co-curricular Activities and Organizations

- American College of Sports Medicine
- Student Athletic Trainers 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-OT Society
- Pre-PT Society

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, dietetics program, the health services administration program and the occupational studies program.

Deadline Notice for Change or Declaration of Majors

Deadlines for change or declaration of major forms will be as follows:

Summer semester	February 15
Fall semester	February 15
Spring semester.....	September 15 of the previous year

Forms submitted after the deadline will apply to the following semester.

Degree and Major Requirements

The Department of Health Sciences offers the following degrees:

- Bachelor of Science in Athletic Training
- Bachelor of Science in Dietetics
- Bachelor of Science in Health Services Administration
- Bachelor of Science in Health Sciences with a concentration in:
 - Health Assessment and Promotion
 - Health Studies
 - Occupational Studies
 - Public Health Education

The Physician Assistant program and the Occupational Therapy program are available at the master's degree level.

Bachelor of Science in Athletic Training

This major prepares students to become Certified Athletic Trainers through the Board of Certification. Areas of study include injury prevention, emergency care, injury evaluation and rehabilitation of the physically active. 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.

Athletic training is not an open major; students are selected through a competitive admission process. Specific program requirements, including academic, clinical and technical standards, may be found on the Athletic Training Curriculum Web site (www.jmu.edu/healthsci/at) or in the Athletic Training Curriculum Handbook, which can also be found on the ATEP Web site.

Degree Requirements

General Education ¹	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
	<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.

Required Courses/

Recommended Schedule for Majors

First Year	Credit Hours
MATH 220. Elementary Statistics ¹	3
ATEP 205. Introduction to Athletic Training ²	3
Electives	6
General Education courses (CHEM 120 or CHEM 131 suggested)	18
	<hr/> 30

Second Year	Credit Hours
BIO 270. Human Physiology ¹	4
BIO 290. Human Anatomy ²	4
ATEP 206. Recognition and Management of Athletic Injuries ^{2,3}	3
ATEP 291. Pre-Professional Practicum in Athletic Training ^{2,3}	2
Electives	0-1
General Education courses	15
	<hr/> 29-30

Third Year	Credit Hours
ATEP 304A. Lower Quarter Evaluation ^{2,4}	3
ATEP 304B. Upper Quarter Evaluation ^{2,3}	3
ATEP 305. Rehabilitation in Athletic Training (Lower) ^{2,3}	3
ATEP 306. Therapeutic Modalities ^{2,4}	4
ATEP 307. Field Application in Athletic Training ^{2,4}	2
ATEP 350. Measurement Techniques in Athletic Training ^{2,4}	2
ATEP 355. Infectious Disease Control ^{2,3}	1
ATEP 377. General Medicine in Athletic Training ^{2,3}	2
ATEP 392. Level II Practicum in Athletic Training ^{2,4}	3
ATEP 393. Level III Practicum in Athletic Training ^{2,3}	2
HTH 354. U.S. Health Care Systems ²	3
HTH 441. Rehabilitative Biomechanics ²	3
NUTR 280. Nutrition for Wellness ²	3
	<hr/> 34

Fourth Year	Credit Hours
ATEP 376. Pharmacology for Athletic Trainers ^{2,4}	2
ATEP 405. Rehabilitation in Athletic Training (Upper) ^{2,4}	3
ATEP 406. Organization and Administration of Athletic Training ^{2,3}	3
ATEP 494. Level IV Practicum in Athletic Training ^{2,4}	2-3
ATEP 495. Level V Practicum in Athletic Training ^{2,3}	2

KIN 302. Physiology of Muscular Activity ²	3
KIN 302L. Physiology of Muscular Activity/Lab ²	1
NUTR 382. Sports Nutrition ^{2,4}	3
Elective	0-2
General Education courses	7
	<hr/> 26-29

1 BIO 270 & MATH 220 may be met by choosing the correct course in General Education and be counted for both general education and the major

2 Grade of "C" or better required

3 Offered only in spring semester

4 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 accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 120 S. Riverside Plaza, Suite 2000, 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.

This is not an open major. Students are selected through a competitive application process. Following completion of the DPD, students should plan to meet the experience requirement for Registered Dietitian status by competing a dietetic internship.

Didactic Program in Dietetics

Students wishing to complete the Didactic Program in Dietetics (DPD) at JMU must apply to the professional component of the DPD in the spring semester during which requirements will be met, usually in the sophomore year. Prerequisite requirements to apply for the DPD include: completion of all prerequisite courses with a 3.0 cumulative grade point average (GPA) or above and completion of most of the JMU General Education requirements. Prerequisite courses that must be completed with a grade no lower than a "C" (2.0) prior to applying to the DPD include: CHEM 131, CHEM 131L, CHEM 132, CHEM 132L, BIO 270, GenEd Cluster 1, GPOSC 225, GPSYC 101 or GPSYC 160, MATH 220, NUTR 280, and NUTR 295. Students accepted to the professional component of the DPD can expect four semesters of full time classes and at least one summer class. The application deadline is February 15th. Applications are available at www.healthsci.jmu.edu/or may be obtained from the Department of Health Sciences, Health & Human Services Building (HHS) Room 3129.

Application packets must include the following:

- A completed DPD application form.
- Official transcripts from all colleges and universities other than James Madison University.
- Unofficial JMU transcript.
- A typed letter of application stating professional goals and reasons for selecting dietetics as a career.

All materials must be together in one envelope and submitted to the address below.

Director, Didactic Program in Dietetics
Department of Health Sciences, MSC 4301
James Madison University
Harrisonburg, VA 22807

Receiving Didactic Program Verification

To remain in the professional component of the DPD, students must maintain a GPA of at least 3.0 and earn grades of "C" (2.0) or higher in all DPD classes. Transfer credit will not be accepted for the following courses: NUTR 363, Quantity Food Production; NUTR 446, Experimental Foods; NUTR 482, Nutrition and Metabolism; NUTR 484, Clinical Nutrition II; and NUTR 490, Field Experience in Dietetics. All successful graduates will receive four copies of a signed Verification Statement from the James Madison University DPD as soon as a 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	4
CHEM 132-132L. General Chemistry II with laboratory	4
NUTR 280. Nutrition for Wellness	3
NUTR 295. Foundations of Nutrition Practice ¹	2
Quantitative requirement (B.S. degree requirement)	3
General Education courses	15
	<hr/> 31

Second Year	Credit Hours
BIO 270. Human Anatomy	4
GPSYC 101. General Psychology ³	3
or GPSYC 160. Life Span Human Development ³	
GPOSC 225. U.S. Government ³	4
MATH 220. Elementary Statistics ³	3
General Education courses	12
Elective	3
	<hr/> 29

Third Year	Credit Hours
BIO 290. Human Anatomy	4
CHEM 221-221L. Concepts of Organic Chemistry with laboratory ²	4
CHEM 222-222L. Concepts of Biochemistry with laboratory ¹	4
NUTR 340. Science of Food Preparation	3
NUTR 362. Food Service Systems ¹	3
NUTR 380. Global Nutrition	3
NUTR 385. Nutrition throughout the Life Cycle ²	3
NUTR 386. Community Nutrition	3
NUTR 395. Introduction to Patient Care in Dietetics ²	2
	<hr/> 29

Fourth Year	Credit Hours
BIO 280. Allied Health Microbiology	4
NUTR 360. Management in Dietetics ²	3
NUTR 363. Quantity Food Production	3
NUTR 384. Clinical Nutrition I ¹	3
NUTR 446. Experimental Foods ²	3
NUTR 482. Nutrition and Metabolism ²	3
NUTR 484. Clinical Nutrition II ¹	3
NUTR 490. Field Experience Practicum ⁴	3
NUTR 495. Senior Seminar in Dietetics ²	2
Electives	4
	<hr/> 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 during 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 not an open program; students must meet specific criteria for admission to the program. The criteria are available from the program director and are available on the program's Web site at www.healthsci.jmu.edu/hsa/pages. 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

	Credit Hours
General Education ¹	40
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3
Major requirements (listed after schedule)	74
	<hr/> 120

Required Courses/

Recommended Schedule for Majors

First Year	Credit Hours
General Education courses	31
	<hr/> 31

Second Year	Credit Hours
GERN 280. Social Gerontology	3
ACTG 244. Accounting for non-Business Majors	3
COB 204. Computer Information Systems	3
ECON 201. Principles of Economics (Micro)	3
HTH 354. U.S. Health Care System ⁵	3
HSA 385. Seminar in Health Services Administration ²	1
General Education courses	12
	<hr/> 28

Third Year	Credit Hours
FIN 345. Managerial Finance	3
MATH 220. Elementary Statistics ¹	3
HTH 320. Statistical Methods for Health Science Research ² (B.S. degree requirement)	3
HSA 366. Health Politics and Policy ^{2,4} (B.S. degree requirement)	3
HSA 358. Health Administration ^{2,4}	3
HSA 363. Health Economics ^{2,4}	3
HSA 365. Values in Health Care ²	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3
HSA 463. Quality Management in Health Care ²	3
	<hr/> 30
Fourth Year	Credit Hours
HTH 450. Epidemiology ²	3
HSA 454. Internship in Health Organizations ⁶	3
HTH 458. Health Program Planning and Evaluation ²	3
HSA 462. Managed Care ^{2,3}	3
Choose one of the following:	3
HSA 452. Hospital Organization and Administration ^{2,3}	
HSA 455. Long Term Care Organization and Administration ^{2,3}	
HSA 456. Ambulatory Care Services: Organization and Administration ^{2,4}	
HSA 464. Funding in Health Care ^{2,3}	3
Program electives (selected from list of approved courses)	6
Electives	7
	<hr/> 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 Grade of "C" or better required.

3 Offered only in spring semester.

4 Offered only in fall semester.

5 Grade of "B" or better required.

6 Grade of "C" or better required in all HSA courses.

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, occupational 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 (35-40 hours)	Credit Hours
CHEM 120 Concepts of Chemistry or CHEM 131/ 132+Ls General Chemistry	3-8
MATH 220 Elementary Statistics	3
GHTH 100 Personal Wellness	3
HTH 230 Community Health	3
Quantitative requirement for B.S. degree (HTH 320 Statistical Methods will count)	3
HTH 330 Introduction to Human Disease	3
HTH 408 Health Research Methods	3
HTH 450 Epidemiology	3
HTH 451 Health Behavior Change	3
Select two of the following:	8
BIO 270 Human Physiology	
BIO 280 Allied Health Microbiology	
BIO 290 Human Anatomy	
	<hr/> 35-40

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 fitness concepts. HAP students master a variety of clinical assessments and can begin to develop health communication skills prior to graduation. The concentration includes 12-18 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 Instructor certification program 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	35-40
(See Health Sciences Core in previous section.)	
ATEP 205. Introduction to Athletic Training	3
BIO 290. Human Anatomy	4
CHEM 120 + 120L. Concepts of Chemistry with Laboratory	4
NUTR 280. Nutrition for Wellness	3
NUTR 382. Sports Nutrition	3
HTH 308. Therapeutic Assessment	3
HTH 389. Practicum in Health Education	3
HTH 441. Rehabilitative Biomechanics	3
HTH 442. Chronic Disease	3
HTH 454. Internship in Health Organizations	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

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 ¹ + CHEM 120L	4
GHTH 100. Personal Wellness	3
HTH 230. Community Health	3
MATH 220. Elementary Statistics ¹	3
General Education courses	15
	<hr/> 31
Second Year	Credit Hours
BIO 270. Human Physiology ¹	4
BIO 290. Human Anatomy	4
ATEP 205. Introduction to Athletic Training	3
NUTR 280. Nutrition for Wellness	3
General Education courses	15
	<hr/> 29

Third Year

	Credit Hours
HTH 308. Therapeutic Assessment ²	3
HTH 330. Introduction to Human Disease	3
HTH 389. Practicum in Health Education	3
HTH 451. Health Behavior Change	3
HTH 471. Health Aspects of Gerontology	3
NUTR 382. Sports Nutrition ³	3
Quantitative requirement for B.S. degree HTH 320 will count)	3
General Education courses	4
Core and elective courses	5
	<hr/> 31

Fourth Year

	Credit Hours
HTH 408. Health Research Methods	3
HTH 441. Rehabilitative Biomechanics	3
HTH 442. Chronic Diseases ³	3
HTH 450. Epidemiology	3
HTH 454. Internship in Health Organizations	3
HTH 458. Health Program Planning and Evaluation	3
HTH 480. Health Assessment Techniques ³	3
HTH 482. Advanced Health Assessment Techniques ²	3
Core and elective courses	6
	<hr/> 30

1 BIO 270, CHEM 120 and MATH 220 may be counted for both general education and the major.

2 Offered only in spring semester.

3 Offered only in fall semester.

Health Studies Concentration

The health studies concentration is designed for students interested in applying to a professional program. 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.

Health Studies Concentration	Credit Hours
Health Sciences Core	35-40
(See Health Sciences Core in previous section.)	
Required Courses	6
HTH 354. U. S. Health Care System	
HTH 300. Medical Terminology	
Select 16 credits from these pre-professional courses	16
(Check with pre-professional adviser prior to course selection.)	
BIO 114. Organisms	
BIO 214. Cell and Molecular Biology	
BIO 224. Genetics and Development	
BIO 280. Allied Health Microbiology ¹	
BIO 370. Animal Physiology	
BIO 430. Human Genetics	
CHEM 221 + 221L. Concepts of Organic Chemistry	
CHEM 222. Concepts of Biochemistry	
CHEM 341/342/346 Organic Chemistry	
HTH 441. Rehabilitative Biomechanics	
PHYS 140 + 140L Physics	
PHYS 150 + 150L Physics	
GPSYC 101. General Psychology	

GPSYC 160. Life Span Human Development	
PSYC 250. Introduction to Abnormal Psychology	
1 Will not count for the 16 credits in this category unless also take BIO 270 and BIO 290	
Select five courses from the following	15
HTH 352. Environmental Health	
HTH 360. Contemporary Health Issues	
HTH 370. Child and Adolescent Health	
HTH 372. Human Sexuality	
HTH 378. Use and Effects of Drugs	
HTH 441. Rehabilitative Biomechanics	
HTH 471. Health Aspects of Gerontology	
NUTR 280 Nutrition for Wellness	

Recommended Schedule for Health Studies Concentration

First Year	Credit Hours
GHTH 100. Personal Wellness	3
MATH 220. Elementary Statistics	3
Other quantitative course for B.S. degree requirement or HTH 320, taken later	
Pre-professional courses	4-8
General Education courses	13-17
	<hr/> 30

Second Year	Credit Hours
HTH 230. Community Health	3
CHEM 120 + L	3-8
or CHEM 131 + L and CHEM 132 + L	
BIO 270 or BIO 280 or BIO 290	4
Health studies electives/pre-professional courses	3-6
General Education courses	12-17
	<hr/> 30

Third Year	Credit Hours
HTH 300. Medical Terminology	3
BIO 270 or BIO 280 or BIO 290	4
HTH 330. Introduction to Human Disease	3
HTH 354. U.S. Health Care System	3
Health studies electives/pre-professional courses	3-6
General Education electives	6-9
Electives	0-5
	<hr/> 30

Fourth Year	Credit Hours
HTH 408. Managing and Interpreting HS Research Information	3
HTH 450. Epidemiology	3
HTH 451. Health Behavior Change	3
Health Studies electives/pre-professional courses	11-16
General Education courses	3-8
Electives	0-7
	<hr/> 30

Occupational Studies Concentration

This concentration is an early-entry program that can lead toward the Master in Occupational Therapy (MOT) program. Through this concentration qualified and selected JMU undergraduate students prepare for admission to the MOT program during their senior year. The health sciences major core is combined with prerequisite courses and first year requisite courses that can lead to the MOT degree. This concentration allows the occupational studies student the opportunity to earn a B.S. degree prior to applying to, and gaining admission to, the MOT program. Entry into this concentration requires a supplemental admission process.

Admission to JMU does not guarantee admission to the occupational studies concentration or to the MOT program; likewise, admission into the occupational studies program as a senior does not ensure direct admission in the JMU Graduate School or the MOT program. Application to the MOT program will occur during the student's senior year with admission based on academic performance and other factors. Students must complete the General Education requirements, the health sciences major core requirements and the occupational studies core requirements prior to admission.

Students who successfully complete the required 85 undergraduate credits and meet all criteria listed for the supplemental application process, and are selected by the OT program admission committee, will be admitted to the occupational studies concentration prior to the start of their senior year. These students will then complete the remaining prescribed 35 undergraduate credits and will earn a Bachelor of Science in Health Sciences with an occupational studies concentration.

Admission Requirements

Applicants to the occupational studies concentration must initially be accepted to JMU and can apply once all requirements for admission are completed. Applicants must have a minimum cumulative grade point average of 2.8 and earn a "C" (2.0) grade or better in all prerequisite course work. Applicants must submit evidence of:

- A minimum cumulative grade point average of 2.8 (3.0 recommended) and must earn a "C" (2.0) grade or better in all prerequisite course work.
- Graduate Record Examination (www.gre.org) scores in Verbal, Quantitative and Writing. The GRE should be taken the student's junior year (fall term before Nov. 15) prior to applying to the occupational studies concentration. Contact the JMU Graduate School for more information.
- Documentation verifying a minimum of 40 hours of observation of occupational therapy services
- Three reference forms: one from an instructor, one from an employer/volunteer supervisor and one from another non-related individual
- Autobiography (1500 words or less)
- Evidence of at least one instructional experience reflecting skill attainment in the arts or media (from high school, community college or college course, private instruction, or community arts certificate)
- Meet all General Education requirements including the Information Seeking Skills Test (ISST) and computer competency requirements as required by the university.
- All prerequisites and requirements must be complete by the stated deadlines. Incomplete application packages will not be considered for admission.

Applicants who already have an earned baccalaureate degree should visit the Occupational Therapy Program Web site for prerequisite and admission requirements or call (540) 568-2399.

Occupational Studies Core
Required Courses/Recommended Schedule

First Year	Credit Hours
Critical Thinking	3
Human Communication	3
Writing	3
Historical, Cultural, Philosophical Perspectives	3

Fine Arts	3
Literature	3
American Experience	4
Global Experience (GANTH 195)	3
GHTH 100. Personal Wellness	3
GSOCI 240. Individual in Society or GSOCI 210. Social Issues in a Global Context	3
	31

Second Year	Credit Hours
GPSYC 160. Life Span Human Development	3
MATH 220. Elementary Statistics	3
CHEM 120. Concepts of Chemistry	3
HTH 230. Community Health	3
NUTR 280. Nutrition for Wellness	3
BIO 290. Human Anatomy	4
PSYC 250. Abnormal Psychology	3
HTH 354. U.S. HealthCare Systems	3
HTH 300. Medical Terminology	3
HTH 408. Health Research Methods	3
	31

Third Year	Credit Hours
BIO 270. Human Physiology	4
HTH 330. Intro to Human Disease	3
HTH 451. Health Behavior Change	3
Elective	6
HTH 450. Epidemiology	3
HTH 320 or MATH Elective	3
HTH 441. Rehab Biomechanics	3
	25

Fourth Year	Credit Hours
<i>(Admission to the occupational studies concentration required)</i>	
HTH 409. Therapeutic Interaction	3
HTH 431. Human Occupation and Foundations of the Profession	3
BIO 414. Functional Anatomy for OTs	4
BIO 440. Functional Neuroscience	3
HTH 424. Occupational Development Through the Life Span	3
HTH 445. The Occupational Therapy Process	3
HTH 460. Sensorimotor Foundations of Occupation	3
HTH 461. Therapeutic Media in Occupational Therapy	2
HTH 478. Occupational Dysfunction - Cause & Impact	3
HTH 479. Foundations of Research in OT	3
HTH 435. Level One Fieldwork One	1
HTH 485. Psychosocial Perspectives in OT Practice	3
HTH 491. Occupational Therapy Tutorial I	1
	35

The Occupational Therapy Program has achieved full accreditation from the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA- www.aota.org), located at 4720 Montgomery Lane, PO Box 31220, Bethesda, MD 20824-1220; (301) 652-AOTA. All entry-level occupational therapy programs are now accredited at the post-baccalaureate level.

With full accreditation, program graduates are able to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy (NBCOT), 12 South Summit Avenue, Suite 100, Gaithersburg, MD 20877-4150; (301) 990-7979; www.nbcot.org. After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR).

In addition, most states require licensure in order to practice. State licenses are usually based in part on the results of the NBCOT Certification exam. A prior felony conviction may affect a graduate's ability to sit for the NBCOT certification examination or attain state licensure.

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. The program has been approved by the Society for Public Health Education and the American Association for Health Education.

Concentration Requirements

Students must complete the General Education requirements, the B.S. degree requirements, health sciences core and the public health education requirements.

Required Courses	Credit Hours
Health Sciences Core	35-40
(See Health Sciences Core in previous section.)	
HTH 352. Environmental Health	3
HTH 360. Contemporary Health Issues	3
HTH 370. Child and Adolescent Health	3
HTH 372. Human Sexuality	3
HTH 378. Use and Effects of Drugs	3
HTH 453. Public Health Education Methods	3
HTH 458. Health Program Planning and Evaluation	3
HTH 471. Health Aspects of Gerontology	3
HTH 454. Internship in Health Organizations	3
Select 6 credits from the following designated electives	6
HTH 300. Medical Terminology	
HTH 354. U.S. Health Care System	
HTH 407. Health Education Facilitation/Synthesis	
NUTR 280. Nutrition for Wellness	

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 ¹	3
MATH 220. Elementary Statistics ¹	3
General Education courses and electives	24
	30
Second Year	Credit Hours
BIO 270. Human Physiology ¹ and/or	7-8
BIO 280. Allied Health Microbiology and/or	
BIO 290. Human Anatomy	
HTH 230. Community Health	3
Public health designated electives	6
General Education courses and electives	14
	30
Third Year	Credit Hours
HTH 330. Introduction to Human Disease	3
HTH 352. Environmental Health	3
HTH 360. Contemporary Health Issues	3
HTH 370. Child and Adolescent Health	3

HTH 372. Human Sexuality	3
HTH 378. The Use and Effects of Drugs	3
HTH 451. Health Behavior Change	3
Quantitative requirement for B.S. degree.	3
(HTH 320 will count)	
General Education courses	3
Electives	3
	30

In order to graduate in May of the senior year, a student must save HTH 450, HTH 453 and HTH 471 to be completed the third block of the senior year. The internship, HTH 454, 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

Fall Semester	Credit Hours
HTH 408. Health Research Methods	3
HTH 458. Health Program Planning and Evaluation	3
Electives	12
	18

Spring Semester

Third Block	Credit Hours
HTH 450. Epidemiology ²	3
HTH 453. Public Health Education Methods ²	3
HTH 471. Health Aspects of Gerontology ²	3
Fourth Block	
HTH 454. Internship in Health Organizations ³	3
	12

1 BIO 270, CHEM 120 and MATH 220 may be counted for both general education and the major.

2 Offered first eight weeks of spring semester.

3 Offered only in spring or summer.

Master Level Degrees

In addition to undergraduate programs, the Department of Health Sciences offers several advanced degrees. For more information about any of the programs listed, refer to the *Graduate Catalog*, College of Graduate and Outreach Programs Web site at <http://www.jmu.edu/grad> or gain access through the Health Sciences Web site at <http://www.healthsci.jmu.edu>.

Master of Occupational Therapy

Master of Physician Assistant Studies

Master of Science in Health Sciences/Dietetics Concentration

Master of Science in Health Sciences/Nutrition and Physical Activity Concentration

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. Michael J. Galgano, Head

Phone: (540) 568-6132

Location: Jackson Hall, Room 202

E-mail: history@jmu.edu

Web site: <http://web.jmu.edu/history>

Professors

J. Arndt, S. Bland, D. Boyd-Bragg, J. Butt, M. Galgano, S. Guerrier, R. Hyser, M. Loe, H. Myers, D. Owusu-Ansah, J. Walker

Associate Professors

K. Borg, P. Dillard, K. Hardwick, L. King, G. Lanier, R. Meixsel, M. Mulrooney, S. Reich, M. Seth

Assistant Professors

S. Chappell, J. Connerley, J. Davidson, M. Gayne, H. Gelfand, M. Gubser, S. Hanifi, D. Kerr, K. McCleary, A. Sandman, A. Schweber, W. Van Norman, N. Varlik

Mission Statement

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.

Goals

To carry out the above mission, the Department of History seeks the following goals, which focus on student knowledge, skills and experiences.

Knowledge

Students studying history at JMU will:

- acquire knowledge of the world's great literary, philosophical, religious and artistic traditions.
- comprehend the historical and social context of major political, intellectual, religious, economic and cultural developments.
- comprehend the major achievements in the fine arts in world civilizations and the achievements' historical, social and cultural context.
- evaluate the evidence, ideas and models needed to perceive how people relate to each other, to institutions and to communities as well as to make judgments about the world.
- discern the values, ethics and legal issues in world civilizations, including their own, and how these issues relate to Western ideas of a free society.

Skills

Students studying history at JMU will:

- read, write and speak critically, mastering how to make informed judgments based on existing evidence.
- locate printed and online information sources to research a topic exhaustively.

- critically evaluate textual evidence by identifying a thesis, noting sources used in the argument, discerning the conclusions and determining the perspective, bias and reliability of the argument.
- write clear, well-organized, grammatical prose.
- solve problems.
- communicate persuasively.
- use computers effectively.
- speak a foreign language proficiently.

Experience

Students studying history at JMU will:

- handle responsibility to become independent, creative and self-directed learners and complete scholarly projects on time.
- consider thoughtfully a number of perspectives before supporting one.
- develop ways of perceiving, evaluating and behaving within cultural systems different from their own.
- understand the importance of change and continuity over time, different peoples' responses to change and the importance of cause and effect in history.
- discern the dynamics of an increasingly multicultural society.

Career Opportunities and Marketable Skills

Career opportunities open to those receiving a B.A. in history include:

- Archiving
- Education
- Industry
- Local, state and federal government
- Museum curation
- Private business

With additional training, many graduates pursue careers in law or academia. Many graduates also have pursued careers in the health and technology professions.

Students completing an undergraduate degree in history possess marketable abilities in:

- Analyzing
- Researching
- Writing

They also possess computer abilities and skills in:

- Data base development
- Statistical analysis
- Web site development
- Word processing

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

The requirements for a major in history consist of introductory-, mid- and upper-level courses. The 100- and 200-level courses are world or regional surveys, covering extensive periods of time, while the 300- and 400-level courses focus on specific nations, time periods or themes. The upper-level courses also require more extensive analysis of sources, texts and interpretations. Majors in history are strongly encouraged to continue study in foreign languages beyond the minimum university requirement and, when appropriate, to integrate their foreign language studies into their history classes.

This major requires four core courses. Three of these courses are introductory level: *GHIST* 101, World History to 1500; *GHIST* 102, World History Since 1500; and *GHIST* 225, United States History. In addition to the core requirements, majors must take nine elective courses: two on the 200 level and seven on the 300 and 400 level.

These courses introduce students to the nature of history and survey the globe in a historical context. In addition to involving reading, writing and critical thinking, these courses develop students' elementary computer skills in identifying and interpreting research sources and presenting research results. The other required course is an upper-level course, HIST 395, History Seminar. This seminar on research methods teaches students the most sophisticated computer applications for research and writing.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	22-36
Major requirements (listed below)	40
	<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.

Major Requirements

Core Requirements	Credit Hours
<i>GHIST</i> 101. World History to 1500	3
<i>GHIST</i> 102. World History Since 1500	3
<i>GHIST</i> 225. U.S. History	4
Any other two courses at the 200 level	6
HIST 395. History Seminar ¹	3
Electives	21
Seven 300- or 400-level courses	<hr/> 40

¹ This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

GHIST courses can be double-counted toward General Education credit. HIST 395 may not be counted toward the 300/400 level course requirement. HIST 395 is a prerequisite for 400 level courses. Non-majors may enroll in 400 level classes without completing HIST 395 with the instructor's permission. Majors must complete four of the seven 300/400 level elective courses at the 400 level. Majors must complete three courses (nine credit hours) outside the field of U.S. history on the 300 and 400 level with at least one of these upper-division courses in world history. For honors majors, only three hours of HIST 499, Honors Thesis, may be counted among the four 400 level courses required for the major.

Recommended Schedule for Majors

First Year	Credit Hours
<i>GHIST</i> 101. World History to 1500 (Cluster Two)	3
<i>GHIST</i> 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
	<hr/> 30
Second Year	Credit Hours
<i>GHIST</i> 225. U.S. History	4
Any other two courses at the 200 level	6
HIST 395. History Seminar	3
Foreign language courses (if needed) or electives	6
General Education courses (Cluster Three, Cluster Five)	12
	<hr/> 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
	<hr/> 30
Fourth Year	Credit Hours
History electives (mix 300 and 400 levels)	12
Electives	15
General Education courses (Cluster Four)	3
	<hr/> 30

Concentration

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 eight elective courses, seven 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
GHIST 101. World History to 1500	3
GHIST 102. World History Since 1500	3
GHIST 225. U.S. History	4
Any two 200 level History courses	6
HIST 395. History Seminar ¹	3
Eight electives ²	
Non-U.S. 300/400 level History courses	9
Public History Concentration	
Required Courses	
HIST 340. Internship in History	3
HIST 396. Introduction to Public History	3
Primary Electives	6-9
HIST 310. American Business History	
HIST/ANTH 331. Historical Archeology	
HIST 337. Workshop in Local History	
HIST/ARTH 394. Introduction to Museum Work	
HIST/ANTH/SCOM 441. Oral History and Social Justice	
HIST 491. Editing Historical Documents	
HIST/ANTH/ARTH 492. American Material Culture	
HIST/ANTH 493. Historic Preservation	
HIST 497. Genealogical Research and Family History	
Secondary Electives	0-3
HIST 326. The Automobile in Twentieth-Century America	
HIST 327. Technology in America	
HIST/SOCI 338. Urban Social History	
HIST 360. Research Apprenticeship in History	
HIST 391. Travel Studies Seminar:	

The Ancient World and Roman Britain
Summer in Ghana Program
Cultural History of Scotland
HIST 402. Workshop in Colonial American Life
HIST 403. Workshop in Civil War Virginia
ANTH 494. Field Techniques in Archeology

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.
2 Seven (21 credit hours) of the eight electives must be 300/400-level history courses. At least four courses (12 credit hours) must be 400-level history courses. For honors majors, only three hours of HIST 499, Honors Thesis, may be counted among the four 400-level courses required for the major.

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 GHIST 225.

In addition to the general education and academic major requirements, history 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.

History and 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 the following 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:

	Credit Hours
COB 191. Business and Economic Statistics	3
COB 204. Computer Information Systems	3
COB 218. Legal Environment of Business	3
COB 241. Financial Accounting	3
COB 242. Managerial Accounting	3
GECON 200. Introduction to Macroeconomics	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Managerial Finance	3
MKTG 380. Principles of Marketing	3

Minor Requirements

Departmental Minor

History Minor

The minor in history is available with the B.A., B.S. or any other degree. The minor requires 21 credit hours of history, including GHIST 101 and GHIST 102. At least six of the remaining fifteen hours must be at the 300 or 400 level with at least one of these courses in world history.

Interdisciplinary Minors

For information on any of the following minors, refer to the section on "Interdisciplinary Programs," beginning on Page 100.

Africana Studies Minor

The minor in Africana studies broadens students' world perspectives by enhancing their acquaintance with and understanding of the peoples, cultures and institutions of Africa and the Africa Diaspora in the Western Hemisphere. The minimum requirement for a minor in Africana studies is 24 credit hours.

American Studies Minor

American Studies is an interdisciplinary program of study that promotes an enhanced understanding of the whole of American civilization, past and present through examination of the diverse aspects of our culture and changing patterns of ideas and values. Courses come from the departments within the College of Arts and Letters and students will take courses from within three groupings: multicultural studies, ideas and the arts, and history and politics.

Asian Studies Minor

The purpose of this interdisciplinary program is to broaden the students' perspective by enhancing their understanding and appreciation of Asian culture and institutions. The minimum requirement for a minor in Asian studies is 18 credit hours.

Classical Studies Minor

The minor in classical studies introduces students to Greco-Roman civilization. The requirement is successful completion of 24 credit hours.

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.

International Humanities Minor

The minor in international humanities encourages students to explore the cultural environments of civilizations outside of the English-speaking world of Great Britain and the United States.

Latin American Studies Minor

This minor allows students to acquire a deeper understanding of Latin America. In addition to a B.A. degree language requirement in Spanish, the Latin American studies minor consists of a minimum of 18 credit hours.

Russian Studies Minor

This minor offers a broad, interdisciplinary perspective on Russian culture, history, political institutions, economy and geography. The minimum requirement for a minor in Russian studies is 18 credit hours.

Women's Studies Minor

The Women's Studies minor is an 18 credit hour interdisciplinary program that explores the scholarship related to gender and equity issues affecting women.

Credit by Examination

The Department of History offers credit by examination for GHIST 101, GHIST 102, and GHIST 225. Students who want permission to take an examination must apply in writing to the department head during the regular registration period. Upon application, students should follow the general policies for credit by examination outlined on Page 21. 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 Web site at <http://web.jmu.edu/history/>.

Program of Hospitality and Tourism Management

Dr. Irvine Clarke, III, Head

Phone: (540) 568-3049

Location: Zane Showker Hall, Room 535

E-mail: clarkeix@jmu.edu

Web site: <http://www.jmu.edu/cob/htm/>

Dr. Michael O'Fallon, Program Coordinator

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Location: Zane Showker Hall, Room 215

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Web site: <http://www.jmu.edu/cob/htm/>

Professor

R. Foucar-Szocki

Associate Professor

B. Horton

Assistant Professor

M. O'Fallon

Instructor

S. Welpott

Mission Statement

The hospitality leaders of tomorrow must be educated and enlightened citizens who will lead productive and meaningful lives. James Madison University Hospitality and Tourism Management prides itself in developing creative hospitality leaders who make a difference.

Our mission is to develop hospitality and tourism management 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 – HTM will be recognized as the preferred provider for hospitality graduates.

Goals

- To expose students to a rigorous academic and experiential learning program, including a supervisory 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 and tourism management.
- To ensure that all HTM students have a meaningful choice of job opportunities upon graduation.
- To continue the refinement of curriculum with an increased emphasis on technology and information seeking skills.
- To maintain a faculty of knowledgeable and respected industry professionals, dedicated to continuous improvement via internships, authorship, and participation at national and international industry conferences.

Career Opportunities

The hospitality and tourism field, also known as the mega-industry, includes many career opportunities. Recent statistics include the following:

- The field is America's largest services exporter, with international travelers spending over \$94 billion in the United States.
- Pleasure travel volume was 897.6 million; personal-trips with business travel accounted for over 272 million trips in the United States alone.
- Total HTM employment in the United States includes 17.0 million people.
- HTM has a related payroll of \$147 billion.
- A total of \$541 billion spent on HTM services.
- HTM provides \$82.6 billion in tax revenues or federal, state and local governments.

Co-curricular Activities and Organizations

Professional Convention Management Association is a student organization that provides both educational and social programs to the HTM major. This group plans and coordinates an annual trip to PCMA Annual Convention.

The National Society of Minorities in Hospitality 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 is instrumental in exposing students to the profession of the club management and its many career opportunities.

Degree and Major Requirements

Bachelor of Business Administration in Hospitality and Tourism Management

Hospitality and tourism majors conform to the general structure of the B.B.A degree program. The B.B.A. degree in Hospitality and Tourism Management requires a minimum of 120 credit hours of undergraduate work.

Degree Requirements

	Credit Hours
General Education requirements ¹	41
B.B.A lower-level core courses	23-30
B.B.A upper-level core courses	15
Hospitality and Tourism major requirements	27
Non-business electives	7-11
	<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.

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 41-44), up to a total of nine hours in economics (GECON courses must be counted as economics), and three hours of COB 191, Business and Economic Statistics. The remaining hours 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.

Major Requirements

As a result of hospitality and tourism management being such a broad field there are many areas of specialization. Students majoring in HTM must choose one three-credit hour elective in addition to the 24 credit hours of required courses.

All HTM majors must complete the HTM core courses, with HTM 471 serving as the capstone course.

HTM Core Courses	Credit Hours
HTM 100. Hospitality and Tourism Management Seminar	1
HTM 250. Overview of Hospitality and Tourism Management	3
HTM 261. Internship	0
HTM 271. Introduction to Food Service Management	1
HTM 330. Hotel Operations and Hospitality Technology	3
HTM 331. Hospitality Law	3
HTM 400. Hospitality and Tourism Management Senior Seminar	1
HTM 425. Hospitality Human Resources Management	3
HTM 434. Purchasing, Cost Controls, and Financial Management	3
HTM 461. Supervisory Internship	0
HTM 470. Catering Operations and Event Management	3
HTM 471. Hospitality Leadership	3

In addition, students must take three credits in HTM above the 300 level or other program approved courses:

Electives	Credit Hours
HTM 371. Culinary Arts	3
HTM 412. Club and Resort Management	3
HTM 431. Advanced Lodging	3
HTM 450. Special Events and Meeting Management	3
HTM 451. Entertainment Management	3
HTM 473. Beverage Management and Marketing	3

HTM 490. Special Studies in Hospitality and Tourism Management	1-3
HTM 498. Special Topics	3

Recommended Schedule for Majors

First Year

First Semester	Credit Hours
GECON 200. Introduction to Macroeconomics	3
MATH 205. Introductory Calculus I	3
General Education courses or non-business electives	9
	<hr/> 15

Second Semester

Second Semester	Credit Hours
HTM 100. Hospitality and Tourism Management Seminar	1
COB 191. Business and Economic Statistics	3
COB 204. Computer Information Systems	3
COB 218. Legal Environment of Business	3
ECON 201. Principles of Economics (Micro)	3
General Education courses	2
	<hr/> 15

Second Year

First Semester	Credit Hours
HTM 250. Overview of Hospitality and Tourism Management	3
COB 202. Interpersonal Skills	3
COB 241. Financial Accounting	3
General Education course or non-business electives	6
	<hr/> 15

Second Semester

Second Semester	Credit Hours
COB 242. Managerial Accounting	3
COB 291. Introduction to Management Science	3
General Education courses	9
HTM 261. Internship	0
Introduction to Food Service Management	1
	<hr/> 16

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
HTM 331. Hospitality Law	3
	<hr/> 15

Second Semester

Second Semester	Credit Hours
HTM 330. Hotel Operations and Hospitality Technology	3
General Education courses or non-business electives	12
	<hr/> 15

Summer Semester

Summer Semester	Credit Hours
HTM 461. Supervisory Internship	0

Fourth Year

First Semester	Credit Hours
HTM 400. Hospitality and Tourism Management Senior Seminar	1
HTM 425. Hospitality Human Resources Management	3
HTM 434. Purchasing, Cost Controls, and Financial Management	3
HTM 470. Catering Operations and Event Management	3
General Education courses or non-business electives	5
	<hr/> 15

Second Semester

Second Semester	Credit Hours
COB 487. Strategic Management	3
HTM 471. Hospitality Leadership	3
HTM Elective	3
General Education courses or non-business electives	6
	<hr/> 15

Department of Integrated Science and Technology

Dr. Polly Cushman, Interim Head

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Professors

K. Altaïi, J. Barnes, T. Benzing, T. Chen, P. Cushman, M. Deaton, G. Egekwu, S. Frysinger, B. Gabriel, J. Gentile, A. Henriksen, M. Ivory, C. Klevickis, R. Kolvoord, H. Kraenzle, B. Kraimeche, J. Marchal, D. McGraw, R. McKown, J. Miles, J. Noftsinger, M. Papadakis, R. Raab, E. Salib, J. Spindel, M. Tacy, A. Teate, G. Tucker, M. Zarrugh

Associate Professors

G. Baker, C. J. Brodrick, G. Coffman, M. Handley, K. Lewis, E. Pappas, A. Rabie, W. Teel,

Assistant Professors

C. Bachmann, M. Benton, A. Biesecker, R. Brent, Z. Bortolot, J. Coffman, J. Ferenbaugh, A. Goodall, N. Hendrickson, N. Radziwill, J. Tang, J. Wilson

Instructors

V. Galgano, P. Goodall, P. Henriksen, C. Nash, J. Ridings

The ISAT department administers the geographic science program (Page 208), the information analysis program (Page 212), and the integrated science and technology program (Page 213).

Geographic Science

Dr. Amy Goodall, Student Advocate

Phone: (540) 568-2688 E-mail: goodalal@jmu.edu

Web site: www.gs.jmu.edu

Mission Statement

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 program graduates majors who are confident in their abilities as geographers, prepared for a lifetime of learning in geography, who have the skills to make a professional contribution to the field, to compete successfully in the job market, to successfully pursue graduate degrees and who are highly qualified for careers in research and development – equipped for long term success as professionals in the field of geography.

Goals

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. Graduates will be able to:
 - describe and trace the historical and philosophical development of Geographic Science.

- describe the distribution of Earth's physical and human characteristics.
- identify physical and human systems that influence spatial and temporal patterns on Earth.
- describe the influence of geographic scale and areal differentiation on human and physical systems.
- analyze problems from a geographic perspective.
- identify and define prominent geospatial technologies and describe their role and practice in geography.
- Effectively use appropriate geospatial technologies to address questions about human interactions within the built or natural environments. Graduates will be able to:
 - identify important emerging geospatial technologies and describe the types of problems where each is appropriate to use.
 - properly use these technologies to collect, organize, visualize, and analyze geographic data and address problems in their chosen area of concentration.
 - apply appropriate data visualization tools to analyze geographic data and effectively communicate analyses.
- Be productive participants in research efforts aimed at measuring, describing, analyzing, and explaining the underlying processes giving rise to geographic phenomena. Graduates will be able to:

- demonstrate information literacy, both in terms of general research trends and specific research problems.
- identify the geographic/spatial processes and elements that are relevant to a problem and pose testable research questions to evaluate the impact of those elements.
- identify and apply appropriate methodologies and concepts in order to address a given problem.
- demonstrate proficiency in use of qualitative and quantitative statistics and geospatial technologies.
- communicate analyses, conclusions, and solutions using a variety of media and formats.
- tailor written and oral communications appropriately by recognizing and accommodating audience diversity.
- work as self-directed learners who are capable of staying current in their field and with the important emerging methods and technologies used in the discipline of geography.
- Work effectively in multidisciplinary teams. Graduates will be able to:
 - organize tasks, plan work schedules, promote responsibility, define deliverables, and establish expectations to facilitate teamwork.
 - display effective communication skills in teams or group processes by eliciting/recognizing member contributions, synthesizing opinions, mediating conflicts, and reaching group consensus.
 - distinguish between tasks in which a team is appropriate and tasks when it is not.
 - work with experts from different disciplines.
- Evaluate human-environment interactions from holistic point of view that addresses geographic, as well as political, social, economic and ethical factors affecting those interactions. Graduates will be able to:
 - identify human and physical oriented geographic factors related to patterns of resource use and management.
 - apply cross-disciplinary knowledge to solve human and environmental problems.
 - identify and describe the value of science and technology as aids in the solving of geographic problems.
 - account for political, social, economic, and ethical factors that impact a problem and possible solutions
 - describe and discuss the value of working or studying in different U.S. regions or world states.
- Demonstrate civic responsibility and appreciation for culture and physical diversity from local to global scales. Graduates will be able to:
 - apply geographic thinking to real-world problems, including appraisal of societal and environmental issues.
 - evaluate and interpret current issues pertaining to human diversity.

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 have been able to gain professional employment with government and industry or to go on to graduate programs. Public agencies where they have found employment include local and regional planning agencies, mapping organizations such as the U.S. Geological Survey and the National Geospatial Intelligence Agency, intelligence agencies such as the CIA, 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 have also found opportunities in industry with companies such as Earth Satellite Corporation, GeoEye, Lockheed, SPOT Image, Logicom, SAIC, Sanborn, Booz-Allen Hamilton and many others.

Environmental Conservation, Sustainability and Development Concentration

Geographic science graduates trained in resource analysis, environmental conservation and sustainable development have obtained 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 and soil conservation), area or regional specialties, international business, community development, and development of human and natural resources in foreign nations. Many geographic science graduates move on to graduate degrees (master'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, have hired 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 environmental geographies and AGIS.

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 ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course(s) (in addition to General Education courses)	3
Major requirements (listed below)	53
Electives	19-23
	<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. GISAT 251 for the math requirement in Cluster 3 is strongly recommended, as is GGEOG 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 (GISAT 251 or MATH 220)	3
GEOG 205. Cultural Geography	3
GEOG 210. Physical Geography	4
GEOG 215. Geospatial Tools I	3
GEOG 216. Geospatial Tools II	3
GEOG 230. Spatial Thinking	3
GEOG 290. Human Interactions with the Physical Environment	3
GEOG 305. History and Philosophy of Geography	4
Senior Project	6

Choose one of the following:

GEOG 390. Senior Project Design (1 credit)

Choose one of the following (3 credit hours maximum can count toward the senior project from these courses)

GEOG 490. Senior Project I

GEOG 491. International Study

GEOG 495. Internship

GEOG 496. Senior Project II (2 credits)

OR

GEOG 499. Honors Thesis (6 credits)

Concentration courses 21

In addition to the geography core courses, students must choose one of two concentrations, listed in the "Concentrations" section.

Bachelor of Science in Geographic Science

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41-44
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major requirements (listed below)	53
Electives	19-23
	<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. GISAT 251 for the math requirement in Cluster 3 is strongly recommended, as is GGEOG 200 in Cluster 4.

Major Requirements

Core Courses	Credit Hours
Statistics (GISAT 251 or MATH 220)	3
GEOG 205. Cultural Geography	3
GEOG 210. Physical Geography	4
GEOG 215. Geospatial Tools I	3
GEOG 216. Geospatial Tools II	3
GEOG 230. Spatial Thinking	3
GEOG 290. Human Interactions with the Physical Environment	3
GEOG 305. History and Philosophy of Geography	4
Senior Project	6

Choose one of the following:

GEOG 390. Senior Project Design (1 credit)

Choose one of the following (3 credit hours maximum can count toward the senior project from these courses)

GEOG 490. Senior Project I

GEOG 491. International Study

GEOG 495. Internship

GEOG 496. Senior Project II (2 credits)

OR

GEOG 499. Honors Thesis (6 credits)

Concentration courses 21

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.

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 366. Geographic Information Systems	3
GEOG 385. Principles of Remote Sensing	3
GEOG 365. Geography and Geospatial Visualization	3
Choose 9 credit hours from the following	9

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)

Cognate course (3 credit hours selected from one of the following) 3

GEOG 300. Population Geography

GEOG 311. Endangered Environments

GEOG 315. Field Studies

GEOG 320. Human Dimensions of Global Change

GEOG 322. Agricultural Systems

GEOG 325. Environmental Ethics

GEOG 327. Climatology

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. Geography of North America
 GEOG 337. Geography of Latin America
 GEOG 338. Geography of the Philippines
 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 375. Political Geography
 GEOG 376. Urban Geography
 ISAT 425. Environmental Hydrology

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 operations manager.

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 change and sustainable development; resource distribution, consumption and conservation; energy; cultural ecology; regional geography; and human conceptualization of the environment.

In addition to the geography core requirements, all students in the environmental conservation, sustainability and development concentration must complete the following course work.

Required Courses	Credit Hours
GEOG 320. Human Dimensions of Global Change	3
GEOG 470. Senior Seminar in ECSD	3
Choose one of the following:	
Global Biodiversity	
Politics of the Environment	
Global Perspectives on Population	
Sustainability	
Principles and Theories of Sustainable Communities	

ECSD Electives 12

Each student selects four courses from the list below. These 300-level courses are identified on their concentration form, which will be reviewed and approved by the ECSD committee. Other courses may substitute for one of the electives with approval of the ECSE committee.

GEOG 300. Population Geography
 GEOG 311. Endangered Environments
 GEOG 315. Field Studies
 GEOG 322. Agricultural Systems
 GEOG 325. Environmental Ethics
 GEOG 327. Climatology

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. Geography of North America
 GEOG 337. Geography of Latin America
 GEOG 338. Geography of the Philippines
 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 375. Political Geography
 GEOG 376. Urban Geography
 ISAT 425. Environmental Hydrology

Cognate course (3 credit hours selected from the following courses) 3

GEOG 365. Cartography and Geospatial Visualization
 GEOG 366. Geographic Information Science
 GEOG 385. Principles of Remote Sensing

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 205. Cultural Geography	3
GEOG 210. Physical Geography	4
GEOG 215. Geospatial Tools I	3
Three additional geographic science courses	9-12

Credit by Examination

Credit by examination is offered for some courses taught in the program of geographic science. Students who want permission to take an examination must apply to the program director during the first week of the semester.

Information Analysis

Joseph Marchal, Program Director

Phone: (540) 568-2727 E-mail: marchajh@jmu.edu

Noel Hendrickson, Student Adviser

Phone: (540) 568-2627 E-mail: hendrinx@jmu.edu

Web site: <http://www.isat.jmu.edu/IA/index.html>

Mission Statement

The IA program will prepare students to solve problems in national, international or business intelligence settings. They will apply the principles of logic and reasoning, data mining and data synthesis with the influences of cultural and political factors to arrive at a holistic solution. This requires the student to have a firm understanding of logic, reasoning, and aspects of how the human mind operates (cognitive psychology) joined with an understanding of cultural and political factors that may influence the relevance of data and a solid understanding of different technologies that facilitate the collecting and evaluation of data.

Employment Opportunities

IA students can find employment in an array of government agencies, including the military, as well as select US and multinational corporations.

Bachelor of Science in Information Analysis

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
IA foundations and core courses	42
IA concentration courses	15
Electives	22
	<hr/> 120

¹ The General Education program contains a set of requirements each student must fulfill.

General Education Courses	Credit Hours
Cluster One	9
Cluster Two	9
GREL 101 Religions of the World recommended	
Cluster Three	10
GISAT 251 or MATH 220 required	
Cluster Four	7
GECON 200 required. GPOSC 200 or GPOSC 225 recommended	
Cluster Five	6
GPSYC 101, recommended	
	<hr/> 41

Foundation and Core Courses	Credit Hours
IA Foundation Courses	18
IA 200. Introduction to National Security Intelligence	
IA/CIS 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	12
ISAT 252. Introduction to Programming and Problem Solving	
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

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Concentrations

Students must complete either the national security concentration or the competitive intelligence concentration.

National Security

To complete this concentration, students must take the following four national security courses. In addition, three credits must be selected from the competitive intelligence concentration.

National Security Courses	Credit Hours
POSC 348. Politics of Cultural Pluralism	3
POSC 430. International Security in the Post Cold-War World	3
POSC 458. Political analysis in the cross-national perspective	3
GEOG 375. Political Geography	3
One course selected from the competitive intelligence concentration	3
	<hr/> 15

Competitive Intelligence

To complete this concentration, 12 credits must be selected from either the set of business intelligence courses or the set of global economics perspective courses. In addition, three credits must be selected from the national security concentration.

Business Intelligence Courses ¹	Credit Hours
CIS 430. Database Design and Application	3
CIS 463. Business Intelligence	3
Select two of the following:	6
CIS 304. Information Technology	
CIS 366. Web Development	
ISAT 348. The Multimedia Industry	
CIS 424. Computer Security Management	
CIS 411. Computer Forensics for Business	
One course selected from the national security concentration	3
	<hr/> 15

¹ Any additional CIS requirements for these courses will be waived for IA majors.

OR

Global Economic Perspective Courses

GECON 200. Introduction to Macroeconomics	3
ECON 201. Principles of Microeconomics	3
Select two of the following:	6
ECON 301. Economics in transition	
ECON 312. Comparative economic systems	
ECON 365. Economic development	
ECON 370. International Trade	
ECON 372. International Finance and Payments	
One course selected from the national security concentration	3
	<hr/> 15

Additional IA Courses, Requirements and Recommendations

IA 280. Projects in Information Analysis (This is not a required course.)
IA 480. Topics in Information Analysis (This is not a required course.)
GISAT 251. Analytic Methods III: Statistics or MATH 220. Statistics
These are GenEd Cluster Three courses required for the IA major. They will be recorded as GenEd, not IA, credits.
All IA majors will be encouraged to do a not-for-credit internship in information analysis.

Integrated Science and Technology

Dr. Polly Cushman, Interim Head

Mission Statement

The Mission of the Integrated Science and Technology Program is to prepare students for the complex world that awaits them outside the walls of academe. Today's graduates should be familiar with a broad range of scientific, technological, and social concepts, and empowered with concrete skills that will make them leaders in solving the real human problems that confront advanced societies. 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. We measure our success by achieving the following ten goals:

Goals

- ISAT grads apply and integrate mathematics, physical science, biological science, and technology.
- ISAT grads apply sound experimental methodology.
- ISAT grads understand the professional requirements for the acquisition and use of information and data.
- ISAT grads work effectively in multidisciplinary teams.
- ISAT grads solve technological problems and understand their societal implications.
- ISAT grads understand and apply the principles of professional ethics.
- ISAT grads communicate effectively on social, scientific, and technical matters.
- ISAT grads analyze science and technology within broader global, political, economic and social contexts.
- ISAT grads are autonomous, self-directed learners who recognize the need for lifelong learning.
- ISAT grads use the computer as an effective problem-solving tool.

Co-curricular Activities and Organizations

- ISAT Honor Society
- ISAT LINKS
- JMU Student Chapter, Environmental Management
- JMU Student Chapter, The American Society of Mechanical Engineers
- JMU Student Chapter, Association for Facilities Engineering
- JMU Student Chapter, Association of Energy Engineers
- 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

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 all ISAT Foundation courses that are prerequisites to other required ISAT Foundation courses before an ISAT major can take that ISAT course.

	Credit Hours
Issues in Science and Technology I-IV	13
Social Context of Technology & Science	6
Analytical Methods I-V	17
Strategic Sectors/Concentration	31-33
Senior Thesis/Project	6
General Education courses and electives ¹	46-49
	<hr/> 121

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

The ISAT program offers the Bachelor of Science degree in Integrated Science and Technology and the M.S. degree. See the JMU *Graduate Catalog* for information on the M.S. program. The B.S. curriculum produces a graduate broadly acquainted with basic science, technology and business principles. 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, 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 of technology that include biosystems, energy, environmental studies, engineering and manufacturing, information and knowledge management, and telecommunications. 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.

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

BIO 114, BIO 214
 CHEM 131, CHEM 132
 PHYS (140, 150) or (240, 250)
 MATH 205, 235 or 231
 MATH 220

ISAT Courses Waived

GISAT 113
 GISAT 112
 ISAT 152, ISAT 212
 GISAT 151
 GISAT 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. Please contact Paul Henriksen, henrikpw@jmu.edu for more information.

First Year Students and Sophomore Courses Issues in Science and Technology

This sequence of four 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 and energy.

Social Context of Technology and Science

This two-course sequence introduces the student to the non-technological 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.

Junior and Senior Courses

Strategic Sectors in Science and Technology

Students complete 19-21 credit hours of instruction in strategic sectors during their junior year. The strategic sectors, developed from national critical technologies lists, represent areas of current strategic importance in the world economy. The sectors are biosystems, energy, environment, engineering/manufacturing, information/knowledge management, telecommunications and health systems.

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 as follows:

- Biosystems
- Energy
- Engineering and Manufacturing
- Environment
- Information and Knowledge Management
- Telecommunications

The option is also open for students to tailor their area of concentration with the help and approval of their adviser.

Senior Thesis/Project

This is the capstone experience of the senior year. Working as part of a team of students and interdisciplinary faculty, seniors will propose, develop, manage, analyze and report on a project that addresses some issue of interest within their concentration.

Recommended Schedule for Majors

First Year

Fall Semester	Credit Hours
ISAT 101. ISAT First Year Student Seminar	1
GISAT 151. Analytical Methods I: Applied Calculus	4
GISAT 112. Environmental Issues in Science and Technology	4
	<hr/> 9

Spring Semester	Credit Hours
GISAT 113. Issues in Science and Technology: Living Systems	3
ISAT 152. Analytical Methods II: Applied Physics	4
ISAT 131. Technology, Science and Society	3
	<hr/> 10

Second Year

Fall Semester	Credit Hours
GISAT 251. Analytical Methods III: Applied Statistics	3
ISAT 211. Issues in Modern Production	3
ISAT 231. Political Economy of Technology and Science	3
	<hr/> 9

Spring Semester	Credit Hours
ISAT 252. Analytical Methods IV: Programming and Problem Solving	3
ISAT 212. Energy Issues in Science and Technology	3
ISAT 253. Analytical Methods V: Instrumentation and Measurement	3
	<hr/> 9

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 III	3
ISAT Strategic Sector III Lab	1
	<hr/> 11

Spring Semester	Credit Hours
ISAT Strategic Sector I	3
ISAT Strategic Sector II	3
ISAT Strategic Sector II Lab	1
ISAT Strategic Sector III	3
ISAT 491. Senior Thesis I	1
	<hr/> 11

Fourth Year

Fall Semester	Credit Hours
ISAT 492. Senior Thesis II	2
ISAT Concentration I	3
ISAT Concentration II	3
	<hr/> 8

Spring Semester	Credit Hours
ISAT 493. Senior Thesis III	3
ISAT Concentration III	3
ISAT Concentration IV	3
	<hr/> 9

Minor Requirements

Integrated Science and Technology Minor

The minor in ISAT mirrors the major in ISAT 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 area requiring either nine or ten additional credit hours.

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 course. The minimum requirements for the minor in ISAT follow.

	Credit Hours
Choose three courses from the following:	9-10
ISAT 112. Issues II-Environment	
ISAT 113. Issues I-Living Systems	
ISAT 211. Issues III-Modern Production	
ISAT 212. Issues IV-Energy	
ISAT 253. Analytical Methods V: Instrumentation and Measurement	
Choose one of the following sequences:	
Energy	7
ISAT 301. Energy Lab (1 credit)	
ISAT 310. Energy Fundamentals (3 credits)	
ISAT 311. Energy in Modern Society (3 credits)	
Environment	7
ISAT 302. Environmental Lab (1 credit)	
ISAT 320. Environmental Fundamentals (3 credits)	
ISAT 321. Environmental Projects (3 credits)	
Engineering and Manufacturing	7
ISAT 303. Engineering/Manufacturing Lab (1 credit)	
ISAT 330. Manufacturing Systems (3 credits)	
ISAT 331. Automation in Manufacturing (3 credits)	
Information and Knowledge Management	6
ISAT 340. Software Development (3 credits)	
ISAT 341. Modeling and Simulation (3 credits)	
Biosystems	7
ISAT 305. Biotechnology Lab (1 credit)	
ISAT 350. Biotechnology for the New Millennium I (3 credits)	
ISAT 351. Biotechnology for the New Millennium II (3 credits)	
Telecommunications	6
CIS 320. Telecommunications and Information Processing (3 credits)	
ISAT 360. Fundamentals of Telecommunications (3 credits)	
ISAT 399. Instrumentation and Measurement in Telecommunications (1 credit)	
One additional 3 credit Integrated Science and Technology course at the 300 or 400 level	3

Materials Science Program Minor

The Department of Integrated Science and Technology is a major participant in the university's Materials Science program. A minor is available in materials science. The materials science minor provides students with an opportunity to increase their research experience as well as develop multidisciplinary skills and knowledge in the science, engineering and application of materials.

Refer to the Interdisciplinary section of the catalog on Page 116 for the curriculum and requirements of the materials science minor.

Additional information about the materials science minor may be obtained from the Center for Materials Science in Room 3206 in the HHS Building, or by calling the director at 540-568-2723 or 540-568-8776.

Environmental Information Systems Minor

The Department of Integrated Science and Technology is a major participant in the university's Environmental Information Systems program. For more information on this minor, see Interdisciplinary programs, Page 103.

Interdisciplinary Majors

Biotechnology

In cooperation with the Department of Integrated Science and Technology and the Department of Chemistry, the Department of Biology offers a four-year, interdisciplinary B.S. degree program for a major in biotechnology.

Biotechnology majors must complete 47-53 credit hours of science foundation courses, 17 credit hours of biotechnology transition and core courses, and 15 credit hours of concentration courses. With the advice and approval of a concentration adviser, each student selects the courses for his or her concentration area. Three broad areas of concentrations are suggested to serve a spectrum of student needs and desires. A research concentration would prepare students for graduate school or entry into a research laboratory. An industry concentration would prepare students for entry into the biotechnology industry. A custom concentration can be assembled for a specialized area of study such as bioinformatics, genomics, or agricultural biotechnology.

See Page 90 for more information on the Biotechnology major, or contact Dr. Jonathan Monroe (monroejd@jmu.edu).

Program of International Business

Dr. Marion M. White, Director

Phone: (540) 568-3231

Location: Zane Showker Hall, Room 435

E-mail: owyarhmm@jmu.edu

Web site: <http://www.jmu.edu/cob/ibus/>

Professors

R. Horn, D. Riordan, R. Jerome, M. Rosser

Associate Professors

I. Clarke, S. Elwood, S. Gallagher, M. White

Assistant Professors

D. Cavazos, N. Cavusoglu, H. Hei, Q. Liu

Mission Statement

The mission of the Program of International Business is to provide nationally competitive undergraduate education in the study of international business. The program is an interdisciplinary program designed to prepare students for participation in organizations that require a broad business perspective and applicable skills in global business. 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 traditional business disciplines (accounting, finance, marketing and management) as well as economics and business law.
- 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 managing foreign exchange risk, managing a multicultural work force, etc.
- To facilitate students' continuing development of written and verbal skills.
- To develop students' decision-making 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.

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 sales 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 (GECON courses must be counted as economics) and three hours of COB 191, Business and Economic 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.

Degree Requirements

	Credit Hours
B.B.A. core courses	42
International business major requirements ¹	24
Nonbusiness major requirements	15-18
General education courses ²	41
	<hr/> 122-125

¹ Students are required to spend the equivalent of a semester abroad. See below for details.

² 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.

Students planning to major in international business must complete the 30 to 31 hour, lower-division B.B.A. curriculum set forth on Page 63 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 will be completed during the first two years of study along with all, or 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 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 seven weeks outside of the United States, unless express permission is granted by the program for another option. The primary language spoken in the country chosen by each student for the study/work abroad requirement may not be English and must be the language chosen by the student to meet the IBUS language requirement. Approval of the study/work abroad requirement must be obtained from the Program Director. This requirement is waived for international students studying at JMU. See the International Business Web site at <http://www.jmu.edu/cob/ibus/> or stop by the director's office (Zane Showker Hall 435) for the approval form.

College of Business: Program of International Business 213

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 his/her world region. Also, a student who selects Spanish as his/her second language could select either Europe or the Americas. The four 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.

All international business majors will take the following required international business core courses.

Required Courses

BLAW 497. Legal Aspects of International Business
IBUS 480. International Business Theory and Policy
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.

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

First Year

First Semester	Credit Hours
ECON 201. Principles of Economics (Micro)	3
MATH 205 or 235. Calculus ¹	3-4
General Education courses	9
	<hr/> 15-16

Second Semester

	Credit Hours
COB 191. Business and Economic Statistics	3
COB 204. Computer Information Systems	3
GECON 200. Introduction to Macroeconomics	3
General Education courses	7
	<hr/> 16

Second Year

First Semester	Credit Hours
COB 202. Interpersonal Skills	3
COB 241. Financial Accounting	3
ECON 270. International Economics ¹	3
General Education courses	6
	<hr/> 15

Second Semester

	Credit Hours
COB 218. Legal Environment of Business	3
COB 242. Managerial Accounting	3
COB 291. Introduction to Management Science	3
General Education courses	6
	<hr/> 15

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
Foreign language (300) grammar and communication ¹	3
	<hr/> 15

Second Semester	Credit Hours
Foreign language (307-308) civilization course ¹	3
Foreign language (375) business and society ¹	3
General Education courses	9
	<hr/> 15

¹ International business major requirement. Students with a finance concentration must take ECON 370 in place of ECON 270.

Concentrations

Students in international business may choose to concentrate in general international business, marketing or finance. The concentrations are as follows.

General International Business Concentration

Fourth Year	Credit Hours
First Semester	
BLAW 497. Legal Aspects of International Business ¹	3
FIN 355. International Financial Management ¹	3
MGT 340. International Management ¹	3
MKTG 460. Global Marketing ¹	3
International Business approved elective	3
	<hr/> 15
Second Semester	Credit Hours
ACTG 483. International Accounting and Financial Reporting ¹	3
COB 487. Strategic Management	3
Foreign language (330) business course ¹	3
Free elective	3
IBUS 480. International Business Theory and Policy ¹	3
	<hr/> 15

¹ International business major requirement.

Marketing Concentration

Fourth Year	Credit Hours
First Semester	
BLAW 497. Legal Aspects of International Business ¹	3
MGT 340. International Management ¹	3
Choose one of the following ¹ :	3
MKTG 385. Buyer Behavior	
MKTG 430. Sales Management and Personal Selling	
MKTG 470. Strategic Internet Marketing	
MKTG 482. Market Database Development	
MKTG 460. Global Marketing ¹	3
International Business approved elective	3
	<hr/> 15

Second Semester	Credit Hours
COB 487. Strategic Management	3
IBUS 480. International Business Theory and Policy ¹	3
Choose one of the following ¹ :	3
MKTG 385. Buyer Behavior	
MKTG 430. Sales Management and Personal Selling	
MKTG 470. Strategic Internet Marketing	
MKTG 482. Market Database Development	
Foreign language (330) business course ¹	3
Free elective	3
	<hr/> 15

¹ International business major requirement.

Finance Concentration

Fourth Year	Credit Hours
First Semester	
BLAW 497. Legal Aspects of International Business ¹	3
ECON 372. International Finance and Payments ¹	3
FIN 360. Money and Capital Markets ¹	3
FIN 355. International Financial Management ¹	3
MGT 340. International Management ¹	3
	<hr/> 15
Second Semester	Credit Hours
ACTG 483. International Accounting and Financial Reporting ¹	3
COB 487. Strategic Management	3
Foreign language (330) business course ¹	3
IBUS 480. International Business Theory and Policy ¹	3
Free elective	3
	<hr/> 15

¹ International business major requirement.

Department of Justice Studies

Dr. Glenn P. Hastedt, Director

Phone: (540) 568-7124

Location: Moody Hall, Room 213

E-mail: hastedgp@jmu.edu

Web site: <http://www.jmu.edu/justicestudies/>

Professor

G. Hastedt, P. Plass, S. Spivey

Associate Professor

J. Peter Pham

Assistant Professors

T. Beitzel, J. Buffington-Vollum, T. Castle, W. Garriott, S. Jacob, R. Mitchell, S. Vollum

Mission Statement

Justice studies is committed to offering an interdisciplinary, 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

- Law enforcement
- Corrections
- Law
- Peace Corps
- Nonprofit groups (national and international)
- Human Services
- Domestic and International Security
- Intelligence Analysis
- Diplomatic Corps
- Research and Graduate Study

The justice studies major includes opportunities for field work and career-related internships as part of the curriculum.

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.

Major and Degree Requirements

Bachelor of Arts in Justice Studies Degree Requirements

Required Courses	Credit Hours
General Education	41
Philosophy course (except <i>GPHIL 120A</i>)	3
Foreign language courses (intermediate level required)	1-14
Major requirements	38-44
Electives	18-38
	<hr/> 120

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)	38-44
Electives	28-35
	<hr/> 120

Justice Studies Major Requirements

Core Courses	Credit Hours
JUST 100. Proseminar	1
JUST 200. Introduction to Justice Studies	3
JUST 201. Justice Research Methods	4
JUST 300. Perspectives on Comparative Justice Systems	3
JUST 400. Senior Seminars in Justice Studies	3
Communication Course	3
Choose one of the following:	
JUST/SCOM 333. Negotiations	
SCOM 231. Introduction to Alternative Dispute Resolution	
SCOM 331. Communication and Conflict	
	<hr/> 17

Students select one track.

Track A. Crime and Criminology

This track focuses on the nature, causes and solutions for crime, primarily in the USA.

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. No more than two 200-level courses may be selected in completing the track.

JUST 301. Special Topics in Justice Studies (when topic is appropriate)
JUST 322. Understanding Violence
JUST 323. Comparative Criminology
JUST/SOCI 326. Victimology
JUST 327. Criminal Law
JUST 328. Women, Crime and Criminal Justice
JUST 329. Perspectives on Law
JUST 401. Internship in Justice Studies
JUST 402. Advanced Research in Justice Studies
PHIL 325. Crime, Punishment and Justice
PHIL 367. Topics in Philosophy of Law
POSC 326. Civil Rights
POSC 435. Seminar in International Terrorism
Choose one of the following:

- PSYC 250. Introduction to Abnormal Psychology (non-psychology majors)
- PSYC/JUST 255. Abnormal Psychology for Law Enforcement (non-psychology majors)
- PSYC 335. Abnormal Psychology (for psychology majors)

PSYC 312. Forensic Psychology
PSYC/JUST 314. Police Psychology
PSYC/JUST 316. Developmental Psychology and Crime
SCOM 231. Introduction to Alternative Dispute Resolution
SCOM 248. Intercultural Communication
SOCI 214. Social Deviance
JUST/SOCI/SOWK 330. Corrections
SOCI 369. Law and Society

Other courses may be substituted with adviser's and department chair's consent.

Track B. Global Justice and Policy

This track focuses on issues of justice in global context, including international political and economic relations, international law, the global environment, human rights, and the encounter between cultures. Across the many disciplines embraced by this track, the topic of achieving justice in its plurality of manifestations serves as a unifying element.

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. No more than two 200-level courses may be selected in completing the track.

ANTH 340. Race, Nation and Culture
ANTH 364. US/Latin American Borders
HIST. Any 300 level history course that is centered on a world region (other than North America) and that includes coverage of the 20th century.

JUST 301. Special Topics in Justice Studies (when topic is appropriate)
JUST/POSC 372. Ethics and International Politics
JUST 401. Internship in Justice Studies
JUST 402. Advanced Research in Justice Studies
PHIL 270. Introduction to Ethics
PHIL 325. Crime, Punishment and Justice
PHIL 335. The Individual, the State and Justice
PHIL 367. Topics in Philosophy of Law
POSC/JUST 392. Peace Studies
POSC 395. International Law

POSC 396. International Organizations
POSC 435. Seminar in International Terrorism
POSC. Any 300 level POSC course that is regionally focused.
REL 270. Religious Ethics
REL 450. Religion and Society (topics as relevant); Reconciliation
SCOM 248. Intercultural Communication
SCOM 331. Communication and Conflict
SCOM 342. Argument and Advocacy
SCOM 352. Communication and Social Movements
SCOM 353. Political Communication
SOCI/ANTH/SOWK 348. Third World Societies: An Introduction
SOCI 360. Modern Social Movements
SOCI 369. Law and Society
SOWK 487. Topics: Conflict and Mediation
Other courses may be substituted with adviser's and department chair's consent.

Track C. Social Justice

This track focuses on aspects of social justice; how individuals, families, organizations, communities and societies engage in social justice. This includes legislation, course action, and federal, state, and municipal programs as well as local efforts such as restorative justice, alternative dispute resolution, victim support, abuse prevention, and community organizing.

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. No more than two 200-level courses may be selected in completing the track.

Choose one:

- FAM 133. The Contemporary Family
- SOCI 276. Sociology of the Family

FAM 330. Family Relations
HIST 466. The Family
JUST 301. Special Topics in Justice Studies (when topic is appropriate)
JUST/PSYC 316. Developmental Psychology and Crime
JUST 401. Internship in Justice Studies
JUST 402. Advanced Research in Justice Studies
PHIL 270. Introduction to Ethics
PHIL 335. The Individual, the State and Justice
SCOM 231. Introduction to Alternative Dispute Resolution
SCOM 248. Intercultural Communication

Choose one:

- SCOM 331. Communication and Conflict
- SOWK 487. Topics: Conflict and Mediation

SCOM 342. Argument and Advocacy
SCOM 352. Communication and Social Movements
SCOM 431. Legal Communication
SOCI 214. Social Deviance
SOCI 265. Sociology of Community
SOCI 360. Modern Social Movements
SOWK 338. Issues and Policies in Family Services
SOWK 340. Violence in the Family
SOWK 342. Child Welfare
SOWK 387. Working with Teens

Other courses may be substituted with adviser's and department chair's consent.

Recommended Schedule for Majors

First Year	Credit Hours
JUST 200. Introduction to Justice	3
MATH 220. Elementary Statistics (prerequisite for JUST 201) ¹	3
Track core course	3
	<hr/> 9

¹ Can be counted for General Education, Cluster 3

Second Year	Credit Hours
Track core course	3
Communication course	3
Track electives	6
	<hr/> 12

Third Year	Credit Hours
JUST 100. Proseminar	1
JUST 201. Research Methods	4
JUST 300. Perspectives on Comparative Justice	3
Track electives	6
	<hr/> 14

Fourth Year	Credit Hours
JUST 400. Senior Seminar in Justice Studies	3
Track electives	3
	<hr/> 6

Criminal Justice Minor

Peggy Plass, Minor Adviser

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Location: Moody 118

The interdisciplinary 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. For a full description of the requirements for the minor in criminal justice, see "Cross disciplinary Programs," Page 103.

Department of Kinesiology

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Instructors

R. Lifka, C. McFadden, P. McMahan, M. Whittaker

Mission Statement

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, sport management, 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 teacher education
- Pre-physical therapy
- Sport or recreation administrator/manager
- Sport promoter

Degree and Major Requirements

Bachelor of Science in Kinesiology

Listed below is the undergraduate major program in kinesiology offered by the Department of 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 on Page 29.

Students who major in kinesiology work toward a B.S. degree by selecting and completing one of the following three concentrations:

- Exercise Science
- Physical and Health Education Teacher Education
- Sport and Recreation Management

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement (in addition to General Education)	3
Scientific Literacy requirement (in addition to General Education)	3-4
Major and concentration requirements	48-75
Electives	3-38
	<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.

Concentrations

Exercise Science Concentration

This concentration is endorsed by the American College of Sports Medicine. The concentration prepares students to pursue graduate education in exercise science, pre-professional or an allied health field. Graduates acquire the knowledge, skills and abilities needed to enroll in the Health Fitness Instructor certification program sponsored by the American College of Sports Medicine. Students interested in physical therapy, medicine, or other pre-professional health programs are directed to Pages 122-123 of this catalog 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.

The following courses are required of all students who choose the exercise science concentration.

Courses	Credit Hours
BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
MATH 205. Introductory Calculus I	3
MATH 220. Elementary Statistics	3
NUTR 280. Nutrition for Wellness	3
CHEM 131. General Chemistry I + 131L	4
CHEM 132. General Chemistry II + 132L	4
PHYS 140. College Physics I + 140L	4
GTKIN 100. Lifetime Fitness and Wellness	3
KIN 201. Introduction to Kinesiology	2
KIN 202. Biological Foundations of Kinesiology	3
KIN 203. Sociological/Psychological Foundations of Kinesiology	3
KIN 302. Exercise Physiology and Laboratory + 302L	4
KIN 306. Human Biomechanics and Laboratory 306+ L	4
KIN 420. Exercise Programming for Special Populations	3
KIN 421. Principles of Exercise Testing and Prescription and Laboratory + 421L	4
KIN 424. Theories and Practices of Weight Management	3
KIN 426. Physical Activity Behaviors	3
KIN 428. Advanced Topics in Exercise Science and Leadership	3
KIN 471. Practicum in Kinesiology	3
KIN 481. Internship in Exercise Science and Leadership	8
	<hr/> 75

Recommended Schedule for Exercise Science Concentration

First Year

General Education courses	21
GTKIN 100. Lifetime Fitness & Wellness	3
MATH 205. Introductory Calculus	3
MATH 220. Elementary Statistics	3
	<hr/> 30

Sophomore Year

BIO 270. Human Physiology	4
BIO 290. Human Anatomy	4
CHEM 131&L. General Chemistry I	4
CHEM 132&L. General Chemistry II	4
KIN 201. Introduction to Kinesiology	2
KIN 202. Biological Foundations of Kinesiology	3
KIN 203. Sociological/Psychological Foundations of KIN	3
NUTR 280. Nutrition for Wellness	3
General Education	4
	<hr/> 31

Junior Year

KIN 302&L. Exercise Physiology	4
KIN 306&L. Human Biomechanics	4
KIN 420. Exercise Programming for Special Populations	3
KIN 424. Theories & Practices of Weight Management	3
PHYS 140&L. College Physics I	4
Electives	11
	<hr/> 29

Senior Year

KIN 421&L Principles of Exercise Testing & Prescription	4
KIN 426. Physical Activity Behaviors	3
KIN 428. Advanced Topics in Exercise Science	3
KIN 471. Practicum in Exercise Science	3
KIN 481. Internship in Exercise Science	8
Electives	9
	<hr/> 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 VA state 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. Specific requirements are available from the PHETE coordinator. Evidence of current CPR/first aid certification must be presented before graduation.

Undergraduate Courses	Credit Hours
BIO 290. Human Anatomy	4
EDUC 360. Foundations of American Education	3
GPSYC 160. Life Span Human Development	3
GTKIN 100. Lifetime Fitness and Wellness	3
KIN 201. Introduction to Kinesiology	2
KIN 202. Biological Foundations of Kinesiology	3
KIN 203. Sociological/Psychological Foundations of Kinesiology	3
KIN 221-225. Skill Labs	10
KIN 303. Motor Learning and Performance	3
KIN 310. Instructional Methods in Physical Education	3
KIN 311. Elementary Curriculum in Physical Education	2
KIN 312. The Profession of Teaching Health and Physical Education	2
KIN 313. Adapted Physical Education	3
KIN 314. Assessment in Elementary Physical Education	3
KIN 411 Measurement & Evaluation in Kinesiology	3
KIN 426. Physical Activity Behaviors	3
KIN 410. School Health Content for PHETE	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/> 72

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 Concentration

First Year

General Education	27
█KIN 100. Lifetime Fitness & Wellness	3
	<hr/> 30

Sophomore Year

KIN 201. Introduction to Kinesiology	2
KIN 202. Biological Foundations of Kinesiology	3
KIN 203. Social/Psychological Foundations of Kinesiology	3
GPSYC 160. Life Span Human Development	3
BIO 290. Human Anatomy	4
General Education	8
Electives	7
	<hr/> 30

Junior Year – Fall Semester

EDUC 360. Foundations of Education	3
KIN 303. Motor Learning & Performance	3
KIN 312. The Profession of Teaching	2
KIN 224. Skill Lab	2
NUTR 280. Nutrition for Wellness	3
Elective	3
	<hr/> 16

Junior Year – Spring Semester

KIN 222. Skill Lab	2
KIN 225. Skill Lab	2
KIN 426. Physical Activity Behaviors	3
READ 420. Content Area Literacy	3
Electives	4
	<hr/> 14

Senior Year – Fall Semester

KIN 310. Instructional Methods in PE	3
KIN 311. Elementary Curriculum in PE	2
KIN 313. Adapted PE	2
KIN 223. Skill Lab	2
KIN 411. Measurement & Evaluation in Kinesiology	3
Elective	3
	<hr/> 15

Senior Year – Spring Semester

KIN 314. Assessment in Elementary PE	2
KIN 221. Skill Lab	2
KIN 410. School Health Content for PHETE	3
KIN 480. Student Teaching in Elementary Education	8
	<hr/> 15

Fifth Year – Summer Session I

KIN 511. Technology in Health & PE	3
KIN 610. Curriculum Design & Development in Health/PE	3
	<hr/> 6

Fifth Year – Fall Semester

KIN 512. Instructional Methods in Middle & Secondary Ed	3
KIN 612. Analysis of Teaching and Learning	3
KIN 514. Methods in School Health for PHETE	3
KIN 655. Research Techniques	3
	<hr/> 12

Fifth Year – Spring Semester

KIN 683. Secondary Internship	6
KIN 513. Professional Issues	3
KIN 611. Teaching Diverse Populations	3
	<hr/> 12

Fifth Year – Summer Session II

Elective	3
	<hr/> 3

Sport and Recreation Management Concentration

This concentration prepares students for employment in a variety of work settings. Graduates of this program are prepared for entry-level positions in management. The following are requirements for this concentration:

- Students in sport and recreation management must declare a business minor through the College of Business.
- A grade point average of 2.0 in the business minor is required for graduation.
- All academic course work must be completed before beginning the KIN 482 internship.

The following courses are concentration requirements for sport and recreation management:

ACTG 244. Accounting for Non-Business Majors	3
COB 204. Computer Information Systems	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Managerial Finance	3
█KIN 100. Lifetime Fitness and Wellness	3
KIN 203. Social/Psychological Foundations of Kinesiology	3
KIN 241. Introduction to Sport and Recreation Management	3
KIN 332. Introduction to Marketing in the Sport Industry	3
KIN 333. Management in Sport, Recreation and Fitness Settings	3
KIN 434. Ethical and Legal Issues in Sport, Recreation and Leisure	3
KIN 435. Sport Promotion, Fund-Raising and Public Relations	3
KIN 436. Facilities Planning and Management in Sport and Recreation	3
KIN 472. Practicum in Sport and Recreation Management	3
KIN 482. Internship in Sport and Recreation Management	12
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3
SCOM 260. Introduction to Public Relations	3
Electives	10
	<hr/> 73

Recommended Schedule for Sport and Recreation Management Concentration

Freshman Year

General Education	27
█KIN 100. Lifetime Fitness & Wellness	3
	<hr/> 30

Sophomore Year

General Education	11
ACTG 244. Accounting for Non-Business Majors	3
COB 204. Computer Information Systems	3
ECON 201. Microeconomics	3
KIN 203. Social/Psychological Foundations of Kinesiology	3
KIN 241. Introduction to Sport and Recreation Management	3
KIN 333. Management in Sport, Recreation & Fitness	3
SCOM 260. Public Relations	3
	<hr/> 32

Junior Year

FIN 345. Managerial Finance	3
KIN 332. Sport Marketing	3
KIN 411. Measurement & Evaluation in Kinesiology	3
KIN 472. Practicum in Sport & Recreation Management	3
MGT 305. Management & Organizational Behavior	3
MKTG 380. Principles of Marketing	3
Electives	10
	<hr/> 28

Senior Year

KIN 434. Ethical & Legal Issues in Kinesiology	3
KIN 435. Sport Promotion	3
KIN 436. Facilities Planning & Management in Sport	3
KIN 482. Internship in Sport & Recreation Management	12
Electives	9
	<hr/> 30

Credit Hours

ATEP 205. Prevention and Care of Athletic Injuries	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
	<hr/> 20

Minor Requirements

The Department of Kinesiology offers two minor areas of study:

- Coaching Education
- Sport Communication

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 before beginning the coaching practicum. In order 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 a 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).

Sport Communication Minor

This minor consists of course work offered in communications, media arts and design, and kinesiology for students with an interest in sports media and communication.

Credit Hours

Choose one of the following:	3
SCOM 245. Signs, Symbols and Social Interaction	
SCOM 248. Intercultural Communication	
SCOM 260. Introduction to Public Relations	3
SMAD 210. News Reporting and Writing	3
KIN 242. Introduction to Sport Communication	3
Choose one of the following:	3
KIN 304. History and Philosophy of Physical Education and Sport	
KIN 329. Psychological and Sociological Aspects of Sports	
KIN 474. Practicum in Sport Communication	3
	<hr/> 18

Department of Learning, Technology and Leadership Education

Dr. Diane Foucar-Szocki, Head

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Educational Media Minor

Dr. Diane L. Foucar-Szocki, Head

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The minor program in educational media is designed for students preparing for employment in education, business, communications or any other field in which the communication of instructional or training messages is an integral part. Skills and knowledge gained in this minor are drawn from the following areas: learning strategies, group dynamics, equipment utilization, production and evaluation of materials, message design, and locating information.

The educational media minor requires a minimum of 18 credit hours selected in consultation with an adviser for this program.

Required Courses	Credit Hours
EDUC 150. Information in Contemporary Society	3
EDUC 370. Instructional Technology	3
EDUC 332. Single Camera TV Operation	1
EDUC 336. Photography in Education	1
EDUC 339. Production of Instructional Materials	1
GPSYC 101. General Psychology	3
SCOM 260. Introduction to Public Relations	3
Elective(s) (approved by adviser)	3
	<hr/> 18

Human Resource Development Minor

Dr. Diane L. Foucar-Szocki, Head

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The purpose of the human resource development minor is to provide students with a strong orientation in the skills necessary to develop and implement professional development and performance improvement programs and materials. It 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 EDUC 370.

Requirements	Credit Hours
EDUC 370. Instructional Technology	3
HRD 240. Principles of Human Resource Development	3
HRD 245. Leadership in Organizational Settings	3
HRD 370. Occupational Task Analysis	3
HRD 480. Learning in Adulthood	3
HRD 485. Development of Materials and Programs	3
	<hr/> 18

Department of Management

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Instructors

R. Eliason, C. Hamilton, E. Henkel, F. Pargas, C. Roeder, M. Yankey, D. Zisk

Mission Statement

The mission of the Department of Management's program is to provide nationally competitive undergraduate and graduate education in the study of management. The management program prepares its majors for entry-level jobs, and for eventual positions in middle-level and upper-level management, as well as for high-quality graduate programs. In addition, the program provides general management education to all students in the College of Business and to students in a wide variety of programs across the university.

Goals

The overall goals of the management program are:

- to prepare the graduates of our major for a wide variety of management careers and leadership roles.
- to provide instruction relating to the study and practice of management to all undergraduate and graduate students in the College of Business, and a wide range of majors throughout JMU.

Objectives

The specific objectives of the management program are:

- to provide a basic understanding of how to apply key managerial concepts and theories in the contemporary work environment.
- to develop human relations/interpersonal skills.
- to develop an understanding of how group dynamics affect individual and group behavior.
- to understand how to integrate the functional areas of an organization.
- to further develop and refine oral communications skills through group presentations.

- to further develop and refine written communications skills through report writing.
- to strengthen individual decision-making skills.
- to provide an understanding and appreciation of the human resource policies and procedures used by organizations and managers.
- to increase knowledge of current developments in the field of human resource management.
- to enhance skills in working with others in small groups to arrive at business decisions.

Career Opportunities

- Sales Manager
- Project Manager
- Human Resources Generalist or Specialist
- Management Consultant/Analyst
- Operations or Logistics Manager
- Distribution Manager
- Labor Relations Specialist
- Small Business Owner
- Customer Relations Manager

Co-curricular Activities and Organizations

- Society for Human Resource Management (SHRM)
- Students in Free Enterprise (SIFE)

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 (GECON 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 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

	Credit Hours
General Education requirements ¹	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
	<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.

Major Requirements

First Two Years

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 the junior year. It is expected that the lower-division core curriculum will be completed during the first two years of study along with all, or 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 until at least the second semester of the junior year. Students enrolling in any 400 level course with a MGT prefix must have senior standing (90 credit hours). Students cannot enroll in more than four courses with a MGT prefix in any given semester.

All management majors will take the three required management core courses.

Required Courses

MGT 340. International Management
MGT 365. Human Resource Management
MGT 390. Organizational Behavior

Plus one applied course to be fulfilled by one of the following:

MGT 372. Entrepreneurship
MGT 494 or MGT 495. Internship
MGT 467. Human Resource Strategy and Implementation.

The remaining five management courses, one of which is the applied course, will be determined by whether a student chooses a concentration. Students who do not pursue a concentration may choose any five management courses, one of which must be an applied course, to fulfill their degree requirements. Students in management may choose to concentrate in human resource management or technology, innovation and entrepreneurship (TIE). The requirements for the two concentrations are delineated in the following sections.

Concentrations

Human Resource Management Concentration

The concentration in human resource management is designed for the management major who desires to concentrate in the human resource aspects of work force recruitment and utilization. This concentration focuses on the development of knowledge and problem-solving skills within the component areas of human resource management. The human resource management concentration consists of the eight courses shown below.

Course	Credit Hours
MGT 340. International Management	3
MGT 365. Human Resource Management	3
MGT 390. Organizational Behavior	3
Three of the following HR foundation courses:	9
MGT 460. Employment Law	
MGT 462. Compensation and Benefits	
MGT 466. Employee Training and Development	
MGT 468. Staffing	
Management Elective	3
Applied HR Elective (HR Internship or MGT 467)	3
	<hr/> 24

Technology, Innovation and Entrepreneurship (TIE) Concentration

The concentration in technology, innovation and entrepreneurship is intended to prepare students for entrepreneurially-oriented careers. The educational approach will be broad-based and designed for students who seek careers in small businesses, as well as those who aspire to be entrepreneurs in corporate settings. The concentration will provide the theoretical framework and practical skills required for entrepreneurial success in organizations of all sizes. The technology, innovation and entrepreneurship concentration consists of the eight courses shown below.

Course	Credit Hours
MGT 340. International Management	3
MGT 365. Human Resource Management	3
MGT 372. Entrepreneurship	3
MGT 390. Organizational Behavior	3
MGT 420. Management of Technology	3
Management elective	3
Choose two of the following:	6
MGT 425. Project Management	
MGT 450. Creativity and Innovation	
MGT 472. Venture Creation	
MGT 480. Organization Theory and Design	

Recommended Schedule for Majors

General Management (No concentration)

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
General Education or non-business elective	3
	<hr/> 15

Second Semester	Credit Hours
MGT 340. International Management	3
MGT 365. Human Resource Management	3
MGT 390. Organizational Behavior	3
General Education or non-business electives	6
	<hr/> 15

Fourth Year

First Semester	Credit Hours
Management electives	9
General Education or non-business electives	6
	<hr/> 15

Second Semester	Credit Hours
COB 487. Strategic Management	3
Management electives	6
General Education or non-business electives	6
	<hr/> 15

Human Resource Management Concentration

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
General Education or non-business electives	3
	<hr/> 15

Second Semester	Credit Hours
MGT 340. International Management	3
MGT 365. Human Resource Management	3
MGT 390. Organizational Behavior	3
General education or non-business electives	6
	<hr/> 15

Fourth Year

First Semester	Credit Hours
HR foundation courses	9
General Education or non-business electives	6
	<hr/> 15

Second Semester	Credit Hours
COB 487. Strategic Management	3
HR applied elective	3
Management elective	3
General Education or non-business electives	6
	<hr/> 15

Technology, Innovation and Entrepreneurship Concentration

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
General Education or non-business elective	3
	<hr/> 15

Second Semester	Credit Hours
MGT 340. International Management	3
MGT 365. Human Resource Management	3
MGT 390. Organizational Behavior	3
General Education or non-business electives	6
	<hr/> 15

Fourth Year

First Semester	Credit Hours
MGT 372. Entrepreneurship	3
MGT 420. Management of Technology and Innovation	3
TIE elective	3
General Education or non-business electives	6
	<hr/> 15

Second Semester	Credit Hours
COB 487. Strategic Management	3
TIE elective	3
Management elective	3
General Education or non-business electives	6
	<hr/> 15

Department of Marketing

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Mission Statement

The Marketing Department prepares students for entry-level career positions by developing specialized skills in the management of customer relationships through the creation, communication, and delivery of value to customers. Students majoring in marketing are introduced to the marketing management process, which is a systematic review of the principal activities required to understand (1) the context in which products and services must be marketed, (2) customer needs, (3) strategic options, (4) marketing program development and (5) evaluation of marketing effectiveness. 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, communications 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 verbal, written and listening 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 all marketing career tracks.

Career Opportunities

- Retailing – store management, merchandise buying and analysis, Internet sales and visual merchandising.
- Consumer marketing and business-to-business marketing – sales, direct marketing, market analysis, product development specialist, Web-based marketing, account representative and customer relations management (CRM).
- Communications – advertising account management, account manager/director, communications management, technical writing, media planning and coordination, sales, and public relations.
- Consulting – marketing assistant, data analysis and 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.
- Not for profit marketing – fund-raising, public relations and customer service.
- Sports/events marketing – merchandising, contracts 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.

- 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.

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

	Credit Hours
General Education requirements ¹	41
B.B.A. lower-level core courses	23-30
B.B.A. upper-level core courses	15
Marketing major requirements	24
Non-business electives	10-12
	<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.

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, B.B.A. students may include all hours taken in general education (usually 41), up to a total of nine hours in economics (*GECON* courses must be counted as economics), and three hours of COB 191, Business and Economics 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.

Major Requirements

Students planning to major in marketing must complete the 23-30 hour, lower-division B.B.A. core curriculum set forth on Page 63 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 all, or 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. Additional required courses are determined by the chosen concentration.

Concentrations

As a result of marketing being such a broad field there are many areas of specialization. Students majoring in marketing commit to a course of study and obtain career-specific knowledge and skills by selecting a concentration. Presently, concentrations include:

- Business to Business Marketing
- Business to Consumer Marketing

Business to Business Marketing Concentration

The business to business marketing concentration is designed for marketing majors who wish a more in-depth review of the issues facing businesses that market products and services to other businesses and organizations. This concentration will focus on the development of knowledge and problem-solving skills relating to business segmentation and buying processes, product and channel development and professional selling, and sales management.

Students interested in sales and sales management may be responsible for increasing sales and if successful will advance to assume management responsibilities. Product development deals with marketing related to a specific product. Activities may involve planning and development, production and distribution, direct marketing and other types of promotion. The business to business marketing concentration is the ideal concentration for a job in sales, customer service, account management and product development.

Required Courses	Credit Hours
MKTG 384. Integrated Marketing Communications	3
MKTG 385. Buyer Behavior	3
MKTG 430. Professional Selling	3
MKTG 450. Business Marketing	3
MKTG 480. Product Development and Management	3
MKTG 482. Database Marketing	3
MKTG 485. Marketing Management	3
Choose one marketing elective from the following:	3
MKTG 405. Survey Research	
MKTG 460. Global Marketing	
MKTG 470. Strategic Internet Marketing	
MKTG 494. Marketing Internship	

Business to Consumer Marketing Concentration

The business to consumer marketing concentration is designed for marketing majors who want in-depth study, analysis, development and marketing of goods and services for sale to consumers using store, catalog and electronic buying methods. Students will develop knowledge, market skills and experience relating to store management, site management, consumer segmentation, Internet marketing and development of marketing strategies for reaching consumer markets.

Graduates in business-to-consumer marketing will be suited to begin careers in relationship marketing, merchandise management, new business creation, customer service operations, catalog marketing, retailing, Internet marketing, not-for-profit marketing and promotional account management positions.

Required Courses	Credit Hours
MKTG 384. Integrated Marketing Communications	3
MKTG 385. Buyer Behavior	3
MKTG 388. Retail Marketing	3
MKTG 482. Database Marketing	3
MKTG 485. Marketing Management	3

Choose one of the following:	3
MKTG 440. Retail Strategy and Buying	
MKTG 470. Strategic Internet Marketing ¹	
Choose two marketing electives from the following list:	6
MKTG 386. Services Marketing	
MKTG 430. Professional Selling	
MKTG 440. Retail Strategy and Buying ¹	
MKTG 460. Global Marketing	
MKTG 470. Strategic Internet Marketing ¹	
MKTG 494. Marketing Internship	

¹ Courses cannot be double-counted toward the major.

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
General Education courses or non-business electives	3
	<hr/> 15

Second Semester

MKTG 384. Integrated Marketing Communications	3
MKTG 385. Buyer Behavior	3
Marketing concentration course	3
Free elective	3
Non-business elective	3
	<hr/>
	15

Fourth Year

First Semester	Credit Hours
MKTG 482 Database Marketing	3
Marketing concentration courses	6
General Education or non-business elective	6
	<hr/> 15

Second Semester

COB 487. Business Policy	3
Marketing concentration course	3
MKTG 485. Marketing Management	3
General Education or non-business electives	6
	<hr/>
	15

Transfer Credit Policy

The marketing program will accept no more than two courses for transfer credit toward the major. In addition to this general College of Business policy, there are restrictions on which courses will be accepted for transfer credit, depending on the selected concentration.

Students concentrating in business to business marketing must take the following courses at JMU.

MKTG 384. Integrated Marketing Communications
MKTG 405. Survey Research
MKTG 450. Business Marketing
MKTG 470. Strategic Internet Marketing
MKTG 480. Product Development and Management
MKTG 482. Database Marketing
MKTG 485. Marketing Management

Students concentrating in Business to Consumer Marketing must take the following courses at JMU.

MKTG 384. Integrated Marketing Communications
MKTG 470. Strategic Internet Marketing
MKTG 482. Database Marketing
MKTG 485. Marketing Management

Minor Requirements

European Marketing Minor

This minor in European marketing is targeted to non-business majors and earned exclusively through participation in a summer session in Antwerp, Belgium. It is not offered at any other time of the year. The curriculum offers non-business majors an opportunity to develop a specialization in marketing within the unique European marketplace. The experiential philosophy of this minor requires students to learn about marketing in a European context, through classroom contact as well as visiting European business, governmental institutions, and cultural/historical sites as part of the requirements for each class. Since the experiential components cannot be accomplished outside of Europe, the minor will not be offered on the Harrisonburg campus.

Except for MKTG 380, only courses taken in Antwerp will count toward this minor. Except for MKTG 380, courses taken at JMU in Harrisonburg will not count towards a European marketing minor. Since COB 301 is taught only in Belgium, and not at JMU in Harrisonburg, no substitutions will be permitted.

To participate in the European marketing minor, students must:

- be a non-B.B.A. major.
- have junior standing (complete at least 56 hours).
- have a cumulative GPA of 2.5 or better before beginning the summer semester in Belgium.
- be accepted to the Semester in Antwerp program.

Specifically, the minor will consist of six courses and 18 hours. Students will take MKTG 380 at JMU in Harrisonburg, then complete 15 hours during a summer session in Belgium.

Required Courses	Credit Hours
MKTG 380. Principles of Marketing	3

MKTG 380 is the prerequisite for all of the following marketing courses. Therefore, this course must be successfully completed before participating in the semester in Antwerp. Typically, students will take this course during the spring semester prior to the summer experience.

COB 301. European Integration, Culture and History	3
MKTG 384. Integrated Marketing Communications	3
MKTG 385. Buyer Behavior	3
MKTG 460. Global Marketing	3
MKTG 485. Marketing Management	3
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Department of Mathematics and Statistics

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Mission Statement

The Department of Mathematics and Statistics provides a program of study in the mathematical sciences which 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 challenge 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 Office of Statistical Services, 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 ^{1,2}	41
Foreign Language classes (intermediate level required)	0-14
Philosophy course (in addition to General Education)	3
University electives	21-35
Major requirements (listed below)	41
	<hr/> 120

1 MATH 231 or MATH 235 must be included and students seeking secondary teaching licensure must include GPSYC 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 ^{1,2}	41
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	34-35
Major requirements (listed below)	41
	<hr/> 120

1 MATH 231 or MATH 235 must be included and students seeking secondary teaching licensure must include GPSYC 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 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 238. Linear Algebra with Differential Equations	4
MATH 245. Discrete Mathematics	3
MATH 248. Computers and Numerical Algorithms	4
MATH 318. Introduction to Probability and Statistics	4
MATH 410. Advanced Calculus I	3
MATH 430. Abstract Algebra I	3
	<hr/> 29

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 which comprise the pre-professional (undergraduate) education program in secondary education.
- Complete 12 credit hours of mathematics courses as follows:
One of MATH 310 or MATH 315
MATH 415
MATH 475
One mathematics elective course numbered 310 or above

It is suggested that students with expectations of teaching AP Calculus take MATH 411 and those with expectations of teaching AP Statistics take either MATH 321 or MATH 322 for the above mathematics elective.

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 (in addition to the required core courses) complete one of the following options, each consisting of 12 credit hours of mathematics courses:

- One of MATH 411, MATH 431 or MATH 435, and nine hours of mathematics electives numbered 310 or above.
- One of the pairs of courses MATH 426 and 427, MATH 440 and 441, or MATH 448 and 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
	<hr/> 30

Second Year	Credit Hours
MATH 237. Calculus III	4
MATH 238. Linear Algebra with Differential Equations	4
MATH 248. Computers and Numerical Algorithms	4
MATH 318. Introduction to Probability and Statistics	4
Pre-professional education requirements	6
General Education courses/electives	8
	<hr/> 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
	<hr/> 30

Fourth Year	Credit Hours
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 475. Fundamental Concepts of Geometry
- Mathematics elective(s) numbered at or above MATH 310

Pre-professional education requirements and General Education courses/electives	21
	<hr/> 30

Recommended Schedule for Majors Not 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
	<hr/> 30
Second Year	Credit Hours
MATH 237. Calculus III	4
MATH 238. Linear Algebra with Differential Equations	4
MATH 248. Computers and Numerical Algorithms	4
MATH 318. Introduction to Probability and Statistics	4
General Education courses/electives	14
	<hr/> 30
Third Year	Credit Hours
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
	<hr/> 30
Fourth Year	Credit Hours
Choose one of the following:	3
MATH 410. Advanced Calculus I	
MATH 430. Abstract Algebra I	
Mathematics required or elective courses numbered 310 or above	6-9
Electives	18-21
	<hr/> 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 248. Computers and Numerical Algorithms
- MATH 336. Elementary Differential Equations, or
- MATH 238. Linear Algebra with Differential Equations
- 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 topics 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 program has two tracks, Applied Statistics and Mathematical Statistics, one of which must be chosen by each student completing the major.

Students interested in the applications of statistics and planning to seek immediate employment as practicing statisticians upon graduation are advised to choose the **Applied Statistics** track. Emphasis in this track is on the applications of statistics to various fields of study. Students in this track will take courses on the design and analysis of experiments, regression analysis and sample surveys, as well as other courses in applied and theoretical statistics, probability and mathematics. Students who choose the applied statistics track are encouraged to take as many elective courses as possible in applied fields of their choice.

The **Mathematical Statistics** track is designed for students who have an interest in the mathematics of statistics or plan to go to graduate school in statistics. Students in this track will see more emphasis on probability and the theory of statistics. These students will also have a chance to take additional courses in applied and theoretical statistics as well as courses in mathematics. Students in this track are recommended to take elective courses from the statistics and mathematics courses offered by the department that will prepare them for graduate studies.

Students of statistics are advised to choose between the two tracks by the end of their sophomore year. However, there are a large number of courses common to both tracks, so students may be able to change tracks later in their academic career with little loss of time.

Bachelor of Science in Statistics: Applied Statistics Track Degree Requirements

Required Courses	
General Education ^{1,2}	41
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	29-33
Major requirements (listed below)	43-46
	<hr/> 120

1 MATH 235 or MATH 231 must be included.
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

Minimum requirements for a B.S. degree with a major in statistics, applied statistics track, are 47 credit hours in statistics and cognate mathematics courses which must include one of the electives in statistics listed below:

	Credit Hours
Statistics Courses	29-31
MATH 220. Elementary Statistics ¹	3
MATH 280. SAS Programming and Data Management	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 324. Applied Nonparametric Statistics	3
MATH 325. Survey Sampling Methods	3
MATH 421. Applied Multivariate Statistical Analysis	3
MATH 426. Probability and Mathematical Statistics I	3
MATH 429. Research Project in Statistics	1-3
Choose one of the following electives in statistics:	3
MATH 327. Categorical Data Analysis	
MATH 328. Time Series Analysis	
MATH 423. Stochastic Processes	
MATH 424. Statistical Decision Theory	
MATH 427. Probability and Mathematical Statistics II	

Mathematics Cognates:	11-12
MATH 236-237. Calculus II-III	8
MATH 300. Linear Algebra ²	3-4

1 Waived for those who have "C" or better in MATH 318. No additional course will be required to substitute for MATH 220 in this program.

2 MATH 238. Linear Algebra with Differential Equations may be substituted.

In addition to elective statistics courses offered by the department, students in this track are strongly recommended to take as many elective courses as possible from fields of application such as management, business administration, economics, biology or health sciences in which they are interested and in which they might like to be employed.

Recommended Schedule for Statistics Major, Applied Statistics Track

First Year	Credit Hours
Skills for the 21st Century (Cluster One)	9
MATH 220. Elementary Statistics	3
MATH 280. SAS Programming and Data Management	3
MATH 235. Calculus I	4
General Education courses	11
	<hr/> 30

Second Year	Credit Hours
MATH 236-237. Calculus II-III	8
MATH 318. Introduction to Probability and Statistics	4
MATH 325. Survey Sampling Methods	3
General education courses/electives	15
	<hr/> 30

Third Year	Credit Hours
MATH 321. Analysis of Variance and Experimental Design	3
MATH 322. Applied Linear Regression	3
MATH 324. Applied Nonparametric Statistics	3
MATH 300. Linear Algebra	3
MATH 426. Probability and Mathematical Statistics I	3
General education courses/electives	15
	<hr/> 30

Fourth Year	Credit Hours
MATH 421. Applied Multivariate Statistical Analysis	3
MATH 429. Research Projects in Statistics	1-3
Elective in Statistics	3
Electives	21-23
	<hr/> 30

Bachelor of Science in Statistics: Mathematical Statistics Track Degree Requirements

General Education ^{1,2}	41
Scientific Literacy requirement (in addition to General Education)	3-4
University electives	26-28
Major requirements (listed below)	48-49
	<hr/> 120

1 MATH 235 or MATH 231 must be included.

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

Minimum requirements for a B.S. degree with a major in statistics, mathematical statistics track, are 52 credit hours in statistics and cognate mathematics courses:

Statistics Courses:	Credit Hours
MATH 220. Elementary Statistics ¹	3
MATH 280. SAS Programming and Data Management	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 324. Applied Nonparametric Statistics	3
MATH 421. Applied Multivariate Statistical Analysis	3
MATH 426-427. Probability and Mathematical Statistics I-II	6
Choose one of the following electives in statistics:	3
MATH 328. Time Series Analysis	
MATH 423. Stochastic Processes	
MATH 424. Statistical Decision Theory	
Mathematics Cognates:	17-18
MATH 236-237. Calculus II-III	8
MATH 245. Discrete Mathematics	3
MATH 300. Linear Algebra ²	3-4
MATH 410. Advanced Calculus I	3

1 Waived for those who have "C" or better in MATH 318. No additional course will be required to substitute for MATH 220 in this program.

2 MATH 238. Linear Algebra with Differential Equations, may be substituted.

In addition to elective statistics courses, students in this track are recommended to take elective courses from the mathematics courses offered by the department that will prepare them to continue in their studies toward an M.S. and/or a Ph.D. degree in statistics.

Recommended Schedule for Statistics Major, Mathematical Statistics Track

First Year	Credit Hours
Skills for the 21st Century (Cluster One)	9
MATH 220. Elementary Statistics	3
MATH 280. SAS Programming and Data Management	3
MATH 235. Calculus I	4
General education courses	11
	<hr/> 30

Second Year

MATH 236-237. Calculus II-III	Credit Hours	8
MATH 318. Introduction to Probability and Statistics		4
MATH 321. Analysis of Variance and Experimental Design		3
General education courses/electives		15
		<hr/> 30

Third Year

MATH 322. Applied Linear Regression	Credit Hours	3
MATH 300. Linear Algebra ¹		3
MATH 312. Discrete Mathematics		3
MATH 426-427. Probability and Mathematical Statistics I-II		6
General education courses/electives		15
		<hr/> 30

Fourth Year

MATH 324. Applied Nonparametric Statistics	Credit Hours	3
MATH 421. Applied Multivariate Statistical Analysis		3
MATH 410. Advanced Calculus I		3
Elective in Statistics		3
Electives		18
		<hr/> 30

¹ 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 mathematics 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.

MATH 235-236. Calculus I-II or MATH 232 and MATH 236	Credit Hours	8
Mathematics courses numbered 237 or above, excluding mathematics courses numbered 301-309		10
		<hr/> 18

Statistics Minor

The minor in statistics is open to any student not majoring in mathematics or statistics. Each student must obtain **prior** approval of the courses to be counted in the minor from the statistics minor adviser, Dr. Nusrat Jahan.

A minor in statistics requires a minimum of 18 credit hours.

MATH 322. Applied Linear Regression	Credit Hours	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 280. 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 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		
		<hr/> 18-19

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

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Professors

S. Anderson, D. Gilliam, R. Greene, G. Johnson, M. Johnson, A. Leidholdt, D. Maune, R. Soenksen, C. Turner, J. Woody

Associate Professors

D. Flamiano, J. Guiniven J. Hinshaw, J. Holman, T. McHardy, T. O'Connor, K. Reynolds, D. Wendelken

Assistant Professors

M. Grundmann, K. Hughes, N. Nusser, Parkhurst

Mission Statement

The mission of the School of Media Arts and Design consists of five interrelated areas:

- To encourage a learning and teaching environment that emphasizes the creative process and is distinctly innovative, cooperative, collegial and challenging.
- To be recognized as a regional and national leader in providing a multidisciplinary program that embraces and integrates new and evolving technologies with the teaching of the traditional concepts, values and skills of our disciplines.
- To build programs that help students acquire the ability to learn independently as well as to motivate and facilitate learning in a team environment.
- To stress the development of a broad understanding of the foundations of our related disciplines while acquiring a depth of knowledge in at least one area of concentration.
- To support a strong program of co-curricular, extracurricular and internship activities which enrich an understanding of the role of our disciplines 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: (a) journalistic, (b) cinematic or (c) 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 incorporates the fields and study of mass communication, journalism, telecommunication, digital video production, interactive media and mediated visual and aural expression. It offers a program of study that prepares students for careers in the media and/or a corporate environment; careers that rely on mass media and related areas of expertise or graduate study in mass communication and related areas, such as advanced visual communication or digital production. A student who has an interest in working in print journalism, broadcast journalism, television production, corporate communication or interactive multimedia would find one of the four concentrations to fit his or her interests.

Co-curricular Activities and Organizations

Majors and interested non-majors are encouraged to participate in the 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 practicums 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

- Society of Professional Journalists is the JMU chapter of a national organization for students and professionals working in the various fields of journalism.
- The Association for Women in Communication is the JMU chapter of a national professional organization for students and professionals working in the various communication fields.
- SMAD Club is a student organization that promotes the School of Media Arts and Design, brings in speakers and organizes departmental events.

Special Admission and Retention Requirements

Admission Policy

Admission to the School of Media Arts and Design is limited and competitive. Applications for admission to the major are reviewed each academic year in the spring semester. All students interested in majoring in the programs offered by the school must apply for a limited number of spaces in the major. Students applying to the major at JMU must be degree seeking and either have completed at least 12 hours or be enrolled in 12 hours at JMU. 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 three times to the school for admission.

Students interested in admission to the major must first declare a major in the School of Media Arts and Design prior to being eligible to enroll in SMAD 101. Any student may declare SMAD. Declaring SMAD does not guarantee that the student will be admitted to the SMAD major. A declared SMAD student may take SMAD 101, but the student is restricted from other SMAD courses until admitted to the major.

A complete application to the major includes the following:

- Completion of SMAD 101 or enrollment in SMAD 101.
- Completion of SMAD Admission Test with sections on English grammar and usage, timed writing sample and basic computer knowledge. (Instructions for SMAD Admission Test available in SMAD 101.)
- An essay.
- A completed change of major form (available in the SMAD office).
- A completed SMAD major card (available in the SMAD office).
- A completed SMAD Questionnaire (available in the SMAD office).
- Other relative supporting documents.

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 about their acceptance into the major. If accepted, students will be eligible to register for SMAD courses. Students not accepted into the major will be notified and may reapply in the following year.

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 time period in the spring semester. A student will be permitted to change concentrations with the approval of the Admission Committee.

Minimum Grades

If a student enrolled in SMAD 101 is accepted in the major and makes an "F" in SMAD 101, then the student will be dropped from the major and can reapply. If a student enrolled in SMAD 101 is accepted in the major and makes a "D+" or "D" in SMAD 101, then the student may continue to take classes in the major; however, the students must retake SMAD 101 and earn at least a "C-."

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.

Limitations in Applied Courses

Of the 120 hours of course work required for graduation, a student may count no more than six hours of combined credit in SMAD 295 and SMAD 395, Practicum; SMAD 390, Directed Projects, and SMAD 495, Internship, toward a major in media arts and design.

Degree and Major Requirements

A student must take a minimum of 36 hours in school courses. In addition to courses from the School of Media Arts and Design, students must take at least 78 hours of course work outside the school.

Bachelor of Arts in Media Arts and Design

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	29-43
Major requirements (listed below)	<u>36</u>
	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. Fundamental Skills in Media Arts and Design I	3
SMAD 202. Fundamental Skills in Media Arts and Design II	3
SMAD 301. The Media Arts: Culture by Design	3
SMAD 400. Senior Assessment in Media Arts and Design	0
Choose one of the following programs:	24
Converged Media	
Corporate Communication	
Digital Video and Cinema	
Journalism	

Students accepted into the major must pick a concentration. Refer to the "Concentrations" section for details.

Bachelor of Science in Media Arts and Design

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
University electives	39-40
Major requirements (listed below)	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 In addition to course work taken to fulfill General Education requirement.

Major Requirements

Core Requirements	Credit Hours
SMAD 101. Introduction to Media Arts and Design	3
SMAD 201. Fundamental Skills in Media Arts and Design I	3
SMAD 202. Fundamental Skills in Media Arts and Design II	3
SMAD 301. The Media Arts: Culture by Design	3
SMAD 400. Senior Assessment in Media Arts and Design	0
Choose one of the following programs:	24
Converged Media	
Corporate Communication	
Digital Video and Cinema	
Journalism	

Students accepted into the major must pick a concentration. Refer to the "Concentrations" section for details.

Concentrations

Converged Media

This concentration serves students interested in digital convergence, the delivery of content via multiple media formats such as text, images, audio, video and interactive Web sites. 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.

	Credit Hours
Concentration Core Requirements	12
SMAD 231. Writing for New Media ¹	
SMAD 307. Interactive Design for the Web I	
SMAD 330. New Media Law	
SMAD 407. Business and Management of Digital Media	
Concentration Elective Requirement	3
Choose one from the following:	
SMAD 302. HD Video Production	
SMAD 305. Topics in Media Arts and Design ²	
SMAD 308. Interactive Design for the Web II	
SMAD 332. Print Communication Design	
SMAD 341. Information and Communication Technologies	
Concentration Capstone Production Requirement	3
Choose one from the following:	
SMAD 404. Advanced Interactive Design	
SMAD 408. Converged Media Lab	

Concentration Critical Analytical Requirements	6
Choose two from the following:	
SMAD 356. Telecommunication Policy and Regulation	
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 ²	
SMAD 470. New Media and Society	
SMAD 471. Media Ethics	
SMAD 472. Media and Politics ³	
SMAD 472L. British Media and Politics ³	
SMAD 498. Senior Seminar	

36

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	3
Cluster One	9
General Education courses	18
	<hr/> 30

Second Year	Credit Hours
SMAD 201	3
SMAD 202	3
SMAD 231	3
General Education courses	10-13
University electives	8-11
	<hr/> 30

Third Year	Credit Hours
SMAD 301	3
SMAD 307	3
SMAD 330	3
Converged media concentration elective	3
University electives	18
	<hr/> 30

Fourth Year	Credit Hours
SMAD 404 or SMAD 408	3
SMAD 400	0
SMAD 407	3
Converged media concentration critical analysis courses	6
University electives	18
	<hr/> 30

Corporate Communication

This professionally oriented program provides students with the principles and skills needed to develop, manage, and practice strategic, media-based communication within organizations. Class work, internships, and practical experience emphasize management principles and strategies used by corporations when communicating with organizational stakeholders. Students practice the media design and production skills necessary for developing and implementing strategic communication plans. Students planning careers in corporate communication should also obtain a broad liberal arts education to better understand the social, economic and symbolic factors that influence modern corporate communication.

Concentration Core Requirements	Credit Hours
SMAD 241. Introduction to Corporate Communication ¹	12
SMAD 341. Information and Communication Technologies	
Choose one of the following:	
SMAD 330. New Media Law	
SMAD 370. Mass Communication Law	
SMAD 441. Corporate Communication Management	
Concentration Elective Requirements	6
Choose two of the following:	
SMAD 210. News Reporting and Writing	
SMAD 220. News Editing	
SMAD 225. Photojournalism	
SMAD 256. Principles of Advertising	
SMAD 305. Topics in Media Arts and Design ²	
SMAD 307. Interactive Design for the Web I	
SMAD 311. Feature Writing ¹	
SMAD 322. New Media Journalism	
SMAD 332. Print Communication Design	
Critical Analytical Requirements	6
Choose two from the following:	
SMAD 356. Telecommunication Policy and Regulation	
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 ²	
SMAD 470. New Media and Society	
SMAD 472. Media and Politics ³	
SMAD 472L. British Media and Politics ³	
SMAD 498. Senior Seminar	
	<hr/> 36

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	3
Cluster One	9
General Education courses	18
	<hr/> 30
Second Year	Credit Hours
SMAD 201	3
SMAD 202	3
SMAD 241	3
General Education courses	10-13
University electives	8-11
	<hr/> 30
Third Year	Credit Hours
SMAD 301	3
SMAD 330 or SMAD 370	3
SMAD 341	3
Corporate communication concentration elective	3
University electives	18
	<hr/> 30
Fourth Year	Credit Hours
SMAD 400	0
SMAD 441	3
Corporate communication concentration elective	3
Corporate communication concentration critical analysis courses	6
University electives	18
	<hr/> 30

Digital Video and Cinema

This professionally oriented program helps students develop practical skills in the converging media of high definition television and film, while instilling a critical understanding of how those media are used to tell stories, convey information and persuade audiences. The program offers preparation in writing, production and post-production within an ongoing examination of how new digital technologies are reshaping the commercial and artistic potential of visual media. Digital video and cinema students are encouraged to complement their concentration with a minor in film studies, creative writing, art or theatre.

Concentration Core Requirements	Credit Hours
Choose one of the following:	12
SMAD 250. Scriptwriting ¹	
SMAD 251. Screenplay Writing ¹	
SMAD 302. HD Video Production	
Choose one of the following:	
SMAD 330. New Media Law	
SMAD 370. Mass Communication Law	
SMAD 407. Business and Management of Digital Media	
Concentration Elective Requirements	6
Choose two of the following:	
SMAD 303. HD Post Production	
SMAD 304. Audio Production	
SMAD 305. Topics in Media Arts and Design ²	
SMAD 306. HD Studio Production	
SMAD 307. Interactive Design for the Web I	
SMAD 340. Advanced Screenplay Writing ¹	
SMAD 371. Narrative Media Studies	
SMAD 402. HD Compositing and Special Effects	
SMAD 405. Directing Video and Cinema	
SMAD 462. Documentary in Film and TV	
SMAD 463. Film Adaptations ³	
SMAD 463L. Film Adaptations: British Literature and Film ³	
Critical Analytical Requirements	6
Choose two of the following:	
SMAD 360L. British Media and Society	
SMAD 371. Narrative Media Studies	
SMAD 373. Media Analysis and Criticism	
SMAD 398. Critical Studies in Media Arts and Design ²	
SMAD 460. Movies and Society	
SMAD 461. Movies as Art	
SMAD 462. Documentary in Film and TV	
SMAD 463. Film Adaptations ³	
SMAD 463L. Film Adaptations: British Literature and Film ³	
SMAD 470. New Media and Society	
SMAD 498. Senior Seminar	
	<hr/> 36

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	3
Cluster One	9
General Education courses	18
	<hr/> 30

Second Year	Credit Hours	Concentration Critical Analytical Requirements	6
SMAD 201	3	Choose two from the following:	
SMAD 202	3	SMAD 356. Telecommunication Policy and Regulation	
SMAD 250 or SMAD 251	3	SMAD 360L. British Media and Society	
General Education courses	10-13	SMAD 372. Media History	
University electives	8-11	SMAD 373. Media Analysis and Criticism	
	<hr/> 30	SMAD 398. Critical Studies in Media Arts and Design ²	
Third Year	Credit Hours	SMAD 462. Documentary In Film and Television	
SMAD 301	3	SMAD 470. New Media and Society	
SMAD 302		SMAD 471. Media Ethics	
SMAD 330 or SMAD 370	3	SMAD 472. Media and Politics ³	
Digital video and cinema concentration elective	3	SMAD 472L. British Media and Politics ³	
University electives	18	SMAD 498. Senior Seminar	
	<hr/> 30		<hr/> 36
Fourth Year	Credit Hours		
SMAD 400	0		
SMAD 407	3		
Digital video and cinema concentration elective	3		
Digital video and cinema concentration critical analysis courses	6		
University electives	18		
	<hr/> 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.

Credit Hours	
Concentration Core Requirements	12
SMAD 210. News Reporting and Writing ¹	
SMAD 310. Advanced News Writing ¹	
Choose one of the following:	
SMAD 220. News Editing	
SMAD 309. Video Journalism	
Choose one of the following:	
SMAD 330. New Media Law	
SMAD 370. Mass Communication Law	
Concentration Elective Requirement	3
Choose one of the following:	
SMAD 220. News Editing	
SMAD 225. Photojournalism	
SMAD 305. Topics in Media Arts and Design ²	
SMAD 307. Interactive Design for the Web I	
SMAD 309. Video Journalism	
SMAD 311. Feature Writing ¹	
SMAD 321. Feature Magazine Production	
SMAD 322. New Media Journalism	
SMAD 332. Print Communication Design	
SMAD 341. Information and Communication Technologies	
Concentration Capstone Production Requirement	3
Choose one of the following:	
SMAD 321. Feature Magazine Production	
SMAD 322. New Media Journalism	
SMAD 409. Electronic News Gathering and Producing	

First Year	Credit Hours
SMAD 101	3
Cluster One	9
General Education courses	18
	<hr/> 30
Second Year	Credit Hours
SMAD 201	3
SMAD 202	3
SMAD 210	3
SMAD 220 or SMAD 309	3
General Education courses	10-13
University electives	5-8
	<hr/> 30
Third Year	Credit Hours
SMAD 301	3
SMAD 310	3
SMAD 330 or SMAD 370	3
Journalism concentration elective	3
University electives	18
	<hr/> 30
Fourth Year	Credit Hours
SMAD 321 or SMAD 322 or 409	3
SMAD 400	0
SMAD critical analysis courses	6
University electives	21
	<hr/> 30

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	3
Cluster One	9
General Education courses	18
	<hr/> 30
Second Year	Credit Hours
SMAD 201	3
SMAD 202	3
SMAD 210	3
SMAD 220 or SMAD 309	3
General Education courses	10-13
University electives	5-8
	<hr/> 30
Third Year	Credit Hours
SMAD 301	3
SMAD 310	3
SMAD 330 or SMAD 370	3
Journalism concentration elective	3
University electives	18
	<hr/> 30
Fourth Year	Credit Hours
SMAD 321 or SMAD 322 or 409	3
SMAD 400	0
SMAD critical analysis courses	6
University electives	21
	<hr/> 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, in addition to the College of Education section of the catalog.

Minor Requirements

Creative Writing Minor

The interdisciplinary 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. For more detailed information on the minor, refer to the section on "Interdisciplinary Programs," Page 102.

Film Studies Minor

The interdisciplinary 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. For more detailed information on the minor, refer to the "Interdisciplinary Programs" section, Page 106.

Political Communication

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. For more detailed information on the minor, refer to the "Interdisciplinary Programs" section, Page 112.

Sport Communication

This minor consists of course work offered in communications, media arts and design, and kinesiology for students with an interest in sports media and communication. For more information, see the "Department of Kinesiology" section, Page 221.

Telecommunications

The interdisciplinary 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. For more detailed information on the minor, refer to the "Interdisciplinary Programs" section, Page 114.

Department of Middle, Secondary and Mathematics Education

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Instructors

H. Almarode, 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 interdisciplinary 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 or 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 interdisciplinary 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. Admission to and satisfactory completion of the M.A.T. program are required for a recommendation from James Madison University for licensure in middle 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 Praxis I & II scores
- 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 Behaviors Checklist

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
	<hr/> 32

Degree and Major Requirements

	Credit Hours
B.A./B.S. Undergraduate Degree	
General Education ¹	46
Interdisciplinary Liberal Studies Major	36-42
Pre-Professional Studies in Education	36
M.A.T. Program	
Graduate Level Professional Studies	32
	<hr/> 150-156

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.

Recommended Schedule for Middle Education

Undergraduate Course Requirements	Credit Hours
GPSYC 160. Life Span Human Development	3
EDUC 360. 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 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 two courses which are also corequisites.	
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 ¹	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	
MSSE 471. Content Area Field Experience in Middle Schools ²	6
EXED 460. Differentiation of Instruction and Academic Collaboration	3
	<hr/> 36

¹ Prior to or during enrollment in MSSE 370, candidates will be required to complete a 20-hour mentoring project.

² Choose practicum to correlate with the two content 470 courses. Students complete course twice in appropriate content for a total of six credit hours.

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 II scores); it is expected that candidates will complete the graduate admission process early in their senior year. In addition, candidates must meet all graduate

Secondary Education

Grades Six through Twelve

Master's Level Licensure Program

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 22 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, foreign languages, mathematics, the natural sciences, and social studies. Foreign language is a PreK-12 licensure area that is based in Secondary Education. Licensure endorsements for other teaching areas (e.g., algebra, journalism, and English as a second language) 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 "C" 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 education 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.

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.

Degree and Major Requirements

	Credit Hours
B.S./B.A. Undergraduate Degree	
General Education ¹	41-44
Discipline Major	36-60
Pre-Professional Studies in Education	22-24
M.A.T. Program (Graduate)	
Graduate Level Professional Studies	35
	134-163

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.

Recommended Schedule for Secondary Education

The requirements listed below comprise the pre-professional (undergraduate) education program in secondary education. The courses listed must be satisfactorily completed prior to full admission to teacher education and to the graduate M.A.T. program.

Requirements should be completed in the following sequence:

First Year	Credit Hours
MSSE 101. Orientation to the Profession (optional)	2
Second Year	
GPSYC 160. Life Span Human Development	3
EDUC 360. 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 Years

EDUC 310. Teaching in a Diverse Society	3
MSSE 370. General Instructional Methods for Grades 6-12 ¹	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	3
READ 440 Literacy-Based Learning in Secondary Education	3
	22-24

¹ Prior to or during enrollment in MSSE 370, candidates will be required to complete a 20-hour mentoring project.

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 II 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.

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 Education	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

Foreign Language Education PreK-12

The licensure program in foreign languages is based in the secondary education program, but it leads to a PreK-12 license. The foreign language program differs from the secondary (6-12) programs in that licensure candidates must take MSSE 570F, Methods of Language Teaching, and their practicum, MSSE 571F, must include field experiences at the elementary (PreK-6) school level. The content of MSSE 570F includes coverage of teaching foreign language methods for elementary school children as well as teaching foreign language to middle and high school students. The required practicum experiences include observations and teaching experiences across the PreK-12 grade levels. Candidates seeking foreign language certification are required to complete 22 credits of pre-professional studies in education at the undergraduate level and 35 credits in professional studies at the graduate level. Foreign language candidates register for EDUC 675M and EDUC 675S, Internships.

Program Advisory System

First year candidates planning to become teachers in secondary schools are advised to 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.

	Credit Hours
GPSYC 160. Life Span Human Development	3
EDUC 490. Special Topics in Education	3
VOED 383. Curriculum and Instructional Procedures in VOED	3

Department of Military Science

Robert E. Pettit, Head

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Professor

R. Pettit

Assistant Professors

M. Dillon, J. Geis, L. Kipling, N. Nelson

Instructors

M. Ansbro, D. Harrison, D. Kline

Mission Statement

The Duke Battalion mission is to provide quality leadership training, hands-on experience and character development in order to commission quality young Americans to serve as the future officer leadership of the active Army, Army Reserve or Army National Guard.

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, National Guard or 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

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 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 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, communications, 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, ROTC scholarships are available for graduate students with no prior ROTC experience.

Co-curricular Activities and Organizations

- Color Guard
- JMU Cannon Crew
- JMU Ranger Group
- Scabbard and Blade Military Honor Society
- Army Ten Miler Team
- Modern Army Combatives-Self Defense Training

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 advanced camp at Ft. Lewis, Wash. Cadets must maintain at least a 2.0 GPA.

Degree Requirements

The Military Science curriculum is divided into two phases:

Basic Military Science	Credit Hours
MSCI 100. Leadership Laboratory (every semester)	2
MSCI 101. Introduction to Leadership and the Army	1
MSCI 102. Leadership Development Fundamentals	1
MSCI 200. Intermediate Leadership Laboratory	4
MSCI 201. Leadership Styles - Theory and Application	2
MSCI 202. Developing Leader Skills	2
	<hr/> 12

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 and managers 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 and feedback mechanisms. 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.

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 basic camp at Ft. Knox, Ky.

Advanced Military Science	Credit Hours
MSCI 300. Advanced Leadership Lab (every semester)	12
MSCI 310. Leading Small Organizations	3
MSCI 320. Developing Leader Skills	3
MSCI 410. Adaptive Leadership	3
MSCI 420. Leadership in a Complex World	3
	<hr/> 24

This curriculum focuses on instruction and case studies which build leadership competencies and military skills in preparation for future responsibilities as army officers. 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.

Scholarships

Two, three and four-year scholarships are available. The scholarships cover all tuition and fees, \$900 per school year for books and supplies and \$3,000-\$5,000 per school year in tax-free subsistence allowance. More detailed information is available by contacting the department's enrollment officers, Captain Lesley Kipling, (540) 568-3633 or (800) ROTCJMU or Lieutenant Colonel Mike Dillon, (540) 568-5542.

Minor Requirements

Minor in Military Leadership

	Credit Hours
Basic military science courses	10
Advanced military science courses	20
History course (see department staff)	3
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Air Force Reserve Officers Training Corps

AFROTC Detachment 890
University of Virginia
P.O. Box 400188
Charlottesville, VA 22904-4188
Phone: (434) 924-6832
Fax: (434) 982-2842
E-mail: afrotc@virginia.edu
Web site: www.virginia.edu/~afrotc

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 offers students the opportunity to receive US Air Force officer training while completing undergraduate or graduate studies. AFROTC is the largest of three programs available through the Air Force to earn a commission and serve as an officer in the United States Air Force.

AFROTC offers two, three and four year commissioning programs for students of all levels, both graduate and undergraduate. The four year program is designed for students who join during their first year of college. Students take all four years of Air Science Classes and attend a four week summer field-training encampment at an Air Force Base between their second and third years.

Students may also enroll in AFROTC during their second year of college. Those awarded a scholarship will dual enroll in both the AIRS 100 and 200-level courses during their second year of college and attend a four week summer field-training encampment. Students not on scholarship will only take the AIRS 200 level courses and attend a five week summer field-training encampment.

Students enrolling in the program during their third year attend field training between their third and fourth years. At a minimum, the two year program allows students who have missed any portion of the first two years to attend the AIRS 300- and 400-level courses and a five week field-training encampment.

Depending on the needs of the Air Force, AFROTC may offer a one year program. Students who have at least one academic year of undergraduate or graduate studies remaining may enroll in this program. Students must dual enroll in the AIRS 300- and 400-level classes and attend a five week field training encampment.

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 or navigators. Successful pilot and navigator candidates serve 10 and six year active duty service commitments, respectively. Active duty may be delayed after graduation for those who wish to immediately pursue a graduate degree.

AFROTC Scholarships

Merit-based financial scholarships are offered to qualified students through two, three and four year scholarships. Qualified students may be offered an AFROTC scholarship for full or partial college tuition, incidental fees, textbook allowances, and a monthly subsistence allowance of \$250-\$400 dependent on academic year. Scholarship students incur a military obligation.

Typical Program for Minors

Courses	Credit Hours
AIRS 110. The Foundations of the US Air Force I	1
AIRS 120. The Foundations of the US Air Force II	1
AIRS 210. The Evolution of Air and Space Power I	1
AIRS 220. The Evolution of Air and Space Power II	1
AIRS 310. Concepts of Air Force Leadership and Management I	3
AIRS 320. Concepts of Air Force Leadership and Management II	3
AIRS 410. National Security Affairs I	3
AIRS 420. National Security Affairs II	3
Leadership Lab (Required with every AIRS course)	0
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School of Music

Dr. Jeffrey Showell, Director

Phone: (540) 568-6197

Location: Music Building, Room 130

E-mail: showelja@jmu.edu

Web site: <http://www.jmu.edu/music/>

Professors

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Associate Professors

S. Barber, B. Chandler, B. Cockburn, A. Connell, G. Dobner, C. Donakowski, J. Haney, W. Huang, M. Kirkdorffer, A. Lankford, D. Maddison, J. Minor, D. Pope, M.J. Speare, C. Stevens

Assistant Professors

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Instructor

S. Rikkers

Mission Statement

The School of Music is strongly committed to the highest level of musical training. The school offers a comprehensive undergraduate program and a graduate program that strive for the highest quality in music performance and academic study. The instruction prepares students for careers in music performance, music education, composition, music theatre and music industry. By incorporating general education studies, the undergraduate program enables students to relate music to historical, sociological and economic developments.

Additionally, the School of Music seeks to provide the JMU and Shenandoah Valley communities with a variety of cultural benefits through music performances. These performances include faculty and student recitals, concerts by the numerous musical ensembles within the school, and performances, clinics and workshops by visiting artists.

The School of Music is an accredited institutional member of the National Association of Schools of Music.

Goals

To fulfill the above mission, the School of Music seeks 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.
- maintain a sense of community that encourages intellectual curiosity, creative endeavor, cultural diversity and respect for various perspectives.
- demand excellence from faculty members as educators, researchers, performers, clinicians and mentors 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 appropriately their 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 used in the music field, such as computers, music instruction software, electronic devices and technologically advanced audio and visual equipment.

Objectives for Bachelor of Music Students

The nine major degree concentrations are each designed to establish a set of skills and a knowledge base necessary for success as a practitioner in a specific career area within the broader field of music. The following is a list of objectives achieved through the School of Music curriculum.

- 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. These students will demonstrate:
 - basic competency in composition, aural skills, and analysis of the standard forms and styles of western music.
 - a broad historical and contextual knowledge of the music of many time periods and geographical regions.
 - basic competency in the use of a piano keyboard for the study, analysis, composition, and performance of music.
 - basic skills of conducting a musical ensemble and leading a rehearsal.
- Through specialized classes within each concentration, music students will attain skills and attitudes necessary for the establishment and maintenance of a career as a professional musician. These students will demonstrate:
 - the skills of musical performance necessary to pass the applied graduation level for the student's primary concentration, and to successfully complete a senior recital in performance or composition.
 - an ability to perform successfully in ensemble settings.

- a concentrated knowledge about the chosen program area or profession through advanced specialized courses.
- in areas where required, success in professional teaching or working experiences through fieldwork and internships that place the student into a supervised off-campus learning situation.

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 following list of careers is only a small sample of the many possibilities. For more information about career options, contact the school director.

- 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

The following activities are open to all JMU students without audition:

- Concert Band
- Marching Royal Dukes
- Chorus

The following activities are open to all JMU students with audition or instructor permission:

- Brass Band
- Brass Ensembles
- Chamber Orchestra

- Chorale
- Clarinet Choir
- 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
- 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 Application Form and request an audition date from those indicated on the form.

An information packet containing audition guidelines, an audition application and other pertinent materials will be sent to prospective music majors upon request. Applications are also available online at www.jmu.edu/music/app.html. Students can obtain information packets by visiting the School of Music office or by contacting the music admissions coordinator, Dr. Michele Kirkdorffer, or an admissions assistant at (540) 568-3851 or at music_admit@jmu.edu.

Audition, Exam and Placement Test

No student will be accepted as a music major until an audition and a music aptitude test are successfully completed. A piano placement test will also be taken but has no bearing on acceptance.

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. The theory test is an aural-skills aptitude test and is part of the admissions process. The piano test primarily determines class-level placement.

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. For additional details, see the School of Music's *Undergraduate Student Handbook*. 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.

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, as published in the School of Music Student Handbook, if they are to continue. To ensure that these standards are met, the Music Academic Review Committee 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.

Degree and Major Requirements

Bachelor of Music Degree

The Bachelor of Music degree offers five specialized majors: performance, composition, music industry, music education and music theatre. All music majors must complete the general education program and a 27 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.

Music majors must perform in at least one adviser-approved ensemble each semester in which they enroll for at least twelve credit hours. An exception is made for music education majors during the student-teaching semester. All music students should enroll in class piano each semester until they meet the requirements appropriate to their specific degree or concentration. Graduating seniors must participate in assessment activities including assessment day.

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 20 recitals per semester for six semesters, totaling 120 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 ¹	41
Core music program courses	27
Major concentration courses and electives	55-62
	<hr/> 123-130

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

Core Requirements	Credit Hours
Choose one of the following:	1
MUS 101. Keyboard Skills I (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. Theory I: Writing and Analysis Techniques	6
MUS 143-144. Theory I: Aural Perception and Analysis	2
MUS 195. Recital Attendance (six semesters)	0
MUS 241-242. Theory II: Writing and Analysis Techniques	6
MUS 243-244. Theory II: Aural Perception and Analysis	2
MUS 317. Basic Conducting	2
MUS 373,374,375,376. Music History	8
	<hr/> 27

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 student's major applied area.

A typical first year course of study might be:

First Year

First Semester

	Credit Hours
Choose one of the following:	1
MUS 100, 101. Keyboard Skills I-II	
MUS 202, 303. Keyboard Skills III-IV	
MUS 141. Theory I: Writing and Analysis Techniques	3
MUS 143. Theory I: Aural Perception and Analysis	1
MUS 195. Recital Attendance	0
GWRTC 103. Critical Reading and Writing	3
Applied music major course	2
Music ensemble course	1-2
General Education courses	3
	<hr/>
	14-15

Second Semester

	Credit Hours
Choose one of the following:	1
MUS 101. Keyboard Skills I	
MUS 202, 303. Keyboard Skills III-IV	
MUS 142. Theory I: Writing and Analysis Techniques	3
MUS 144. Theory I: Aural Perception and Analysis	1
MUS 195. Recital Attendance	0
Applied music major course	2
Music ensemble course	1-2
General Education courses	6
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	14-15

For a recommended eight-semester outline of curricular requirements for each major concentration, see the School of Music's *Undergraduate Student Handbook*.

Bachelor of Music in Performance Vocal Concentration

Dr. John Little, Coordinator

Phone: (540) 568-6970

E-mail: littleja@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	59
	<hr/>
	127

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

Courses¹

	Credit Hours
Choose one of the following:	8
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	2
MUS 318. Intermediate Choral Conducting	2
MUS 395. Junior or Senior Half Recital	0
MUS 444. Counterpoint	2
MUS 450. Advanced Music Analysis	2
MUS 465. Opera History and Literature	3
MUS 467. Solo Vocal Literature	3
MUS 477. Vocal Pedagogy	2
MUS 495. Senior Graduation Recital	1
Applied voice study	22
Ensembles (one each semester)	8
Approved music electives ²	2
	<hr/>
	59

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.

Piano Concentration

Dr. Eric K. Ruple, Coordinator

Phone: (540) 568-6375

E-mail: rupleek@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	57
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	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

Courses¹

	Credit Hours
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 443-444. Counterpoint	4
MUS 449-450. Advanced Music Analysis	4
MUS 460. Piano Literature I	2
MUS 470. Piano Literature II	2
MUS 480. Advanced Seminar in Musicological Topics ²	6
MUS 495. Senior Graduation Recital	1
Applied piano study	22
Ensembles (one each semester)	8
Approved music electives ³	2
	<hr/>
	57

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 Concentration, Emphasis in Accompanying/Coaching

Dr. Gabriel Dobner, Coordinator

Phone: (540) 568-6002

E-mail: dobnergt@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	58
	<hr/> 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 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 371. Private Piano Pedagogy	3
MUS 395. Junior or Senior Half Recital	0
MUS 444. Counterpoint	2
MUS 450. Advanced Music Analysis	2
MUS 460. Piano Literature I	2
MUS 467. Solo Vocal Literature	3
MUS 495. Senior Graduation Recital	1
Applied piano accompanying	9
Applied piano study	13
Applied voice study	2
Approved music electives ¹	5
Ensembles (one each semester)	8
	<hr/> 58

¹ Approved music electives may not be fulfilled by additional ensemble credits.

Instrumental Concentration

Dr. Susan Barber, Dr. Carl Donakowski and Prof. Kevin Stees, Co-coordinators

Phone: (540) 568-6197

E-mail: barbersn@jmu.edu, donakocp@jmu.edu, steeskj@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	56
	<hr/> 124

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 ¹	Credit Hours
MUS 319. Intermediate Instrumental Conducting	2
MUS 395. Junior or Senior Half Recital	0
Choose two of the following:	4
MUS 443-444. Counterpoint and/or	
MUS 449-450. Advanced Music Analysis	
MUS 472. Instrumental Pedagogy	1
MUS 480. Advanced Seminar in Musicological Topics ²	3
MUS 495. Graduation Recital	1
Applied music courses (major instrument)	22
Basic music core requirements	27
Chamber ensembles (in addition to the eight semester major ensemble requirement)	6
Ensembles (one each semester)	8
General Education courses	41
Advanced music literature or seminar elective	3
Approved music electives ³	6
	<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 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

Dr. Jason Haney, Coordinator

Phone: (540) 568-6664

E-mail: haneyjx@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	62
	<hr/> 130

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 ¹	Credit Hours
MUS 352. Music Composition	16
MUS 441-442. Music Arranging	6
MUS 443-444. Counterpoint	4
MUS 445. Orchestration	3
MUS 449-450. Advanced Music Analysis	4
MUS 480. Advanced Seminar in Musicological Topics ²	3
MUS 495. Senior Graduation Recital	1
Applied major study	12
Ensembles (one each semester) ³	8
Music literature or seminar electives	3
Approved music electives ⁴	2
	<hr/> 62

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 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.

³ Various ensembles approved by adviser.

⁴ Approved music electives may not be fulfilled by additional ensemble credits.

Bachelor of Music, Emphasis in Music Industry

Dr. David Cottrell, Coordinator

Phone: (540) 568-6303

E-mail: cottredx@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	58
	<hr/> 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 Requirements

Courses	Credit Hours
COB 241. Financial Accounting	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 392. Practicum in Music Industry	1
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 ¹	3
MUS 395. Junior or Senior Half Recital	0
	<hr/> 58

¹ Approved music electives may not be fulfilled by additional ensemble credits.

Bachelor of Music, Emphasis in Music Theatre

Dr. Don Rierison, Director of Opera and Music Theatre

Phone: (540) 568-4164

E-mail: riersodg@jmu.edu

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Core music program courses	27
Major concentration courses and electives	55
	<hr/> 123

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 ¹	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. Opera History and Literature	3
THEA 171. Performance Production	3

THEA 251. Basic Acting	3
THEA 273. Visual Aspects of Theatre	3
THEA 353. Music Theatre Workshop	2
THEA 454. Advanced Music Theatre Performance	2
DANC 246. Intermediate Jazz Dance	2
DANC 346. Intermediate Jazz II/Musical Theatre Styles	2
Applied voice study	16
Approved music, theatre or dance electives ²	3
Basic music core requirements	27
Ensembles (one each semester, as listed below) ³	8
General Education courses	<hr/> 41
	<hr/> 123

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, for at least four semesters. They may elect to fill the ensemble requirement in their remaining semesters by taking any of the credited vocal ensembles of the school - Chorus; Men's or Women's Chorus; Chorale; Madison Singers; Opera Theatre. A minimum of one credit of ensemble must be selected each semester.

Bachelor of Music, with a Concentration in Music Education

Dr. Gary K. Ritcher, Coordinator

Phone: (540) 568-6753

E-mail: ritchehgk@jmu.edu

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. For a full description of the program, see Page 67.

Professional Education Sequence

Required Courses	Credit Hours
EDUC 360. Foundations of American Education	3
EDUC 480. Student Teaching (senior year)	12
OPSYC 160. Life Span Human Development	3
Pre-adolescent and Adolescent Child	
READ 420. Content Area Literacy, K-12	<hr/> 2
	<hr/> 20

Vocal Concentration (Applied study in voice or piano)

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	38-41
Core music program courses	27
Major concentration courses and electives	42
Professional education sequence	<hr/> 20
	<hr/> 127-130

¹ OPSYC 160 may double count as a Cluster 5 course in General Education

Major Requirements

Courses	Credit Hours
MUED 206. Instrument Familiarization	1
MUED 271. Introduction to Music Education	2
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	2
(voice for piano majors; MUS 304. Advanced Keyboard Skills for voice majors) ¹	
Ensembles (one each semester for seven semesters) ²	7
	<hr/> 42

¹ Vocal majors must pass the Advanced Keyboard Skills exam.

² Piano majors may elect MUAP 357. Piano Accompanying and Piano Ensemble for two semesters.

Instrumental Concentration

(Applied study in winds, strings, percussion, piano¹)

Degree Requirements

Required Courses	Credit Hours
General Education courses ²	38-41
Core music program courses	27
Major concentration courses and electives	42
Professional education sequence	20
	<hr/> 127-130

¹ 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 may 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.

² GPSYC 160 may double count as a Cluster 5 course in General Education.

Major Requirements

Courses	Credit Hours
MUED 271. Introduction to Music Education	2
Instrumental Techniques classes ¹	7
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	
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) ^{2,3}	7
	<hr/> 42

¹ 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.

² Wind and percussion majors are required to participate in marching band for a minimum of two years, but participation every year is recommended.

³ 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 may 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 must complete the requirements of both concentrations, including 12 credits of student teaching in each area. All students desiring double endorsement should consult the coordinator of music education to plan their programs.

Double licensure may add over a year to the student's program.

Minor Requirements

General Music Minor¹

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	6
MUS 131. Fundamentals of Music	
MUS 141, 142. Writing and Analysis Techniques	
Literature and History	6
GMUS 200. Music in General Culture	
GMUS 203. Music in America	
GMUS 206. Global Music 18th Century to the Present	
MUS 356. The History of Jazz in America	
MUS 357. Music Theatre History	
MUS 373, 374, 375, 376. Music History	
Electives – Any music course may count in this category, examples include:	6
All music ensembles	
MUI 221. Survey of the Music Industry	
MUI 410. Songwriting	
MUI 422. Concert Production and Promotion	
MUED 380. Music in Elementary School	
MUS 204. History of Rock	
MUS 240/440. Jazz Improvisation	
MUS 456. Choral Literature	
MUS 463. Twentieth Century Music	

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¹ 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 321. Legal Aspects of the Music Industry	3
MUI 250. Portfolio Review	0
Electives – Any music industry course may count in this category, examples include:	12
MUI 324. Introduction to Audio Devices	
MUI 400. Multi-track Recording Techniques I	
MUI 401. Multi-track Recording Techniques II	
MUI 315. Songwriting	
MUI 411. Film Scoring: Music in Entertainment and Broadcast Media	
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	

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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. Writing and Analysis Theory I	3
MUS 143. Theory Lab I	1
MUS 240. Improvisation Lab I	2
MUS 356. History of Jazz in America	3
MUS 440. Improvisation Lab II (repeat 3 times)	6
Ensembles (choose from the following):	5
MUAP 347. Jazz Ensembles	
MUAP 348. Jazz Band	
MUAP 355. Jazz Chamber Ensemble	
MUED 471. Jazz and Show Choir Procedures	
MUED 473. Jazz Ensemble Procedures and Techniques	

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Department of Nursing

Dr. Merle E. Mast, Head

Phone: (540) 568-6314

Location: Health & Human Services Building, Suite 2124

E-mail: mastme@jmu.edu

Web site: <http://www.nursing.jmu.edu>

Professors

P. Hale, M. Mast, J. Rocchiccioli

Associate Professors

S. Annan, M. Eaton, L. Hulton, L. Sobel, V. Martin

Assistant Professors

M. Bagnardi, E. Metzler Swain, S. Strang, D. Trimm

Instructors

S. Brooks, S. Conaty-Buck, A. Graham, K. Jagiello, K. Floyd, N. Patterson, C. Rubenstein, M. Scheikl, S. Tratnack, C. Webb

Affiliate Instructor

E. Akerson

Lecturers

D. Gochenour, C. O'Neill, H. Taylor, C. West

Mission Statement

The primary mission of the nursing department is to provide quality, professional undergraduate and graduate nursing education that prepares nursing leaders to influence a changing profession, society, health care system and global health needs.

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, interdisciplinary 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

Accreditation

The JMU nursing program is fully accredited by the Commission on Collegiate Nursing Education (CCNE) and approved by the Virginia Board of Nursing.

Program Options

The Department of Nursing offers two program options. The generic B.S.N. program is designed to prepare undergraduates and second degree 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. Admission as a nursing major includes the completion of a program supplemental application. Students can seek admission to the nursing program following completion of 25 credit hours and selected prerequisite courses, and students will be considered for admission at the conclusion of each subsequent semester. Admission criteria are available on the Department of Nursing Web site or from the department.

Each semester 60 students are enrolled in junior level nursing courses. All students, including transfer and second degree students, must complete the supplemental nursing application following admission to the university.

Admitted students must complete all prerequisite courses with a "C-" or higher and must maintain a GPA of 2.8 prior to enrollment in the nursing program.

Students must meet the department'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 available on the Department of Nursing Web site or from the department.

The nursing curriculum is designed as a full time program. The B.S.N. coordinator must approve any deviation from the full time enrollment pattern as outlined in the catalog.

Once in the program, students are not required to maintain a minimum GPA. To remain in good standing in the nursing program, the student must earn a grade of "C-" or better in each required nursing course. A grade of "D" or "F" is considered a failure. A student who for the first time receives a grade of less than a "C-" in a nursing course may, with department approval, repeat the course. A student who receives a grade of less than a "C-" 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 department Web site.

R.N. to B.S.N. Program

The R.N. to B.S.N. program provides flexible, partially online learning opportunities for students who are graduates of community college or diploma schools and are licensed registered nurses (R.N.). Classes are offered once a week and partially 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 into JMU for credit. Students will complete an additional 30 credits in the R.N. to B.S.N. program in one full-time calendar year or two part-time years, thus completing a total of 120 semester hours at the baccalaureate degree. Following completion of the prerequisite requirements at JMU or the Virginia Community College System equivalents, nurses can apply for admission to the R.N. to B.S.N. program. Additional program eligibility criteria include:

- Associate Degree or Diploma in Nursing from a state accredited program.
- 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.
- Transcripts reflecting a cumulative GPA on all college work attempted 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 six 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 department's technical standards for nursing practice (posted on the nursing Web site).
- Interested applicants are strongly encouraged to meet with the R.N. to B.S.N. coordinator to review transcripts and provide academic advising prior to applying.

Admission to the program is contingent on admission to the university. A supplemental application to the program is available on the department Web site under the R.N. to B.S.N. program tab.

Degree and Major Requirements

Bachelor of Science in Nursing

Generic B.S.N. Degree Requirements

Required courses	Credit Hours
General Education courses ¹	41
Nursing courses	61
Other supportive courses	14
Electives	5-8
	<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.

General Education and Nursing Prerequisite Requirements

The following are course prerequisites required for the Nursing major. Courses must be completed with "C-" or higher.

CHEM 120. Concepts of Chemistry ^{1,2}	3
MATH 220. Elementary Statistics ¹	3
BIO 290. Human Anatomy	4
BIO 270. Physiology ¹	4
BIO 280. Allied Health Microbiology	4
NUTR 280. Nutrition for Wellness	3
GPSYC 160. Life Span Human Development ³	3
NSG 270. Nursing Practicum: Nursing Fundamentals	3

¹ Contained in General Education Cluster Three.

² Must be taken prior to or concurrent with BIO 270. ³ Contained in General Education Cluster Five

- All first year students who declare nursing as a major should take CHEM 120 and MATH 220, one each semester of their first year.
- Students can seek admission to the program following completion of 25 credits hours, including CHEM 120, MATH 220 and one of the biology courses (BIO 270, BIO 280, or BIO 290); and students will be considered for admission at the conclusion of each subsequent semester.
- All students must take the sophomore level nursing course NSG 270, Nursing Practicum: Nursing Fundamentals, prior to entry into the nursing program.
- Cluster One normally is completed during the first year.
- General Education courses in clusters one, two, four and five can be scheduled flexibly 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 department Web site.

Sophomore Year **Credit Hours**
NSG 270. Nursing Practicum: Nursing Fundamentals 3

Third Year
First Semester **Credit Hours**
NSG 330. The Professional Nurse 2
NSG 331. Adult Health I 6
NSG 332. Psychiatric Mental Health Nursing 3
NSG 333. Health Assessment 3
NSG 370. NSG Practicum: Gerontology 1

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Second Semester **Credit Hours**
NSG 340. The Nurse Researcher 3
NSG 341. Nursing Care of Children and Their Families 3
NSG 380. Advanced Skills Lab 2
NSG 381. NSG Practicum: Acute Adult Health 3
NSG 382. NSG Practicum: Nursing Care of Children and Their Families 2
NSG 383. NSG Practicum: Psychiatric Mental Health Nursing 1

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Third Semester **Credit Hours**
NSG 430. The Nurse Leader 2
NSG 431. Adult Health II 6
NSG 432. Women's Health 3
NSG 433. Community Health: Health Assessment of Vulnerable Populations in the Community 2
NSG 470. NSG Practicum: Community as Client 2

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Fourth Semester **Credit Hours**
NSG 440. Transition to Practice 3
NSG 480. NSG Practicum: Capstone 6
NSG 481. NSG Practicum: Acute Adult Health II 1
NSG 482. NSG Practicum: Home Health Case Management 1
NSG 483. NSG Practicum: Women's Health 1
Nursing electives 2

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¹ The nursing electives may be taken any semester or summer session when a nursing elective is offered. A total of 2 credits of nursing electives are required prior to graduation.

Special Expenses

Additional expenses for nursing students include transportation, uniforms, assessment equipment, laboratory fees, organizational membership fees and professional conference attendance expenses.

R.N. to B.S.N. Degree Requirements

Required courses **Credit Hours**
General Education courses¹ 13
Nursing courses 30
Portfolio Credit given for RN qualifications (up to) 37
Credit for Associate Degree as prerequisites 40

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¹ General Education (at JMU or as VCCS equivalents) and nursing prerequisite requirements

The following are course prerequisites required for the nursing major. Courses must be completed with "C-" or higher.

BIO 290. Human Anatomy 4
BIO 270. Physiology 4
BIO 280. Allied Health Microbiology or
CHEM 120. Concepts of Chemistry 4

General Education Cluster 2, Arts and Humanities 9
General Education Cluster 4, The American Experience 4

Major Requirements

Additional information regarding the nursing curriculum can be found on the nursing department Web site.

Full-Time Sequence of Classes

First Year
Fall Semester **Credit Hours**
NSG 333. Health Assessment 3
NSG 462. Issues in Contemporary Nursing Practice 3
NSG 463. Professional Role Transition 3
NSG 523. Concepts in Aging¹ 3

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Spring Semester **Credit Hours**
NSG 461. Pathophysiology 4
NSG 464. Introduction to Nursing Research 3
NSG 465. Specialty Clinical Practicum 1
NSG 471. Leadership and Management in Healthcare 3
NSG 460. Informatics 2

13

Summer Session **Credit Hours**
NSG 469. Caring for the Public's Health: Community Health Nursing 4
NSG 466. Community Health Practicum 1

5

Part-Time Sequence of Classes

First Year
Fall Semester **Credit Hours**
NSG 433. Health Assessment 3
NSG 462. Issues in Contemporary Nursing 1

6

Spring Semester **Credit Hours**
NSG 461. Pathophysiology 4
NSG 464. Introduction to Research 3

7

Summer Session **Credit Hours**
NSG 469. Caring for the Public's Health: Community Health Nursing 4
NSG 466. Community Health Practicum 1

5

Second Year
Fall Semester **Credit Hours**
NSG 523. Concepts in Aging¹ 3
NSG 463. Professional Role Transition 3

6

Spring Semester **Credit Hours**
NSG 465. Specialty Clinical Practicum 1
NSG 460. Healthcare Informatics 2
NSG 471. Leadership and Management in Healthcare 3

6

¹ NSG 523 is a graduate-level course that is required but will be waived at the M.S.N. level.

Special Expenses

Additional expenses for nursing students include transportation, uniforms, assessment equipment, laboratory fees, organizational membership fees and professional conference attendance expenses. R.N. to B.S.N. students will also be required to pay graduate tuition for NSG 523, Concepts in Aging.

Department of Philosophy and Religion

Dr. Alan Kirk, Head

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Professors

D. Flage, W. Hawk, S. King, A. Kirk, I. Maclean, W. O'Meara, A. Wiles

Associate Professors

C. Bolyard, F. Flannery, J. Goodman, S. Hoeltzel, W. Knorpp, S. Mittal

Assistant Professors

T. Adajian, R. Brown, S. Geniusas, J. Goodman, D. Hollenberg, T. Lupher, M. Piper, A. Veltman

Mission Statement

The department offers a combined major in philosophy and religion. Students may choose one of four concentrations: either philosophy, religion, philosophy with an interdisciplinary focus or religion with an interdisciplinary focus. 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, aesthetics, philosophy and law, philosophy of science and philosophy of religion. All students will take PHIL 475 as a capstone course. In the capstone course, students will give an oral presentation of a term paper, receive criticism from faculty and students and then formally write the paper and submit it for use in assessment of the major.

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:

- researching and synthesizing complex information
- thinking critically, examining claims for strengths and weakness, assessing different perspectives on particular questions, and formulating persuasive arguments
- presenting research and arguments effectively in writing and public speaking

- competence in the major religious traditions of the world (Hinduism; Buddhism; Judaism; Christianity; Islam) and their expression in cultural and social practices
- specialized competence in particular topic areas in the study of religion (e.g. ethics; biblical studies; religious thought and theology)
- competence in the comparative and multi-disciplinary analytical methods used in the academic study of religion
- ability to make connections between religion and other areas of knowledge, such as literature, politics, history, ethics, and the arts
- ability to assess the role of religion in contemporary social and political contexts, American and global

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 which 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 almost every work environment. Many students of philosophy and religion ultimately find careers in business or industry, in government or public service, 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

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. For more information on philosophy as a pre-law major, contact Dr. Thomas Adajian by phone at (540) 568-6546 or by e-mail at adajiatr@jmu.edu.

Preparation for Seminary

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, 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 fieldwork 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 independent study and write an honors thesis in their junior and senior years. For more information on pre-seminary study, contact Dr. Iain S. Maclean by phone at (540) 568-7059 or by e-mail at macleaix@jmu.edu.

Co-curricular Activities and Organizations

A student-run Society of Philosophy and Religion, a philosophy honor society (Phi Sigma Tau) and a religion honor society (Theta Alpha Kappa) 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 ¹	41
Foreign Language classes (intermediate level required) ²	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
PHIL 475. Seminar in Philosophy ¹	3
Any religion course that is not cross listed	3
Electives in philosophy (nine credits must be at the 300 level or above) ²	15
	<hr/> 33

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 If the student takes *GP*PHIL 101 as part of Cluster 2 in the General Education program it can double count as one course of this elective section. *GP*PHIL 120 cannot 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 12 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
PHIL 475. Seminar in Philosophy ¹	3
Additional philosophy courses chosen in conference with the adviser (six credits must be at the 300 level or above) ²	9
Cognate of four courses from one or more disciplinary areas outside of philosophy	12
	<hr/> 36

1 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

2 If the student takes *GP*PHIL 101 as part of Cluster 2 in the General Education program it can double count as one course of this elective section. *GP*PHIL 120 cannot be used as an elective.

Students with an interdisciplinary concentration in philosophy are not required to take a course in religion.

Religion Concentration

Core Requirements	Credit Hours
<i>GRE</i> L 101. Religions of the World	3
One philosophy course (<i>GP</i> PHIL 101. Introduction to Philosophy recommended; cross-listed courses do not satisfy this requirement)	3
One course in western religious traditions	3
One course in eastern religious traditions	3

One of the following:	3
REL 218. Philosophy of Religion	
REL 270. Religious Ethics	
REL 313. Hindu Ethics	
REL/SOCI 322. Sociology of Religion	
REL 360. History of Western Religious Thought	
PHIL 330. Moral Theory	
Capstone (choose one of the following):	3
REL 420. Cross-Cultural Philosophy of Religion	
REL 450. Religion and Society	
REL 460. Topics in Ancient Jewish and Early Christian Literature	
REL 475. Inter-Religious Dialogue	
Electives (see description below)	15
	33

Electives

The electives requirement allows students to design a course of studies that develop their special interests beyond the core requirements for the major and that advances their professional goals. The three options of specialization are: Western Traditions, Eastern Traditions and Comparative Studies (electives selected from any course in the religion program). Thus a student may focus upon a particular religious tradition or configuration of traditions (for example, Hinduism and Buddhism; Islam and Judaism) or upon a particular topic area (for example, biblical studies, ethics or religious thought), or a student may maximize breadth by choosing any five courses of interest. Religious studies majors are encouraged to consult their adviser to ensure that their course selections correspond to a coherently designed program of specialization.

Courses

Eastern Traditions

- REL 310. Hindu Traditions
- REL 312. Religions of East Asia
- REL 313. Hindu Ethics
- REL 314. Gandhi, Nonviolent and Global Transformation
- REL 316. Topics in Hinduism
- REL 317. Exploring Gandhian Philosophy of Nonviolence
- REL 318. Exploring Contemporary India
- REL/PHIL 385. Buddhist Thought

Western Traditions

- REL/HEBR 131-132. Elementary Biblical Hebrew
- REL/HEBR 231-232. Intermediate Biblical Hebrew
- REL 201. Introduction to Hebrew Bible/Old Testament
- REL 202. Introduction to New Testament
- REL 240. Jesus and the Moral Life
- REL 305. Islamic Religious Traditions
- REL 320. Judaism
- REL 325. Catholicism in the Modern World
- REL 330. African and African-American Religion
- REL 342. Historical Jesus and the Roman Imperial World
- REL 344. Christianity in the Roman Empire
- REL 346. Religions of Greece and Rome
- REL 360. History of Western Religious Thought
- REL/PHIL 375. The 19th Century: Age of Ideology
- REL 380. Contemporary Theologies
- REL 450. Religion and Society
- REL 460. Topics in Ancient Jewish and Early Christian Literature

Comparative and Issues Oriented Courses

- GHUM 102. God, Meaning and Morality
- REL 200. Exploring Religion
- REL/PHIL 218. Philosophy of Religion

- REL 220. Religion: Conflict and Peace
- REL 270. Religious Ethics
- REL 280. Religion and Science
- REL 315. Women and Religion
- REL/SOCI 322. Sociology of Religion
- REL 370. Mysticism
- REL 420. Cross-Cultural Philosophy of Religion
- REL 475. Inter-Religious Dialogue
- REL 490. Directed Studies in Religion

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
One philosophy course	3
(PHIL 101. Introduction to Philosophy recommended; cross-listed courses do not satisfy this requirement)	
One course in western religious traditions	3
One course in eastern religious traditions	3
One of the following:	3
REL 218. Philosophy of Religion	
REL 270. Religious Ethics	
REL 313. Hindu Ethics	
REL/SOCI 322. Sociology of Religion	
REL 360. History of Western Religious Thought	
PHIL 330. Moral Theory	
Capstone (choose one of the following):	3
REL 420. Cross-Cultural Philosophy of Religion	
REL 450. Religion and Society	
REL 460. Topics in Ancient Jewish and Early Christian Literature	
REL 475. Inter-Religious Dialogue	
Electives	18
	36

Electives

These elective requirements allow students to design a course of studies that permits integration of their interdisciplinary interests with additional course selections in religion. The three options for specialization are western traditions, eastern traditions and comparative studies (electives selected from any courses in the religion program). Thus a student may focus upon a particular religious tradition or configuration of traditions (for example, Hinduism and Buddhism; Islam and Judaism) or upon a particular topic area (for example, biblical studies, ethics or religious thought), or a student may maximize breadth by choosing any six courses of interest. Religious studies majors are encouraged to consult with their adviser for approval of the interdisciplinary course selection and to ensure that course selections correspond to a coherently designed program of specialization.

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
Foreign language courses ¹	6-8
General Education courses ¹	6-18
	<hr/> 30
Second Year	Credit Hours
Required courses in major	6
Choose from the following:	6
Foreign language courses	
Electives	
General Education courses	18
	<hr/> 30
Third Year	Credit Hours
Requirements and electives in philosophy or religion	12
Electives (may be outside of major)	12
General Education courses	6
	<hr/> 30
Fourth Year	Credit Hours
Requirements and electives in philosophy or religion	12
Electives (may be outside of major)	18
	<hr/> 30

¹ Students are advised to adjust General Education load to foreign language load to achieve 30 hours total.

Minor Requirements

Philosophy Minor

Courses	Credit Hours
<i>GP</i> 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 electives, at least two of which must be above PHIL 300 ¹	9
	<hr/> 18

¹ The department strongly recommends that students elect at least one 400-level course.
*GP*PHIL 120 cannot be used as an elective.

Religion Minor

Foundational Courses	Credit Hours
<i>GREL</i> 101. Religions of the World	3
Choose one course in each of the three subject areas: (eastern, western, comparative and issues)	9
Choose two electives, one of which must be at the 300 or 400 level, from the three subject areas	6
	<hr/> 18

Department of Physics and Astronomy

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G. Albright, W. Alexander, H. Butner, D. Chodrow, A. Constantin, A. Landsman, M. Mattson, G. Niculescu, S. Paulson, G. Scarel, B. Utter

Mission Statement

The Department of Physics and Astronomy is committed to excellence in undergraduate instruction for students representing all segments of the university. For physics majors the department offers a program of study based on courses in the broad areas of physics and astronomy and student participation in research. The multi-track degree program of study allows students flexibility to select courses that support their career plans. The department offers courses that are required by other disciplines and shares in the university-wide General Education program. The Department of Physics and Astronomy is committed to providing a supportive environment within which students can achieve their full potential and faculty and staff can make their maximum contribution while enjoying the rewards of professional development.

Goals

To help students:

- 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.
- develop competence in using computers for computation, data acquisition, numerical control, device development and information acquisition and processing.
- improve written and oral technical communication skills.

Co-Curricular Activities and Organizations

- Society of Physics Students

Degree and Major Requirements

Bachelor of Arts in Physics

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	23-37
Major core requirements (listed below) ³	40
Major concentration requirements (listed below) ³	25-38
	<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 (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, and the additional philosophy requirement is covered is the physics and philosophy concentration is chosen.

Program Concentrations

Each student, in consultation with his/her faculty adviser, will choose one of the following program concentrations:

- Physics and Philosophy
- Individual Option

Major Core Requirements

Courses	Credit Hours
PHYS 240, 250 and 260. University Physics I-III	10
PHYS 247. Data Acquisition and Analysis Techniques in Physics	2
PHYS 270. Modern Physics	4
MATH 235, 236 and 237. Calculus I-III	12
MATH 238. Linear Algebra with Differential Equations	4
CHEM 131 + 131L. General Chemistry with lab	4
Choose one:	4
BIO 114. Organisms	
GEOL 110. Physical Geology	

In addition, the student must complete one of the following concentrations.

Physics and Philosophy

Courses	Credits
PHYS 347. Advanced Physics Laboratory	3
PHYS 340. Mechanics	3
PHYS 350. Electricity and Magnetism	3
PHYS 380. Thermodynamics and Statistical Mechanics	3
PHYS 460. Quantum Mechanics	3
PHYS 491-492. Physics Assessment and Seminar	1
Choose one:	3-4
MATH 248. Computers and Numerical Algorithms (4 credits)	
PHYS 326. Biophysics (3 credits)	
ASTR courses numbered above 301 (3 credits)	
GPIL 101. Introduction to Philosophy	3
Choose two:	6
PHIL 340. Ancient Greek Philosophy	
PHIL 341. Modern Philosophy	
PHIL 342. Medieval Philosophy	
PHIL 375. Nineteenth Century Philosophy and Theology	
Choose three:	9
PHIL 310. Symbolic Logic	
PHIL 311. Metaphysics	
PHIL 312. Causal and Explanatory Thinking	
PHIL 320. Inductive Logic	
PHIL 392. Philosophy of Mind	
PHIL 395. Philosophy and Scientific Inquiry	
	<hr/> 37-38

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 interdisciplinary 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 25 additional credits of physics courses numbered above 260, 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.

Bachelor of Science in Physics Degree Requirements

Required Courses	Credit Hours
General Education ¹	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)	40
Major program concentration requirements	<hr/> 25-31
	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 Core Requirements

	Credit Hours
Choose one of the following:	6
PHYS 140-150. College Physics I-II	
PHYS 240-250. University Physics I-II	
PHYS 247. Data Acquisition and Analysis Techniques in Physics	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
	<hr/> 40

Program Concentrations

Each student, in consultation with their faculty adviser, will choose one of the following program concentrations:

- Applied Physics
- Physics/Engineering Combined Program
- Fundamental Studies
- Individual Option
- Multidisciplinary

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 three tracks: 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 360. Analog Electronics	4
PHYS 347. Advanced Physics Laboratory	3
PHYS 391-392. Seminar	1
PHYS 491-492. Assessment and Seminar	1
PHYS/ASTR 498R. Applied Physics Research	2
Additional physics courses approved by the physics adviser	3

In addition to the required courses, students must complete one of the following tracks:

Electronics and Instrumentation	Credit Hours
PHYS 350. Electricity and Magnetism	3
PHYS 371. Digital Electronics	2
PHYS/CS 372. Microcontrollers and Applications	2
PHYS 380. Thermodynamics and Statistical Mechanics	3
Additional physics courses approved by the physics adviser	2-3

Materials Physics	Credit Hours
PHYS 340. Mechanics	3
PHYS 350. Electricity and Magnetism	3
PHYS/MATS 275. An Introduction to Materials Science	3
PHYS/MATS 381. Material Characterization with Lab	3

Computational Physics	Credit Hours
PHYS 340. Mechanics	3
PHYS 380. Thermodynamics and Statistical Mechanics	3
Choose one of the following pairs of courses:	6

- PHYS 265. Introduction to Fluid Mechanics
- MATH 365. Computational Fluid Mechanics or
- PHYS 266. Introduction to Solid Mechanics
- MATH 366. Computational Solid Mechanics

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 department head. 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 350. Electricity and Magnetism	3
PHYS 347. Advanced Physics Laboratory	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 one of the following:	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)	

27-31

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 interdisciplinary majors such as geophysics and 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 260, 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.

Computational Sciences Track

Computational sciences is a track within the applied physics concentration. The Department of Mathematics and Statistics and the Department of Physics and Astronomy offer a coordinated sequence of courses that prepares 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 track 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 in this track 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 248. Computer Methods in Engineering and Science
 PHYS 140L-150L. General Physics Laboratory I-II
 or PHYS 247. Data Acquisition and Analysis Techniques in Physics
 PHYS 240-260. University Physics I-III
 PHYS 265. Introduction to Fluid Mechanics
 or PHYS 266. Introduction to Solid 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, or MATH/PHYS 366, Introduction to Computational Solid Mechanics counted as a physics course to complete their physics minor. Physics majors will take PHYS/MATH 365 or PHYS/MATH 366, counted as a mathematics course, and either MATH 337, Applied Calculus or MATH 387, Fourier Analysis and Partial Differential Equations to complete their mathematics minor. Seniors in either major must complete at least one topics or independent-study/research course that involves computer modeling.

Multidisciplinary Concentration

The multidisciplinary concentration is designed to provide a solid foundation in physics for those 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 that require a technical background.

Additionally, 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
BIO 114. Organisms	4
PHYS/CHEM/MATS 275. An Introduction to Materials Science	3
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	2
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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The student must choose one of the following tracks.

Business Track	Credit Hours
COB 204. Computer Information Systems	3
COB 218. Legal Environment of Business	3
COB 241. Financial Accounting	3
ECON 201. Principles of Economics (Micro)	3
FIN 345. Managerial Finance	3
MGT 305. Management and Organizational Behavior	3
MKTG 380. Principles of Marketing	3

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Technical and Scientific

Communication Track	Credit Hours
Choose six credits:	6
Physics course numbered above 300	
ASTR 480. Astrophysics	
GWRTC 103. Critical Reading and Writing	3
WRTC 210. Introduction to Technical and Scientific Communication	3
WRTC 230. Research in Technical and Scientific Communication	3
WRTC 240. Technical and Scientific Editing	3
Choose six credits:	6
WRTC 250. Ethical and Legal Issues in Technical and Scientific Communication	
WRTC 330. Intercultural Technical and Scientific Communication	
WRTC 350. Science and Technology in Literature	
WRTC 360. Instructional Design and Training	
Other upper-level courses with permission	

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Biophysics Track	Credit Hours
PHYS 326. Biophysics	3
CHEM 341-342. Organic Chemistry	6
CHEM 346L. Organic Chemistry Laboratory	2
CHEM/BIO 361. Biochemistry I	3
BIO 214. Cell and Molecular Biology	4
BIO 370. Animal Physiology	4
BIO 490. Biomechanics	4

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Secondary Education Track

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.

The required courses for the undergraduate degree are:

Course	Credit Hours
OPSYC 160. Life Span Human Development	3
EDUC 360. Instructional Technology	3
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 471S. Field Experience in Middle School Natural Science	3
READ 440. Literacy-Based Learning in Secondary Education	3

Recommended Schedule for Majors

First Year	Credit Hours
CHEM 131-132. General Chemistry I-II	6
CHEM 131L-132L. General Chemistry Laboratory	2
Skills for the 21st Century (General Education, Cluster One)	9-12
MATH 235-236. Calculus I-II	8
PHYS 247. Data Acquisition and Analysis Techniques in Physics	2
Choose one of the following:	6
PHYS 240-250. University Physics I-II	
PHYS 140-150. College Physics I-II	

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Second Year	Credit Hours
MATH/CS 248. Computer Methods in Engineering and Science	4
MATH 237. Calculus III	4
MATH 238. Linear Algebra with Differential Equations	4
PHYS 260. University Physics III	4
PHYS 270. Modern Physics	4
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:

	Credit Hours
Choose one of the following:	6
PHYS 240-250. University Physics I-II	
PHYS 140-150. College Physics I-II	
Choose one of the following:	2
PHYS 140L-150L. General Physics Laboratory I-II	
PHYS 247. Data Acquisition and Analysis Techniques in Physics	
ASTR 220-221. General Astronomy I-II	7
ASTR 320. Astronomical Techniques	3
One course selected from the following:	3
PHYS 480. Astrophysics	
GEOL 272. Planetary Geology	
HON 300Z. Life Beyond Earth	
PHYS 297, PHYS 397 or PHYS 497. Topics in Physics (appropriate topics could include relativity, cosmology, cosmic rays)	
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:

	Credit Hours
Choose one of the following:	6
PHYS 240-250. University Physics I-II	
PHYS 140-150. College Physics I-II	
Choose one of the following:	2
PHYS 140L-150L. General Physics Laboratory I-II	
PHYS 247. Data Acquisition and Analysis Techniques in Physics	
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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Department of Political Science

Dr. Charles H. Blake, Head

Phone: (540) 568-6149

Location: Miller Hall, Room 2121

E-mail: blakech@jmu.edu

Web site: <http://www.jmu.edu/polisci/>

Professors

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Associate Professors

D. Jones, H. Lubert, V. Sulfaro

Assistant Professors

M. Adams, A. Broscheid, J. Byrne, M. Cohen, K. Ferraiolo, M. Jamal, J. Keller, G. Kirk, N. Kistner, C. Koski, H. Lee, K. Moore, L. Peaslee, J. Scherpereel, N. Swartz, Y. Yang

Mission Statement

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 (interdisciplinary). (See "Interdisciplinary Programs" beginning on Page 95.)
- offer strong minor programs: political science, public policy and administration and political communication (interdisciplinary).
- 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. Skelley at skellebd@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
- Madison PAC: political science and public affairs club

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

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.

Please direct questions about the political science major to Dr. Scott Hammond, Miller Hall 2141, (540) 568-6313, hammonsj@jmu.edu.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	28-39
Major requirements (listed below)	33
	<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

Core Requirements	Credit Hours
<i>G</i> POSC 225. U.S. Government	4
POSC 201. Introduction to Western Political Theory	3
POSC 295. Political Research Methods ¹	4
Choose one of the following:	3

- G*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.

Choose one course from three of the following areas: 9
Comparative Politics

- 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

International Relations

- POSC 361. Topics in International Relations
- POSC 370. U.S. Foreign Policy
- POSC/JUST 379. Ethics and International Policies
- POSC/JUST 392. Peace Studies
- POSC 395. International Law
- POSC 396. International Organizations
- POSC 397. Politics of International Economic Relations
- POSC 430. International Security in the Post-Cold War World
- POSC 435. Seminar in International Terrorism
- POSC 458. International Political Analysis

Political Theory

- 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

American Government

- 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 360. Urban Politics
- 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 383. Women 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 substitute the following 200 level courses:

- PPA 265. Public Administration

Senior Capstone¹

POSC 492. Senior Seminar in Political Science² 4

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¹ Student 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

Dr. Gary L. Kirk, Coordinator

Phone: (540) 568-3768

E-mail: kirkgr@jmu.edu

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 which 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 JMU *Graduate Catalog* for more information.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement ^{2,3}	3
Scientific Literacy requirement ²	3
University electives	34
Major requirements (listed below)	39
	<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 In addition to course work taken to fulfill General Education requirements.
3 For this requirement, public policy and administration majors should take MATH 220, the prerequisite for POSC 295, a required core course in the major.

Major Requirements

Core Requirements	Credit Hours
<i>GP</i> OSC 225. U.S. Government	4
<i>GE</i> CON 200. Introduction to Macroeconomics	3
PPA 200. Introduction to Public Policy	3
PPA 265. Public Administration	3
POSC 295. Political Research Methods ¹	4

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Public Policy Concentration Requirements

POSC 358. Public Policymaking	3
PPA 359. Policy Analysis	3
Choose one of the following:	3
POSC 302. State and Local Government	
POSC 368. Interest Groups and Public Policy	
POSC 380. U.S. Presidency	
POSC 385. U.S. Congress	
POSC 386. The American Judiciary	
Choose three substantive policy electives from the following:	
POSC 347. Comparative Public Policy	
POSC 360. Urban Politics	
POSC 391. Topics in Public Policy	
POSC 397. The Politics of International Economic Relations	
PPA 483. Emerging Issues in Public Administration ²	
Approved ISAT course ³	
Senior Capstone	4
PPA 492. Public Policy Senior Seminar ^{4,5}	
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Public Management Concentration Requirements

PPA 381. Budgetary Process	3
MGT 365. Human Resource Management	3
PPA 415. Legal Environment of Public Administration	3
Choose two courses, one from each list:	6-7
Institutional Courses	
PPA 325. Regional Planning and Organization	
PPA 412. Seminar in Intergovernmental Relations	
PPA 483. Emerging Issues in Public Administration	
POSC 302. State and Local Government	
POSC 380. U.S. Presidency	
POSC 385. U.S. Congress	
POSC 396. International Organizations	
Process, Issue and Application Courses	
COB 241. Financial Accounting	
GEOG 310. Environmental Issues	
GEOG 344. Economic Geography and Development Issues	
GEOG 366. Geographic Information Science	
NPS 300. Introduction to Nonprofit Studies	
NPS 320. Nonprofit Management	
SCOM 350. Organizational Communication	
Approved WRTC course ³	

Required Capstone Courses

PPA 420. Seminar in Public Management ^{4,5}	3
PPA 496. Internship in Public Management ⁵	4
	<hr/> 39

1 MATH 220 is a prerequisite for POSC 295.
2 PPA 483 may be taken when the course topic addresses a public policy issue.
3 Consult the public policy and administration coordinator.
4 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.
5 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 department head or appropriate department coordinator for clarification.

Bachelor of Arts in International Affairs

The major in international affairs provides an interdisciplinary 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 interdisciplinary major, see "Interdisciplinary Programs" Page 94.

Political Communication Minor

The interdisciplinary minor in political communication is designed for students interested in pursuing careers in political management. For a full description of this minor, refer to "Interdisciplinary Programs" Page 112.

Political Science Minor

A student may minor in political science by completing 19 credit hours of approved courses from the following list. Check with the department office for department availability of the minor.

Courses	Credit Hours
GPOSC 225. U.S. Government	4
POSC 201. Introduction to Western Political Theory	3
Choose one upper-level American government course from the following:	3
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 360. Urban Politics	
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 383. Women and Politics	
POSC 384. Minority Group Politics	
POSC 385. The U.S. Congress	
Elective chosen from 300 level courses listed above or from the following:	3
PPA 265. Public Administration	
POSC 310. Political Theory: Ancient to Early Modern	
POSC 415. 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
Option One:	
POSC 230. International Relations	

Choose one of the following:

- POSC 361. Topics in International Relations
- POSC 370. U.S. Foreign Policy
- POSC/JUST 372. Ethics and International Policies
- POSC/JUST 392. Peace Studies
- POSC 395. International Law
- POSC 396. International Organizations
- POSC 397. Politics of International Economic Relations
- POSC 430. International Security in the Post-Cold War World
- POSC 435. Seminar in International Terrorism
- POSC 458. International Political Analysis

Option Two:

- GPOSC 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

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Public Policy and Administration Minor

The requirement for a minor in public policy and administration is 19 credit hours of courses from the following list.

Courses	Credit Hours
GPOSC 225. U.S. Government	4
MGT 365. Human Resource Management	3
PPA 265. Public Administration	3
PPA 415. Legal Environment of Public Administration	3
PPA 381. Budgetary Process	3
PPA 420. Public Management	3
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In addition to the core courses, the department encourages students to take PPA 496, Internship in Public Management.

The Washington Semester Program

The political science department offers a Washington Semester Program. In the fall semester the focus is on American 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 and JMU tuition is paid. The American politics program is especially designed for students who are majoring or minoring in programs associated with the political science department. The global semester encourages students from all majors that have an international or global focus to enroll.

Department of Psychology

Dr. Michael Stoloff, Head

Dr. Kevin Apple & Dr. Suzanne Baker, Assistant Department Heads

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Associate Professors

J. Andre, K. Apple, K. Barron, D. Daniel, W. Evans, M. Hall, N. Lawrence, M. Reis-Bergan, B. Saville, C. Talley, T. Zinn

Assistant Professors

J. Irons, U. Kaplan, M. Lee

Lecturer

K. DuVall

Mission Statement

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 interdisciplinary 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. 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

- **Psychology Club.** This club is open to all students with an interest in psychology.
- **ABPsi.** The JMU student circle of the Association of Black Psychologists is open to all students interested in promoting the field of psychology among all people.
- **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.

- **Peer Advising.** These students serve as peer-consultants to psychology majors and minors. Students are trained during their junior year and serve as advisers during their senior year.
- **Psychologists for Sustainability.** This organization promotes education, awareness and action regarding environmental issues and sustainability within the psychology majors and throughout the JMU community.

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.

Before applying to become a psychology major, students must complete **GPSYC 101** (General Psychology) and **MATH 220** [Statistics] or **MATH 205**, **MATH 231** or **MATH 235** [Calculus]. **MATH 220** is recommended. Overall GPA is an important factor in acceptance decisions. Procedures for becoming a major are available on the department Web site.

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 **GPSYC 101** and two statistics and research methodology courses (**PSYC 210-211** or **PSYC 212-213**) before enrolling in courses numbered 330 and above. The prerequisite for **PSYC 210** and **PSYC 212** is any mathematics course numbered 205 or above. 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 psychology curriculum to meet student needs.

Degree and Major Requirements

Bachelor of Arts in Psychology

Degree Requirements

Required Courses	Credit Hours
General Education ¹	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 Requirements²

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.

	Credit Hours
<i>GPSYC</i> 101. General Psychology	3
Methodology Core 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	9
(choose at least three of the following):	
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	9
(choose at least three of the following):	
PSYC 375. Sensation and Perception	
PSYC 380. Cognitive Psychology	
PSYC 385. Biopsychology	
PSYC 390. Psychology of Learning	
PSYC 395. Comparative Animal Behavior	
Upper Level Specialty Content Courses	3
(choose at least one of the following):	
PSYC 400. Advanced Topics ⁴	
PSYC 410. Industrial/Organizational Psychology	
PSYC 412. Psychology of Motivation	
PSYC 420. Advanced Psychological Statistics	
PSYC 425. School Psychology	
PSYC 427. Tests & Measurement	
PSYC 428. Educational Psychology	
PSYC 430. Clinical Psychology	
PSYC 435. Community Psychology	
PSYC 440. Counseling Psychology	
PSYC 450. Child Abuse and Neglect	
PSYC 452. Child Psychopathology	
PSYC 460. Community Psychology within Developing Societies ⁵	
PSYC 465. Black/African Psychology ⁵	
PSYC 475. Psychology of Adulthood	

PSYC 480. Applied Behavior Analysis	
Psychology electives (at least three hours of these	9
electives must be at the 400 level)	
Capstone course: (choose one of the following):	3
PSYC 492. History of Psychology	
PSYC 493. Laboratory in Psychology	
PSYC 495. Field Placement in Psychology	
PSYC 497. Senior Seminar in Psychology ⁴	
PSYC 499. Honors Thesis ⁴	

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 All psychology majors are required to complete at least one course that satisfies our sociocultural awareness requirement. Courses that meet this requirement appear in various sectors of the curriculum and can be used to meet other major requirements.

3 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.

4 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 e-campus.

5 Course meets sociocultural awareness requirement.

Bachelor of Science in Psychology

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Major requirements (listed below)	44
Cognate requirements ²	9-11
Electives	18-32
	120

Major Requirements³

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.

	Credit Hours
<i>GPSYC</i> 101. General Psychology	3
Methodology Core ⁴ (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	9
(choose at least three of the following):	
PSYC 330. Psychology of Personality	
PSYC 335. Abnormal Psychology	
PSYC 345. Social Psychology	
PSYC 365. Developmental Psychology	
PSYC 385. Biopsychology	3
NS Content Core – Psychology as a Natural Science	6
(choose at least two of the following):	
PSYC 375. Sensation and Perception	
PSYC 380. Cognitive Psychology	
PSYC 390. Psychology of Learning	
PSYC 395. Comparative Animal Behavior	
Upper Level Specialty Content Courses	3
(choose at least one of the following):	
PSYC 400. Advanced Topics ⁵	
PSYC 410. Industrial/Organizational Psychology	
PSYC 412. Psychology of Motivation	
PSYC 420. Advanced Psychological Statistics	
PSYC 425. School Psychology	
PSYC 427. Tests & Measurement	
PSYC 428. Educational Psychology	
PSYC 430. Clinical Psychology	

PSYC 435. Community Psychology		Required Courses	Credit Hours
PSYC 440. Counseling Psychology		PSYC 180. Introduction to Behavior Analysis ¹	3
PSYC 450. Child Abuse and Neglect		PSYC 390. Psychology of Learning	3
PSYC 452. Child Psychopathology		PSYC 480. Applied Behavior Analysis	3
PSYC 460. Community Psychology within Developing Societies ⁶		Choose one of the following:	3
PSYC 465. Black/African Psychology ⁶		PSYC 402. Independent Study: Practicum – Behavior Analysis ^{2,3}	
PSYC 475. Psychology of Adulthood		PSYC 402. Independent Study: Research – Behavior Analysis ²	
PSYC 480. Applied Behavior Analysis		PSYC 402. Independent Study: Readings – Behavior Analysis ²	
Psychology electives (at least three hours of these electives must be at the 400 level)	9	PSYC 402. Independent Study: Teaching – Behavior Analysis ²	
Capstone course (choose one of the following):	3	Choose one of the following:	3-6
PSYC 492. History of Psychology		PSYC 493. Laboratory in Psychology ²	
PSYC 493. Laboratory in Psychology		PSYC 497. Senior Seminar in Psychology ²	
PSYC 495. Field Placement in Psychology		PSYC 499. Honors Thesis ²	
PSYC 497. Senior Seminar in Psychology ⁵			
PSYC 499. Honors Thesis ⁵			
			<hr/> 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.

Cognate Requirements

Quantitative Competency (in addition to General Education; can count toward B.S. degree, second major and/or minor requirements)	3
Any MATH course numbered 205 or above	
Scientific Literacy (choose at least two of the following; in addition to General Education; can count toward B.S. degree, second major and/or minor requirements)	6-8
ANTH or GANTH – any course number	
BIO or GBIO – any course number	
CHEM – any course number	
CS 139, 239, 240, 345 or 350	
ECON or GECON – any course number	
GSCI 101 or GSCI 121	
POSC or GPOSC – any course number	
SOCI or GSOCI – any course number	

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 Includes courses required to satisfy university B.S. degree requirements in quantitative competency and scientific literacy.

3 All psychology majors are required to complete at least one course that satisfies our sociocultural awareness requirement. Courses that meet this requirement appear in various sectors of the curriculum and can be used to meet other major requirements.

4 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.

5 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 e-campus.

6 Course meets sociocultural awareness requirement.

Concentration

Behavior Analysis Concentration

Dr. Sherry Serdikoff, Concentration Coordinator

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.

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 ¹	3
GPSYC 101. General Psychology	3
General Education courses	9
	<hr/> 15

Second Semester

General Education, B.A./B.S. degree requirement, B.S. Psychology Cognate, and/or minor program courses	15
	<hr/> 15

Second Year

First Semester	Credit Hours
PSYC 210. Psychological Measurement and Statistics or PSYC 212. Psychological Research Design and Data Analysis ^{1,2}	4
General Education, B.A./B.S. degree requirement, B.S. Psychology Cognate, minor program, and/or psychology elective courses	12
	<hr/> 16

Second Semester	Credit Hours
PSYC 211. Psychological Research Methods ³	4
or PSYC 213. Psychological Research Design and Data Analysis II ⁴	
General Education, B.A./B.S. degree requirement, B.S. Psychology Cognate, minor program, and/or psychology elective courses	12
	<hr/> 16
Third Year	Credit Hours
SS content core courses	9
NS content core courses	9
Minor program courses or electives	12
	<hr/> 30
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
	<hr/> 30

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 290. Directed Studies in Psychology
 - PSYC 402. Independent Study in Psychology
 - PSYC 495. Field Placement in Psychology
 - PSYC 499. Honors Thesis.
- Taking an advanced statistics courses is highly recommended. Consider the following:
 - 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 advisor 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 Johnston Hall where materials are available about career and graduate school opportunities.

Other Psychology Programs

Accelerated Graduate Experiences

With special permission, seniors with outstanding academic records may take up to 9 credit hours of graduate courses. These courses cannot count towards their undergraduate degree. Successful completion of graduate courses does not guarantee admission to any graduate program; however, completion of graduate courses can be excellent preparation for future graduate school experiences.

Graduate Programs

The Department of Graduate Psychology at James Madison University offers the following graduate degree programs:

Master of Arts

Counseling Psychology, 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

Doctor of Psychology

Combined/Integrated Program in Clinical and School
Psychology

Inquiries concerning any of these graduate programs should be directed to the respective program director.

Counseling Psychology
Psychological Sciences
School Psychology

Combined Integrated Program in Clinical and School Psychology
Admissions Secretary
Phone: (540) 568-6439

Doctoral Program in Assessment and Measurement
Dr. Christine Harnes
Phone: (540) 568-7132
E-mail: harnesjc@jmu.edu

Department of Social Work

R. Ann Myers, Head

Phone: (540) 568-6980

Location: HHS Building, Room 2128

E-mail: myersra@jmu.edu

Web site: <http://www.jmu.edu/socwork/>

Professors

K. Ford, R. A. Myers

Associate Professor

B.J. Bryson

Assistant Professors

C. Hunter, N. Poe, H. Yeom

Adjunct Assistant Professor

J. Lynch

Affiliate Instructors

D. Blough, R. Harris, J. Hubbell, R. Zingraff

Mission Statement

The social work department 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, and a certificate in gerontology.

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.
- Being recognized by our students, graduates, field agencies and the professional community for excellence and integrity in academic programs, advancement of professional knowledge and professional service.
- Being responsive and oriented to the professional, local community and university's service region by providing supportive services and continuing education opportunities.

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
- Mental health services
- Mental retardation/developmental disabilities services
- Nursing homes and residential communities
- Residential treatment facilities
- School Programs
- Substance abuse programs
- Vocational rehabilitation services

Marketable Skills

- Advocacy
- Assessment/analysis
- Case management/brokering
- Communication
- Community outreach
- Crisis intervention
- Intake/referral
- Intervention/service planning
- Interviewing
- Networking
- Policy Analysis
- Problem solving
- Program development/evaluation
- Recording/writing
- Relationship/interpersonal
- Research
- Service provision
- Team/group/collaborative

Co-curricular Activities and Organizations

- The Social Work Organization 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 Social Work National Honor Society's purpose is to promote academic excellence among social work students. Membership in Phi Alpha is by invitation and based on grade point average. Students must successfully complete nine credit hours of required social work courses before they are eligible to join.
- 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 anytime; 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 2.0 overall average with no single grade lower than a "C" (2.0) in SOWK 287 and 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 Web site 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. 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 program are seniors who have completed the core social work requirements, with no grade lower than a "C" (2.0) in SOWK 287, 288, 305, 317, 320, 335, 465, 466 and 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 Handbook* or the social work Web site for the field application, documentation of community service guidelines and guidelines for the placement process.

Degree and Major Requirements

Bachelor of Social Work

Degree Requirements

Required Courses	Credit Hours
General Education courses ¹	41
Social Work core courses	42
Social work electives	6
Electives	32-35
	<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.

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. Senior Seminar in Social Work	3
SOWK Electives: Elective courses are offered on a rotating basis. See course descriptions in catalog.	6

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

Cluster One: Skills for the 21st Century

General Education courses¹

Credit Hours

9-12

18-21

30

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; *GPOSC* 225, *GSOCI* 110 and ANTH 195, Cluster 4; *GPSYC* 101 or *GPSYC* 160, Cluster 5.

Second Year

SOWK 287. Introduction to Social Work

SOWK 288. Social Welfare

General Education courses¹

Electives

Credit Hours

3

3

10-13

11-14

30

Third Year

SOWK 305. Social Work Research Methods²

SOWK 317. Skills for Generalist Social Work

SOWK 320. Human Behavior in the Social Environment²

SOWK 335. Social Policy²

SOWK Elective

Electives

Credit Hours

3

3

3

3

3

15

30

Fourth Year

SOWK 465. Social Work Practice in Mezzo Systems²

SOWK 466. Social Work Practice in Micro Systems²

SOWK 467. Social Work Practice in Macro Systems²

SOWK elective

Elective

SOWK 481. Social Work Field Practicum I²

SOWK 482. Social Work Field Practicum II²

SOWK 494. Senior Seminar²

Credit Hours

3

3

3

3

3

6

6

3

30

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; *GANTH* 195, *GPOSC* 225 and *GSOCI* 210, Cluster 4; *GPSYC* 101 or *GPSYC* 160, Cluster 5.

² Check prerequisite requirements.

Minor Requirements

Family Studies Minor

R. Ann Myers, Minor Adviser

The interdisciplinary 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 the minor in family studies, see "Interdisciplinary Programs," Page 106.

Gerontology Minor

R. Ann Myers, Minor Adviser

The interdisciplinary 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 the minor in gerontology, see "Interdisciplinary Programs," Page 107.

Nonprofit Studies Minor

R. Ann Myers, Minor Adviser

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 the minor in nonprofit studies, see "Interdisciplinary Programs," Page 112.

Department of Sociology and Anthropology

Dr. Timothy J. Carter, Head

Sociology Program Coordinator

Dr. Joe Spear

Phone: (540) 568-2347

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E-mail: spearjh@jmu.edu

Web site: <http://www.jmu.edu/sociology>

Anthropology Program Coordinator

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Professors

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Associate Professors

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Assistant Professors

B. Brewer, L. Buckley, K. Dobransky, M. Ezzel, J. Lawler, J. Linder, A. Paugh, M. Polanco, S. Poulson, J. Rumbo, J. Solometo, M. Tracy

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

To fulfill its mission, the sociology program cultivates the sociological imagination by:

- Developing students' appreciation of the social component of all dimensions of human experience, including:
 - understanding human diversity and alternatives in social orientations and practices within and across societies.
 - the importance and usefulness of viewing oneself and others in social and historical contexts of diverse locations and cultures.
 - the varied and contested nature of different views of the social world.
- Instructing with regard to schools of thought and methodological skills within the sociological tradition by providing students with:
 - an understanding of the theories that explain, interpret and critique patterns of social relations.
 - an ability to place the development of sociological research and practice within a social and historical context.
 - an understanding of the logic and use of sociology's various methodological skills and their relations to theoretical and philosophical commitments.

- analytical skills required in the application and evaluation of sociological research methods
- To nourish disciplined, creative and spontaneous participation in the sociological endeavor by cultivating:
 - the importance in scholarly inquiry of honesty, introspection, logical consistency and openness to alternative ideas
 - the norms of the scholarly community and a democratic society (openness to testing, reinterpretation and refutation, openness to public scrutiny, collegiality)
 - the scholarly traits necessary to practice sociology (objectivity, value clarity, skill development, perceptiveness, creativity, logical consistency, hard work and discipline)
 - the importance of social science to social policy decisions; political, social and cultural activity; and personal growth.

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.

- Criminologist, probation/parole officer, police officer, corrections officer
- 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, fund raiser
- Education specialist, community services director

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 Web site at <http://www.asanet.org/> 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

Admission to the Sociology Major

Any student may declare sociology as a major, but all declared students must meet a set of progression standards to be fully admitted to the major. In order to be fully admitted to the major, students must meet the following requirements:

- Students are automatically admitted to the sociology major program if: a) they have an overall GPA of 2.5, or b) they receive at least a "B-" in SOCI 200 and at least a "B-" in one of the following introductory sociology classes: *GSOCI 110*, *GSOCI 140* or *SOCI 101*.
- Transfer students will be admitted to the sociology major after earning at least a "B-" in SOCI 200 and at least a "B-" in one of the following courses taken at JMU: *GSOCI 110*, *GSOCI 140* or *SOCI 101*. If transfer credits have been awarded for the equivalent of *GSOCI 110*, *GSOCI 140*, *GSOCI 210*, *GSOCI 240* or *SOCI 101*, transfer students will be admitted after earning at least a "B-" in SOCI 200.
- Students admitted to the major must earn at least a "C-" in all sociology classes or any course that is substituted for a sociology core course credit. If a student earns below a "C-" in a course, he or she can re-take the course once in order to meet the "C-" standard.
- Students with an overall GPA of at least 2.0 may apply for admission to the sociology major for a limited number of spaces through an application process. To download an application, visit the sociology department Web site.

Bachelor of Arts in Sociology

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	23-37
Major requirements (listed below) and electives	39
	<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

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.

Courses	Credit Hours
GSOCI 110. Social Issues in Global Context	3
GSOCI 140. Microsociology: The Individual in Society	3
SOCI 200. Development of Social Thought and Method	3
SOCI 231. Introduction to Social Statistics ¹	3
SOCI 300. Sociological Inquiry	3
SOCI 480. Senior Seminar ^{2,3}	3
Sociology electives	21
	<hr/> 39

¹ Students can substitute SOCI 231 with MATH 220, PSYC 210 or COB 191, if SPSS is used in the course, but must take an additional sociology course to complete the required 39 hours of sociology.

² This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

³ 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. Consult an adviser or the sociology program coordinator for details.

Bachelor of Science in Sociology

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
University electives	32-33
Major requirements (listed below)	39
	<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 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.

Courses	Credit Hours
GSOCI 110. Social Issues in Global Context	3
GSOCI 140. Microsociology: The Individual in Society	3
SOCI 200. Development of Social Thought and Method	3
SOCI 231. Introduction to Social Statistics ¹	3
SOCI 300. Sociological Inquiry	3
SOCI 480. Senior Seminar ^{2,3}	3
Sociology electives	21
	<hr/> 39

1 Students can substitute SOCI 331 with MATH 220, PSYC 210 or COB 191, if SPSS is used in the course, but must take an additional sociology course to complete the required 39 hours of sociology.

2 This course fulfills the College of Arts and Letters writing-intensive requirement for the major.

3 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. Consult an adviser or the sociology program coordinator for details.

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 groupings¹:

Environment, Technologies and Innovations

- SOCI 311. Sociology of the Environment
- SOCI 313. Processes of Social and Cultural Change
- SOCI 315. Technology and Society
- SOCI 316. Space, Time, and the Human Environment
- SOCI 344. Work and Society
- SOCI 348. Introducing the Developing Societies
- SOCI 354. Social and Cultural Stratification
- SOCI 360. Social Movements
- SOCI 361. Sociology of Organizations
- SOCI 366. Sociology of Knowledge

Political and Global Analysis

- SOCI 214. Social Deviance
- SOCI 260. Sociology of Culture
- SOCI 313. Processes of Social and Cultural Change
- SOCI 321. Politics of Society
- SOCI 342. Muslim Movements in the Middle East
- SOCI 344. Work and Society
- SOCI 348. Introduction to Developing Societies
- SOCI 354. Social and Cultural Stratification
- SOCI 361. Sociology of Organizations
- SOCI 379. Africentric Social Thought
- SOCI 478. Africa Centered Worldview

Community Action and Evaluation

- SOCI 265. Sociology of the Community
- SOCI 276. Sociology of Families
- SOCI 280. Social Gerontology
- SOCI 321. Politics of Society
- SOCI 322. Sociology of Religion
- SOCI 327. Juvenile Delinquency
- SOCI 341. Sociology of Education
- SOCI 352. Birth, Death, Sex: Exploring Demography
- SOCI 360. Social Movements

Markets and Cultures

- SOCI 260. Sociology of Culture
- SOCI 329. Psychological and Sociological Aspects of Sport
- SOCI 341. Sociology of Education
- SOCI 344. Work and Society
- SOCI 345. Sociology of Occupations and Professions
- SOCI 346. Leisure in Contemporary Society
- SOCI 348. Introduction to Developing Societies

- SOCI 358. Sociology of Consumption.
- SOCI 361. Sociology of Organizations
- SOCI 368. Contemporary American Culture
- SOCI 478. Africa Centered Worldview

Social Inequalities & Public Policy

- SOCI 214. Social Deviance
- SOCI 276. Sociology of Families
- SOCI 311. Sociology of the Environment
- SOCI 321. Politics in Society
- SOCI 325. Criminology
- SOCI 336. Race and Ethnicity
- SOCI 337. Sociology of Gender
- SOCI 354. Social and Cultural Stratification
- SOCI 360. Social Movements
- SOCI 366. Sociology of Knowledge
- SOCI 367. Sociology of Sexuality
- SOCI 369. Law and Society
- SOCI 379. Africentric Social Thought

1 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 Majors¹

The following is an example of a four year course of study for a student seeking a degree in sociology:

First Year	Credit Hours
GSOCI 110. Social Issues in a Global Context,	3
GSOCI 140. Microsociology: The Individual in Society	3
Sociology elective	3
	9
Second Year	Credit Hours
SOCI 200. Development of Social Thought and Method	3
SOCI 331. Social Statistics	3
Sociology electives	3
	9
Third Year	Credit Hours
SOCI 300. Sociological Inquiry	3
Electives	6-9
	9-12
Fourth Year	Credit Hours
Sociology electives	6-9
SOCI 480. Senior Seminar (majors take this during their final semester at JMU)	3
	<hr/> 9-12

1 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 Social Thought and Method	3
Sociology electives	15
	<hr/> 18

Credit by Examination

Consult the department head for information about credit by examination.

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 curators and staff
- International aid workers and development consultants
- Management trainees
- Nurses, medical technicians and physicians assistants
- Forensic analysts
- Coroners
- Technical writers

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

Co-curricular Activities and Organizations

- Lambda Alpha, Anthropology Honors Society
- Student Anthropology Club

Major and Degree Requirements

Bachelor of Arts in Anthropology

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives (beyond major)	25-39
Major requirements (listed below)	40-41
	<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.

Bachelor of Science in Anthropology

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
University electives	35-36
Major requirements (listed below) and electives	40-41
	<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 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 advisors 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.

Required Courses	Credit Hours
<i>GANTH</i> 195. Cultural Anthropology	3
<i>GANTH</i> 196. Biological Anthropology	3
<i>ANTH</i> 197. Archaeology	3
<i>ANTH</i> 375. History of Theory in Sociocultural Anthropology ¹	3
One methods courses from the following:	3-4
<i>ANTH</i> 435. Ethnographic Genres and Methods	
<i>ANTH</i> 410. Spatial Analysis for Anthropologists	
<i>ANTH</i> 420. Evolution of Human Behavior	
<i>ANTH</i> 455. Archaeology: Methods of Analysis and Interpretation	
One elective from each of the following: cultural anthropology, biological anthropology and archaeology	9
Other electives ^{2,3}	15
	40-41

1 Students should take two of *GANTH* 195, *GANTH* 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

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
<i>GANTH</i> 195 Cultural Anthropology	3
<i>GANTH</i> 196 Biological Anthropology	3
<i>ANTH</i> 197 Archaeology	3
<i>ANTH</i> 201 The Discipline of Anthropology	1
<i>ANTH</i> 375 History of Theory in Sociocultural Anthropology ¹	3
<i>ANTH</i> 435 Ethnographic Genres and Methods	4
One upper-division course archaeology and biological anthropology	6
Electives ^{2,3}	18
	41

1 Students should take two of *GANTH* 195, *GANTH* 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, Language and Culture; area studies courses such as *ANTH* 265, Peoples and Cultures of Latin America and the Caribbean, *ANTH* 312, Native Americans, *ANTH* 280, Peoples and Cultures of Sub Saharan Africa, *ANTH* 380, Chinese Culture and Society; and upper-division courses addressing topical issues which are generally more theoretically intensive such as *ANTH* 390, Topics in Cultural Studies, *ANTH* 313, Culture Process and Change, *ANTH* 323, Visual Anthropology, *ANTH* 340, The Idea of Race, *ANTH* 370, Topics in the Anthropology of Gender, and *ANTH* 395, Special Topics. Students are encouraged to pursue study abroad, ethnographic field school and internship opportunities.

Archaeology

Archaeology is the study of the development and change of human societies from the prehistoric past to the present through the identification, gathering and interpretation of material remains and/or artifacts. While a major contributor to biological anthropology and forensics, archaeology is most closely tied to cultural anthropology and has been described as cultural anthropology in the past tense. As a major contributor to the emerging discipline of historical archaeology, the field has strong ties to the practice of history. Students planning a career in archaeology should enroll in an archaeological field school. Those interested in historical archaeology should consider the interdisciplinary historical archaeology minor. Archaeology students are also encouraged to take *ANTH* 435, Ethnographic Genres and Methods. This sub-discipline shares strong methodological and thematic ties with history, geology, geography, biology and art history, and upper-level course electives from these areas are encouraged. Students are encouraged to consider co-majoring or minoring in these fields as a complement to their education.

Required Courses	Credit Hours
<i>GANTH</i> 195. Cultural Anthropology	3
<i>GANTH</i> 196. Biological Anthropology	3
<i>ANTH</i> 197. Archaeology	3
<i>ANTH</i> 201. The Discipline of Anthropology	1
<i>ANTH</i> 375. History of Theory in Sociocultural Anthropology ¹	3
<i>ANTH</i> 410. Spatial Analysis for Anthropologists or <i>ANTH</i> 490 ²	3-4
<i>ANTH</i> 455. Archaeology: Methods of Analysis and Interpretation	4
One upper division course in cultural and biological anthropology	6
One regional archaeology course (<i>ANTH</i> 250,324, 327, 333 etc.)	3
Electives ^{3,4}	11-12
	40-41

1 Students should take two of *GANTH* 195, *GANTH* 196 or *ANTH*1 97 and at least one anthropology elective before taking *ANTH* 375.
2 Instead of *ANTH* 410 students may take *ANTH* 490, Special Studies, and 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.
4 Students are encouraged to take electives from across the breadth of biological and cultural anthropology as well as archaeology. *ANTH* 305, Language and Culture, is strongly recommended. An archaeological field school is strongly encouraged for any students wishing to pursue professional or graduate opportunities. *ANTH* 435, Ethnographic Genres and Methods, is also 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 and psychology are recommended depending on the student's particular goals. Students might consider taking a minor or second major in biology or psychology.

Required Courses	Credit Hours
<i>GANTH</i> 195. Cultural Anthropology	3
<i>GANTH</i> 196. Biological Anthropology	3
ANTH 197. Archaeology	3
ANTH 201. The Discipline of Anthropology	1
ANTH 375. History of Theory in Socio-cultural Anthropology ¹	3
ANTH 420. Evolution of Human Behavior	3
One upper division course in archaeology and cultural anthropology	6-7
At least two upper-level courses in biological anthropological topics ²	6
Electives ^{3, 4}	12
	<hr/> 40-41

¹ Students should take two of *GANTH* 195, *GANTH* 196 or ANTH 197 and at least 1 Anthropology elective before taking ANTH 375.

² Students should consider electives including ANTH 300 Anthropology of Diet and Nutrition, ANTH 315 Human Evolution, ANTH322 Human Variation and Adaptability, ANTH 360 Medical Anthropology, ANTH 362 Evolution of the Human Brain and any ANTH 395 Special Topics in Anthropology courses that have a biological perspective.

³ Students may take up to two adviser approved electives at the 300 or 400-level from courses outside of the program. Such courses might include BIO 290, Human Anatomy, BIO 430, Human Genetics, BIO 454, Introduction to Biometrics, BIO/PSYC 395, Comparative Animal Behavior, BIO 404, Evolutionary Analysis and PSYC 380, Cognitive Psychology.

⁴ Along with courses identified in 2 above, students are encouraged to take electives from across the breadth of cultural anthropology and archaeology as well as biological anthropology. ANTH 305, Language and Culture, is highly recommended.

Minor Requirements

Anthropology Minor

Students complete a minor in anthropology by completing 18 hours in anthropology including the core courses *GANTH* 195, Cultural Anthropology; *GANTH* 196, Biological Anthropology and ANTH 197, Archaeology.

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 "Historical Archaeology," Page 107.

Credit by Examination

For information about credit by examination, consult the program coordinator.

School of Theatre and Dance

William J. Buck, Director

Phone: (540) 568-6342

Location: Theatre II

E-mail: buckwj@jmu.edu

Web sites: <http://www.jmu.edu/theatre/>
<http://www.jmu.edu/dance/>

Professors

W. Buck, R. Hall, P. Johnson, S. O'Hara, C. Thompson, K. Trammell

Associate Professors

D. Beck, R. Finkelstein, S. Miller-Corso

Assistant Professors

K. Arecchi, E. Becher-McKeever, J. Burgess, L. Lindsay, K. Sherrill

Mission Statement

Study in the School of Theatre and Dance leads to a Bachelor of Arts degree. The theatre, dance and musical theatre concentrations will provide students with the skills required for graduate study and for employment in theatre and dance. The theoretical lessons of the classroom are complete only when applied in the context of active learning with practical work in studios and theatres. The course work includes: performance techniques, business management, dance composition, directing, scenic and costume design, technology, theatre and dance history and literary theory. Students think critically as they evaluate performances, designs, literary texts and practical projects. Such a broad-based liberal arts curriculum prepares students to pursue lifelong learning.

Goals

The School of Theatre and Dance aims to provide students with:

- an ability to understand and express conceptual knowledge.
- an appreciation of the great works of theatre and dance.
- an appreciation of theatre and dance as they exist on television, in films and on the stage.
- preparation to work within a group toward a defined goal.
- preparation for a professional career in theatre and dance.
- preparation for graduate-level studies in theatre and dance.

The school also seeks:

- to support and enrich interdisciplinary and other academic programs at James Madison University.
- to provide artistic stimulation and cultural enrichment to the extended community of James Madison University and the Shenandoah Valley.

Career Opportunities

For information about career opportunities in theatre and dance, contact the appropriate coordinator.

- Dr. Dennis Beck, theatre coordinator
- Mr. Shane O'Hara, dance coordinator
- Ms. Kate Arecchi, musical theatre coordinator

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
- Children's Playshop
- Contemporary Dance Ensemble
- Dance Studio Productions
- Dance Theatre
- Experimental Theatre Productions
- Mainstage Productions
- Stratford Players
- Virginia Repertory Dance Company
- USITT Student Chapter

Special Admission and Retention Requirements

Admission to the dance concentration is competitive and an audition/interview is required. Contact the dance office by calling (540) 568-6511 for current audition information.

Admission to the musical theatre concentration is competitive and an audition is required. Contact the school office by calling (540) 568-6342 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 concentration students cannot take *GT*HEA 210. Introduction to Theatre, to meet the fine arts/aesthetics requirements. Courses from other departments may not be counted both for the School of Theatre and Dance major and for another major.

Degree and Major Requirements

Bachelor of Arts in Theatre and Dance

The School of Theatre and Dance offers one B.A. major with a choice of three concentrations: theatre, dance or musical theatre. A theatre and dance major must fulfill core requirements and the requirements of a particular concentration.

Degree Requirements

Required Courses	Credit Hours
General Education ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	4-34
Major requirements (listed below)	42-58
	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

All students pursuing a B.A. degree in the School of Theatre and Dance must complete the core requirements listed below.

Core Requirements	Credit Hours
Choose one of the following:	2
DANC 140. Elementary Modern Dance ¹	
DANC 142. Elementary Ballet	
DANC 143. International Folk Dance	
DANC 144. Ballroom Dance	
DANC 146. Jazz Dance ²	
DANC 147. Tap Dance	
DANC 245. Dance Improvisation ¹	
THEA/DANC 171. Performance Production	3
THEA 273. Visual Aspects	3
	8

¹ DANC 140 and DANC 245 are not core options for the dance concentration.
² DANC 146 is not a core option for the musical theatre concentration

Concentrations

In addition to meeting the core requirements, students must choose a concentration and complete the concentration requirements. The concentrations and their requirements are listed here.

Theatre Program

Dr. Dennis C. Beck, Coordinator

Phone: (540) 568-6386

E-mail: beckdc@jmu.edu

Courses	Credit Hours
Core requirements	8
Concentration requirements:	
THEA 211. Performance Analysis	3
THEA 251. Acting I: Basic Acting	3
THEA 315. The European Theatre Tradition to 1800	3
THEA 316. The European Theatre Tradition from 1800	3
Choose one of the following:	3
THEA 441. Senior Seminar in Theatre	
THEA 499. Honors Thesis ¹	
THEA 481. Theory and Performance Studies	3

THEA 200 or 300. Theatre Practicum	4
(Choose four different areas of main stage productions for one credit each from scenery, lighting, costumes, management or performance)	
Group A electives (choose one of the following courses):	3
THEA 351. Acting II: Intermediate Acting	
THEA 355. Directing	
THEA 452. Acting III: Contemporary Scene Study	
THEA 453. Acting IV: Approaches to Heightened Language	
THEA 466. Media Performance	
Group B electives (choose one of the following courses):	3
THEA 271. Technical Theatre	
THEA 331. Technical Costuming	
THEA 332. Survey of Costume	
THEA 333. Costume Design	
THEA 371. Advanced Technical Theatre	
THEA 374. Stage Lighting	
THEA 376. Scene Design	
Group C electives (choose one of the following courses):	3
THEA 449. London Theatre	
THEA/ENG 485. American Theatre	
ENG 333. Modern Drama	
ENG 334. Contemporary Drama	
ENG 456. Shakespeare's Tragedies and Romances	
ENG 457. Shakespeare's Comedies and Histories	
ENG 458. Shakespeare on the Page and Stage in London	
Group D electives (choose a course from group A, B or C that has not been applied already to the concentration requirements, or SCOM 243, Oral Interpretation, or any other course offered by the Theatre or Musical Theatre programs.)	3
	42

¹ THEA 390, Directed Projects; THEA 490, Special Studies; THEA 499 Honors: No more than four hours of practicums may be applied to the theatre concentration, and no more than 10 hours of special studies (including practicums) may be applied to the theatre concentration.

Recommended Schedule for Majors

First Year

THEA 171. Performance Production
 THEA 211. Performance Analysis
 THEA 251. Acting I: Basic Acting

Second Year

THEA 273. Visual Aspects
 THEA 315. The European Theatre Tradition to 1800
 THEA 316. The European Theater Tradition from 1800
 Theatre Group Elective
 Dance Core Requirement
 Practicum

Third Year

THEA 481. Theory and Performance Studies
 Theatre Group Elective
 Practicum

Fourth Year

THEA 441. Senior Seminar in Theatre
 Theatre Group Elective
 Theatre Group Elective
 Practicum

Dance Program

Shane O'Hara, Coordinator

Phone: (540) 568-6511

E-mail: oharast@jmu.edu

Courses	Credit Hours
Core Requirements	8
Dance Concentration Requirements:	
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
Select four credits from the following courses: ¹	4
DANC 240. Intermediate Modern Dance I	
DANC 340. Intermediate Modern Dance II	
Select four credits from the following courses:	4
DANC 242. Intermediate Ballet I	
DANC 342. Intermediate Ballet II	
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 Repertory II	2
	<hr/> 42

¹ The student is required to complete four credits each in modern and ballet technique at the intermediate to advanced-intermediate level, 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. Above requirements are the minimum level expected of dance concentration students. Most majors will take technique courses as university electives through out their study in the dance program.

Recommended Schedule for 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 or 342. Intermediate I or Intermediate Ballet II
DANC 248. History of Dance

Second Year

THEA 273. Visual Aspects
DANC 143, 144 or 146. Folk, Ballroom or Jazz Dance
DANC 211. Contemporary Dance Ensemble Repertory I (fall)
DANC 245. Dance Improvisation
DANC 311. Contemporary Dance Ensemble Repertory II (spring)
DANC 340. Intermediate Modern II (fall and spring)
DANC 342 or 442. Intermediate or Intermediate Ballet II

Third Year

DANC 320. Anatomy and Somatic Studies for the Dancer
DANC 345. Dance Composition I
DANC 479. Methods of Teaching Dance
DANC 411 or 312. Contemporary Dance Ensemble
 Repertory III or Virginia Repertory Co.
Other dance technique courses to fit the student's schedule.

Fourth Year

DANC 445. Dance Composition II
DANC 449. The Dance Professional
Other dance technique courses to fit the student's schedule.

Musical Theatre Program

Kate Arecchi, Coordinator

Phone: (540) 568-6009

E-mail: arecchk@jmu.edu

As of January 2007 all students must audition and be accepted into the musical theatre concentration in order to declare the concentration.

Courses	Credit Hours
Core requirements	8
Concentration requirements:	
THEA 211. Performance Analysis	3
THEA 251. Acting I: Basic Acting	3
THEA 200 or 300 Theatre Practicum	4
(Choose three different areas of main stage production for one credit each from scenery, lighting, costumes, or management and one additional credit in performance):	
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
THEA 441. Senior Seminar in Theatre	3
THEA 454. Advanced Music Theatre Performance	2
One course from Music Theatre Electives list (see below)	3
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 Concentrators	1
MUAP 115. Group Voice for Theatre/Dance	1
MUAP 214. Private Voice for Musical Theatre Concentrators ¹	4
MUS 141. Theory I: Writing and Analysis	3
MUS 143. Theory I: Aural Perception and Analysis	1
MUS 100. Keyboarding Skills I	1
MUS 101. Keyboarding Skills II	1
	<hr/> 58

¹ Four enrollments of one credit each.

Musical Theatre Electives

THEA 271. Technical Theatre
THEA 331. Technical Costuming
THEA 332. Survey of Costume
THEA 333. Costume Design
THEA 336. History, Theory and Practice of Stage Make-Up
THEA 355. Directing
THEA 371. Advanced Technical Theatre
THEA 374. Stage Lighting
THEA 376. Scene Design
THEA 382. Contemporary Theatre
THEA 450. The Open Studio
THEA 449. London Theatre
THEA 471. Stage Management
THEA 481. Theory and Performance Studies
THEA 485. American Theatre
THEA 488. Experimental Theatre

Recommended Schedule for Majors

First Year

THEA 171. Performance Production
THEA 211. Performance Analysis
THEA 251. Acting I: Basic Acting
DANC 146. Jazz Dance
MUAP 114/115. Group Voice
Dance Core (DANC 147. Tap Dance)
 or MUS 100/101. Keyboard Skills I & II

Second Year

THEA 273. Visual Aspects of Theatre
 MUS 100/101. Keyboard Skills I & II or Dance core (DANC 147. Tap)
 THEA 315. The European Theatre Tradition to 1800 and/or
 THEA 316. The European Theatre Tradition from 1800
 THEA 351. Acting II: Intermediate Acting or MUS 141. Theory I: Writing
 and Analysis & MUS 143. Theory I: Aural Perception and Analysis
 DANC 246. Intermediate Jazz
 MUAP 214. Private Voice
 THEA 353. Music Theatre Performance

Third Year

THEA 316. The European Theatre Tradition From 1800 and/or
 THEA 315. The European Theatre Tradition to 1800
 MUS 141. Theory I: Writing and Analysis & MUS 143. Theory I: Aural
 Perception and Analysis or THEA 351. Acting II: Intermediate Acting
 DANC 346. Advanced Jazz/Musical Theatre Styles
 MUS 214. Private Voice
 Practicum

Fourth Year

THEA 454. Advanced Music Theater Performance
 Theatre elective
 MUS/THEA 357. Music Theatre History and Analysis
 Practicum
 Senior Seminar

Teacher Licensure in Dance

Suzanne Miller-Corso, Adviser

Phone: (540) 568-3924

E-mail: mille2sm@jmu.edu

In addition to general education and theatre and dance requirements, students desiring PreK-12 teaching licensure in dance must complete 19 credits of additional course work in kinesiology, health science, education and 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 minimum requirements in dance:

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, folk, jazz or 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)

The following is a list of the required courses leading to PreK-12 dance licensure and a suggested sequence of when each may be taken.

Courses	Credit Hours
KIN 311. Elementary Curriculum in Physical Education (fall, junior)	3
KIN 202. Biological Foundations in Kinesiology and Recreation (fall, junior)	3
ATEP 205. Prevention and Care of Athletic Injuries (spring, junior)	3
DANC 490. Special Studies in Dance: Teaching Practicum (prior to student teaching)	2
Required Education & Psychology Courses	Credit Hours
GPSYC 160. Life Span Human Development (may double count)	3
EDUC 360. Foundations of American Education	3

EDUC 480. Student Teaching	12
READ 420. Content Area Literacy, K-12	2

Minor Requirements

The School of Theatre and Dance offers a minor with options in theatre or dance. The following chart outlines each option's specific requirements.

Theatre Minor

Choose one of the following:	3
THEA 171. Performance Production	
THEA 273. Visual Aspects	
Choose one of the following:	3
THEA 315. The European Theatre Tradition to 1800	
THEA 316. The European Theatre Tradition from 1800	
Electives selected from the theatre-designated courses with the approval of the minor adviser	15
	<hr/> 21

Dance Minor

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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Creative Writing Minor

The interdisciplinary 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. For more detailed information on the minor in creative writing, refer to the section on "Interdisciplinary Programs," Page 102.

Film Studies Minor

The interdisciplinary 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. For more detailed information on the minor in film studies, refer to the section on "Interdisciplinary Programs," Page 106.

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 or 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. Larry Burton, Director

Phone: (540) 568-6004

Location: Harrison Hall, Suite 2276

E-mail: burtonlw@jmu.edu

Web site: <http://www.jmu.edu/wrtc>

Professors

L. Burton, M. Hawthorne, A. Philbin

Associate Professors

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J. Zimmerman, T. Zimmerman

Assistant Professors

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C. Martin

Mission Statement

The School of Writing, Rhetoric and Technical Communication seeks to equip students for academic and professional success as communicators in print and electronic media.

Goals

The goals of WRTC are to help students:

- Develop into accomplished writers and editors.
- Evaluate the effectiveness of communication based upon the principles of rhetoric.
- Develop proficiency in critical thinking, 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 concerns, not-for-profit or political organizations, and technical translation groups of multinational corporations.

Professional Activities and Organizations

e-Vision

In support of campus-wide writing, the program sponsors *e-Vision*, an electronic publication of student essays written in the first year composition classes. For ten years, students on the *e-Vision* editorial board have worked to give the engaging, provocative,

fundamentally useful essays written by *GWRTC* students the wider audience they deserve. *e-Vision* is produced by students. Students enrolled in the *e-Vision* internship (WRTC 495) develop the criteria used to evaluate essays, read and discuss each submission, and work individually with winning essayists to polish their work for publication at <http://www.jmu.edu/evision/>.

Internships

The WRTC internship is a required professional preparation for B.A. and B.S. students. It expects students to exercise the preparation that they received from their WRTC course work to design, write, edit and produce professional documents for internship providers in academia, business, industry and government. Information about internships may be obtained through the WRTC office .

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 comprised of over 23,000 individual members throughout the world, making it the largest organization of its kind. The JMU STC Student Chapter was established in the fall of 1999, offering students a venue for exploring networking and applied skills.

Service to the University

General Education

WRTC teaches several courses for JMU's General Education program. In Cluster One, *GWRTC* 103 (formerly *GWRT* 103) introduces students to academic writing and research, and prepares students for a writing-intensive experience in the disciplines. For information about how students may receive credit or exemptions for *GWRTC*, refer to the General Education Cluster One section of the catalog. In Cluster Two, faculty offer sections of *GHUM* 200, Great Works, among others.

English as a Second Language

WRTC 100 is available for English as a second language (ESL) students and others who wish to enhance their writing preparation prior to taking *GWRTC 103* (formerly *GWRT 103*).

Interdisciplinary Liberal Studies

WRTC faculty are active participants in creating and sustaining the Interdisciplinary Liberal Studies (IDLS) major for teacher education students, K-8. This includes advising students, developing and staffing IDLS 400, Capstone Seminar, and making WRTC courses available as electives to IDLS majors in the Humanities/Social Sciences concentration area.

Honors Program

WRTC faculty regularly offer honors sections of *GWRTC 103* (formerly *GWRT 103*).

Write On!

The Write On! academic writing contest is a campus-wide, writing in the disciplines initiative for undergraduate and graduate students who may submit writing produced in JMU classes (formal and informal essays, research papers, reports, etc.). The winning selections are published in an online collection at <http://www.jmu.edu/writeon/> and receive cash prizes.

Admission Requirements

Any student coming into JMU as a first year student without previous college experience may declare WRTC as a major. However, any student who has completed one semester at JMU or another university must apply to WRTC. To be admitted into the WRTC B.A. or B.S. program, students must first satisfy all university general admission requirements. In addition, applicants to the program must submit to the WRTC director an application dossier that contains the following material:

- A completed WRTC application form
- A copy of the student's degree progress report
- A background and goals statement of no more than 500 words that explains how the B.A. or B.S. program would prepare the student for his or her anticipated career

A student's SAT verbal, quantitative and analytical scores are considered in the admission process. Nonnative speakers of English must take the Test of English as a Foreign Language and receive a score of at least 550. Applicants may use letters of recommendation and writing samples to support an application for financial aid.

Major and Degree 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, web theory and design, publications management, knowledge management, organizational and managerial communication, and writing for professional communities such as government, medical and scientific.

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.

The B.A. and B.S. programs in WRTC are interdisciplinary and encourage students to take courses in a variety of fields. Many program electives are offered in academic units outside the institute, such as communication studies, computer information systems, computer science, integrated science and technology, and media arts and design. Students should check prerequisites for upper-level electives offered in other academic units. Students should also work with department advisers to design a program that fits their unique educational needs and career aspirations. Requirements of the WRTC degree might mean that some students will take courses beyond the 120 hour university requirement for B.A. and B.S. degrees.

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. Students are advised to begin the core requirements before selecting a concentration. 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 ¹	41
Foreign Language classes (intermediate level required) ²	0-14
Philosophy course (in addition to General Education courses)	3
University electives	23-37
Major requirements (listed below)	39
	<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 (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 ¹	41
Quantitative requirement ²	3
Scientific Literacy requirement ²	3-4
Major requirements (listed below)	39
University electives	33-34
	<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 In addition to course work taken to fulfill General Education requirement.

Major Requirements

All students must complete 12 hours of core requirements and then select electives and a depth requirement that complement their interests.

Major Requirements	Credit Hours	
Core Requirements	12	SCOM 332. Mediation
Concentration Requirements	18	SCOM 350. Organizational Communication
Students must choose a concentration in either technical and scientific communication or writing and rhetoric		SCOM 353. American Political Culture and Communication
Depth Requirement	9	SCOM 358. Business and Professional Communication Studies
Courses from a specified area depending on the chosen concentration		SCOM 431. Legal Communication
		SMAD 330. New Media Law
		SMAD 471. Media Ethics
	<hr/> 39	Communication Technologies
Core Requirements		WRTC 331. Technology and Writing
WRTC 200. Introduction to Studies in Writing, Rhetoric and Technical Communication	3	WRTC 355. Digital Rhetorics
Choose one:	3	WRTC 460. Beginning Topics in Online Publication
WRTC 210. Introduction to Technical and Scientific Communication ¹		WRTC 461. Intermediate Topics in Online Publication
WRTC 211. Written Argumentation ¹		WRTC 462. Advanced Topics in Online Publication
WRTC 240. Professional and Technical Editing	3	CIS 301. Information Technology Tools and Methods
WRTC 495. Internship	<hr/> 3	CIS 304. Information Technology
	12	SCOM 361. Public Relations II: Visual Research Methods
		SMAD 470. New Media and Society
		Research Methods and Special Topics
		WRTC 230. Research in Technical and Scientific Communication ¹
		WRTC 395. Practicum
		WRTC 480. Special Topics in Technical and Scientific Communication
		WRTC 490. Advanced Independent Study in Technical and Scientific Communication
		WRTC 499. Honors
		SCOM 280. Introduction to Communication Research
		SCOM 385. Qualitative Communication Research Methods

¹ This course meets the College of Arts and Letters writing-intensive requirement.

Concentrations

Technical and Scientific Communication

In addition to the core requirements for the WRTC major, technical and scientific communication concentrators will take 18 credits from the following list, 12 of which must be WRTC courses. No more than six hours may be at the 200-level and three hours must be at the 400-level.

Genres

WRTC 350. Science and Technology in Literature
WRTC 410. Government Writing
WRTC 411. Legal Writing
WRTC 412. Medical Writing
WRTC 413. Proposal Writing
WRTC 450. User Documentation
SCOM 367. Advanced Public Relations Writing

Rhetorical Theory

WRTC 311. Rhetorical Analysis
WRTC/SCOM 351. Visual Rhetoric
WRTC 430. Style and Stylistics
WRTC 481. Beginning Web Theory and Design
WRTC 482. Advanced Web Theory and Design
ENG 421. Traditional Grammar
ENG 422. Modern English Grammar
PHIL 250. Introduction to Symbolic Logic
PHIL 310. Symbolic Logic
SCOM 341. Persuasion
SCOM 342. Argument and Advocacy
SMAD 342. New Media and Society
SMAD 372. Media History

Organizational Context

WRTC 250. Ethical and Legal Issues in Technical and Scientific Communication
WRTC 320. Writing in the Public Sphere
WRTC 330. Intercultural Technical and Scientific Communication
WRTC/ISAT 360. Instructional Design and Training
WRTC 455. Managerial and Entrepreneurial Communication
MGT 481. Negotiation Behavior
SCOM 248. Intercultural Communication
SCOM 270. Introduction to Health Communication
SCOM 331. Communication and Conflict

Writing and Rhetoric Concentration

In addition to the core requirements for the WRTC major, writing and rhetoric concentrators must take WRTC 220, Rhetorical Traditions. Writing and rhetoric concentrators will take 15 credits from the following list, 9 of which must be WRTC courses. No more than six hours may be at the 200-level and three hours must be at the 400-level.

Genres

WRTC/ENG 290. Intermediate Composition
WRTC 350. Science and Technology in Literature
WRTC/ENG 396. Advanced Composition
WRTC 410. Government Writing
WRTC 411. Legal Writing
WRTC 412. Medical Writing
WRTC 413. Proposal Writing
SCOM 367. Advanced Public Relations Writing
SCOM 349. Ethnographic Approaches

Genres

WRTC/ENG 290. Intermediate Composition
WRTC 350. Science and Technology in Literature
WRTC/ENG 396. Advanced Composition
WRTC 410. Government Writing
WRTC 411. Legal Writing
WRTC 412. Medical Writing
WRTC 413. Proposal Writing
SCOM 367. Advanced Public Relations Writing
SCOM 349. Ethnographic Approaches

Rhetorical Theory

WRTC 311. Rhetorical Analysis
WRTC 340. Teaching Writing
WRTC 341. Composing Processes
WRTC 343. Contemporary Rhetorical Theory and Practice
WRTC/SCOM 351. Visual Rhetoric
WRTC/SCOM/WMST 420. Feminist Rhetorics
WRTC 421. Studies in Cultural Rhetoric
ENG 421. Traditional Grammar
ENG 422. Modern English Grammar
SCOM 341. Persuasion
SCOM 342. Argument and Advocacy

Organizational Context

WRTC 250. Ethical and Legal Issues in Technical and Scientific Communication
WRTC 310. Studies in Literacy
WRTC 320. Writing in the Public Sphere

WRTC 322. Service Learning Writing
WRTC 330. Intercultural Technical and Scientific Communication
WRTC 345. Tutoring Writing
SCOM 248. Intercultural Communication
SCOM 270. Introduction to Health Communication
SCOM 350. Organizational Communication
SCOM 353. American Political Culture and Communication
SCOM 431. Legal Communication
SCOM 358. Business and Professional Communication Studies
SCOM 331. Communication and Conflict
SMAD 330. New Media Law
SMAD 471. Media Ethics
Communication Technologies
WRTC 331. Technology and Writing
WRTC 355. Digital Rhetorics

Research Methods and Special Topics

WRTC 230. Research in Technical and Scientific Communication ¹
WRTC 395. Practicum
WRTC 400. Special Topics Seminar in Rhetoric and Writing
WRTC 490. Advanced Independent Study in Writing, Rhetoric and Technical Communication
SCOM 280. Introduction to Communication Research
SCOM 385. Qualitative Communication Research Methods

¹ This course meets the College of Arts and Letters writing-intensive requirement.

Depth Requirement

All WRTC students must complete a depth requirement in an area related to the WRTC concentration. A depth requirement is 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.

Students concentrating in TSC must satisfy a nine-hour minimum depth requirement. Six hours must be at the 300 and 400 level. Students should consult the major adviser for a list of eligible areas and courses. These nine credits may not be double counted toward General Education requirements. Courses not appearing on the list may be eligible for substitution if the adviser is consulted ahead of time. Students who are double majoring or minoring in areas outside WRTC will automatically satisfy the depth requirement if the major or minor area is approved for that concentration.

Students concentrating in writing and rhetoric must declare a minor to satisfy their depth requirement.

**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 ¹	3-4
General Education Cluster One	9
General Education Cluster Three	3
	<hr/> 15-16

Second Semester	Credit Hours
Foreign Language course	3-4
WRTC 200. Introduction to Studies in Writing, Rhetoric and Technical Communication	3
General Education Cluster Three course	3
General Education courses	6
	<hr/> 15-16

Second Year

First Semester	Credit Hours
Foreign Language course	0-3
WRTC 210. Introduction to Technical and Scientific Communication or WRTC 211. Written Argumentation	3
WRTC elective	3
B.A. Degree philosophy course	3
General Education Cluster Three course	4
General Education courses	0-6
	<hr/> 16

Second Semester

Foreign Language course	0-3
WRTC elective	3
General Education course	3
University electives	9
	<hr/>
	15-18

Third Year

First Semester	Credit Hours
WRTC elective	3
B.A. cognate elective	3
General Education courses	6
University elective	3
	<hr/> 15

Second Semester

WRTC elective course	3
B.A. cognate elective	3
General Education courses	3-6
University electives	6
	<hr/>
	15-18

Fourth Year

First Semester	Credit Hours
WRTC electives	6
B.A. cognate elective	3
University electives	6-9
	<hr/> 15-18

Second Semester

WRTC elective	3
WRTC 495. Internship	3
University electives	9
	<hr/>
	15

¹ 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	9
General Education Cluster Three	3-6
General Education courses	3
	<hr/> 15-18

Second Semester

Second Semester	Credit Hours
WRTC 200. Introduction to Studies in Writing, Rhetoric and Technical Communication	3
General Education Cluster Three	3-4
General Education courses	9
	<hr/> 15-16

Second Year

First Semester	Credit Hours
WRTC 210. Introduction to Technical and Scientific Communication or WRTC 211. Written Argumentation	3
WRTC elective	3
General Education Cluster Three	0-4
General Education courses	6-9
	<hr/> 15-16

Second Semester

Second Semester	Credit Hours
WRTC elective	3
B.S. Quantitative requirement	3
General Education courses	9
	<hr/> 15

Third Year

First Semester	Credit Hours
WRTC electives	6
B.S. cognate elective	3
B.S. Scientific Literacy requirement ¹	3
University elective	3
	<hr/> 15

Second Semester

Second Semester	Credit Hours
WRTC elective	3
B.S. cognate elective	3
University electives	9
	<hr/> 15

Fourth Year

First Semester	Credit Hours
WRTC elective	3
B.S. cognate elective	3
University electives	9
	<hr/> 15

Second Semester	Credit Hours
WRTC electives	3
B.S. cognate elective	0-3
University electives	7-9
	<hr/> 13-15

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. A student may double-count this course as one of the courses needed for the cognate with approval by the TSC director.

Minor Requirements

Technical and Scientific Communication

The minimum requirement for a TSC minor is 18 credit hours. Nine of the 18 hours must include WRTC 210, Introduction to Technical and Scientific Communication; WRTC 230, Research in Technical and Scientific Communication; and WRTC 240, Professional and Technical Editing. The remaining nine hours may be from any upper-level WRTC elective. In the three required courses (WRTC 210, WRTC 230 and WRTC 240) the student must make a "C" or better. If the student does not, he or she may not register for future WRTC courses until a grade of "C" or better is earned in those courses. Students majoring in disciplines within the School of Media Arts and Design or the School of Communication Studies can count no more than three hours of SMAD or SCOM course work toward the TSC minor.

Writing and Rhetoric

The minor in writing and rhetoric is designed for students who wish to extend, enrich and formalize their education as writers.

The minimum requirement for the minor is 18 credit hours.

	Credit Hours
Required core courses:	6
WRTC 211. Critical Reading and Argumentation	
WRTC 220. Rhetorical Traditions	
Electives from among the following:	12
At least one elective must be at the 400 level.	
WRTC/ENG 290. Intermediate Composition	
WRTC 310. Studies in Literacy	
WRTC 320. Writing in the Public Sphere	
WRTC 322. Making a Difference: Service Learning Writing	
WRTC 331. Technology and Writing	
WRTC 340. Teaching Writing	
WRTC 345. Tutoring Writing	
WRTC /SCOM 351. Visual Rhetoric	
WRIT/ENG 396. Advanced Composition	
WRTC 400. Special Topics Seminar in Rhetoric and Writing	
WRTC 421. Studies in Cultural Rhetorics	
WRTC /SCOM/WMST 420. Feminist Rhetorics	
WRTC 430. Style and Stylistics	
WRTC 495. Internship	
	<hr/> 18

Experimental WRTC courses may be counted as electives, as well as writing courses offered by other academic units with the approval of the writing minor adviser or the program director.

Accounting

College of Business

ACTG 244. Accounting for Non-Business Majors. 3 credits. *Offered fall and spring.*

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 open to College of Business majors.*

ACTG 302. Introduction to the Profession: Role of Accountants. 1 credit. *Offered fall.*

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. *Prerequisite: Completion of both COB 241 and COB 242 with a "B" or better. Prerequisite or corequisite: COB 300.*

ACTG 303. Basic Spreadsheet Skills for Accountants. 1 credit. *Offered fall and spring.*

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: Completion of both COB 241 and COB 242 with a "B" or better. Prerequisite or corequisite: COB 300.*

ACTG 304. Advanced Spreadsheet Skills for Accountants. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.* 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. *Prerequisites or corequisite: ACTG 303. Prerequisite: ACTG 343 with a grade of "C-" or better.*

ACTG 343. Corporate Financial Reporting I. 3 credits. *Offered fall and spring.* 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. *Prerequisites: Completion of both COB 241 and COB 242 with grades of "B" or better. Prerequisite or corequisite: COB 300.*

ACTG 344. Corporate Financial Reporting II. 3 credits. *Offered fall and spring.* 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. *Offered fall and spring.* 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: COB 300. Prerequisite: Completion of both COB 241 and COB 242 with grades "B" or better.*

ACTG 410. Auditing. 3 credits. *Offered fall and spring.* 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. *Offered fall.*

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 445. Selected Accounting and Reporting Topics. 3 credits. *Not currently offered.*

Focuses on the development and use of financial information as it relates to business combinations, governmental and public not-for-profit entities, and transactions and statements denominated in foreign currencies. In the context of the global accounting environment, students critically evaluate U.S. generally accepted accounting principles as they pertain to the topics covered. *Prerequisite: ACTG 343 with a grade of "C-" or better.*

ACTG 450. Governmental and Nonprofit Accounting and Reporting. 3 credits. *Not currently offered.*

Focuses on budgeting, accounting and financial reporting principles associated with private and public nonprofit organizations. Includes survey of state, local, municipal and federal government accounting. *Prerequisite: ACTG 343 with grade of "C-" or better. Prerequisite or corequisite: ACTG 344.*

ACTG 475. Accounting Decision Making and Control. 3 credits. *Offered fall and spring.*

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. *Offered fall.*

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. *Prerequisites: COB 300. Open to international business majors only.*

ACTG 490. Special Studies in Accounting. 1-6 credits each semester. *Offered fall and spring.*

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. *Year course. Offered fall and spring.*

See catalog section entitled "Graduation with Distinction" and "Graduation with Honors."

Africana Studies

Cross Disciplinary Studies

GAfst 200. Introduction to Africana Studies. 3 credits. *Offered fall and spring.*

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.

AFST 489. Africana Studies Senior Research Experience. 1 credit. *Offered fall and spring.*

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: GAfst 200, senior standing and permission of instructor.*

AIRS

College of Education

AIRS 001. Leadership Laboratory. 0 credits. *Offered fall and spring.*

This course is a mandatory laboratory in leadership and followership development for 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. *Prerequisite: Permission of the instructor. Corequisite: Any Air Force ROTC class.*

AIRS 110. The Foundations of the United States Air Force. 1 credit.

Offered fall and spring.

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. Students interested in joining Air Force ROTC should also register for AIRS 001, Leadership Laboratory. *Prerequisite: Permission of the instructor.*

AIRS 120. The Foundations of the United States Air Force. 1 credit.

Offered fall and spring.

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. Students interested in joining Air Force ROTC should also register for AIRS 001, Leadership Laboratory. *Prerequisite: Permission of the instructor.*

AIRS 210. The Evolution of Air and Space Power. 1 credit. *Offered fall and spring.*

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. Students interested in joining Air Force ROTC should also register for AIRS 001, Leadership Laboratory. *Prerequisite: Permission of the instructor.*

AIRS 220. The Evolution of Air and Space Power. 1 credit. *Offered fall and spring.*

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. Students interested in joining Air Force ROTC should also register for AIRS 001, Leadership Laboratory. *Prerequisite: Permission of the instructor.*

AIRS 310. Concepts of Air Force Leadership and Management.

3 credits. *Offered fall and spring.*

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. *Prerequisite: Permission of the instructor.*

AIRS 320. Concepts of Air Force Leadership and Management.

3 credits. *Offered fall and spring.*

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. *Prerequisite: Permission of the instructor.*

AIRS 410. National Security Affairs/Preparation for Active Duty.

3 credits. *Offered fall and spring.*

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. *Prerequisite: Permission of the instructor.*

AIRS 420. National Security Affairs/Preparation for Active Duty.

3 credits. *Offered fall and spring.*

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. *Prerequisite: Permission of the instructor.*

American Studies

Cross Disciplinary Studies

GAMST 200. Introduction to American Studies. 3 credits. *Offered fall and spring.*

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.

AMST 490. Special Studies in American Studies. 3 credits. *Offered fall and spring.*

Independent study of a topic appropriate to the interdisciplinary method of American studies.

Anthropology

Department of Sociology and Anthropology

KEY

A=Archaeology	F=Field Experience
B=Biological Anthropology	R=Required for All Anthropology Majors
C=Cultural Anthropology	W=Writing Intensive

GANTH 195. Cultural Anthropology. 3 credits (C,R). *Offered fall and spring.*

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.

GANTH 196. Biological Anthropology. 3 credits (B,R). *Offered fall and spring.*

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.

ANTH 197. Archaeology. 3 credits (A,R). *Offered fall and spring.*

An introduction to archaeology through a survey of the major developments in human cultural evolution focusing on the transition from foraging to agricultural and state-level systems. An examination of the origins and nature of Old and New World civilizations and an overview of archaeological methods and theories are also included.

ANTH 201. The Discipline of Anthropology. 3 credits. *Offered as needed.*

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 instructor. It is recommended that students have had at least one of the introductory-level ANTH courses (GANTH 195, GANTH 196 or ANTH 197).*

GANTH 205. Buried Cities, Lost Tribes: The Rise and Fall of Early Human Societies. 3 credits. *Offered once a year.*

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.

ANTH 250. Anthropology of the American Southwest. 3 credits (A,C).*Offered fall.*

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). *Offered every three semesters.*

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).*Offered fall.*

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. Anthropology of Diet and Nutrition. 3 credits (B,C). *Offered every three semesters.*

An evolutionary and cross-cultural perspective on diet and nutrition in human populations. Focus on how and why people choose what to eat, the range and significance of cross-cultural variability in diet, how diets have changed in the evolutionary and recent past, and the health and social significance of those changes. *Prerequisite: Any lower-level course in anthropology or permission of the instructor.*

ANTH/SCOM 305. Language and Culture. 3 credits. *Offered once a year.*

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 310. Prehistoric and Pioneer Virginia. 3 credits (A). *Offered fall.*

A study of the development and diversity of Indian society in Virginia, the initial European settlement and westward expansion. Economic and social problems of initial settlement and the interaction between European and Indian cultures is emphasized.

ANTH 312. The Native Americans. 3 credits (C). *Offered every three semesters.*

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/SOCI 313. Processes of Social and Cultural Change. 3 credits(A,C). *Offered spring.*

Investigates the procedures through which a society operates and the manner in which it introduces and incorporates changes. Issues considered include belief, innovation, directed change, coercive change, revitalization and revolution.

ANTH 315. Human Evolution. 3 credits (B). *Offered every three semesters.*

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: GANTH 196, or BIO 114 and BIO 124, or permission of the instructor.*

ANTH 322. Human Variation and Adaptation. 3 credits. *Offered once every two years.*

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: GANTH 196 or consent of instructor.***ANTH 323. Visual Anthropology.** 3 credits. *Offered once a year.*

This course explores the anthropological use of visual data for the description, analysis, communication and interpretation of human behavior. Topics include biological, cross-cultural and historical understandings of vision; the social life of visual things; visual cultural production and consumption; and visibility after colonialism, globalization, and postmodernity.

ANTH 325. Aztec, Maya and Their Predecessors. 3 credits (A,C).*Offered every two semesters.*

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). *Offered every three semesters.*

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). *Offered spring.*

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 or HIST equivalent.***ANTH 333. Celts, Vikings and Tribal Europe: Art and Culture from 500 to 1100 AD.** 3 credits. *Offered every three semesters.*

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 AD to 1100 AD.

ANTH 340. The Invention of Race. 3 credits (C). *Offered every three semesters.*

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). *Offered fall.*

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). *Offered every three semesters.*

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 355. Culture and Ecology. 3 credits (C). *Offered spring.*

A comparative study of cultures from an ecological perspective. The course focuses on the effects of climate, environment and population interaction on shaping and determining human behavior. Basic ecological concepts and theories are introduced as they relate to the study and explanation of human behavior.

ANTH 360. Medical Anthropology. 3 credits (B,C). *Offered every three semesters.*

The evolutionary, ecological and sociocultural context of health and disease. A multi-level, cross-cultural exploration of disease including genetic and macro-level social inputs. Topics include Darwinian medicine, cultural ecology of infectious disease, including emergent diseases, the biology of poverty, maternal-child health and the history of global health problems. *Prerequisite: GANTH 195, GANTH 196 or permission of the instructor.*

ANTH 362. Evolution of the Human Brain. 3 credits. *Offered once every two years.*

A review of the evolution of the brain, focusing on the human species. The fossil evidence and current controversies and theories about human brain evolution will be covered, including the possible role of language, tool use, sociality and dietary shifts. Sex differences in brain and behavior, the evolution of consciousness, human ethics, and morals will also be discussed. *Prerequisite: GANTH 196 or consent of instructor.*

ANTH 364. U.S./Latin American Borders. 3 credits (C). *Offered every three semesters.*
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. *Prerequisite: One course on Latin America.*

ANTH 366. Anthropology of War. 3 credits (A,C). *Offered every three semesters.*
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). *Offered occasionally.*
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). *Offered every three semesters.*

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 bicultural perspectives.

ANTH 373. Anthropological Perspectives on Environment and Development. 3 credits (C). *Offered spring.*

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: GANTH 195 or permission of the instructor.*

ANTH 375. History of Theory in Sociocultural Anthropology. 3 credits (C,R,W). *Offered fall and spring.*

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: GANTH 195 and junior standing.*

ANTH 382. Cultures of Appalachia. 3 credits (C). *Offered occasionally.*

An overview of the peoples, cultures and special problems of the Appalachian region.

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 credit hours (C,F). *Offered summer.*

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. *Prerequisites: Permission of department head.*

ANTH 395. Special Topics in Anthropology. 3 credits (May be A,B or C). *Offered occasionally.*

Examination of selected topics which are of current importance to anthropology. May be taken for a maximum of six hours credit toward the major.

ANTH 410. Spatial Analysis for Anthropologists. 4 credits. (A,B and C). *Offered every three semesters.*

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. *Prerequisites: GANTH 195, GANTH 196 or ANTH 197.*

ANTH 420. Evolution of Human Behavior. 3 credits (B). *Offered spring.*

An exploration of human behavior from an evolutionary perspective. Darwinism, life history theory and the fundamentals of heredity will be reviewed and employed in the analysis of human behavior from bipedalism

to morality. Data from the fossil and archeological records, genetics, non-human primate studies, and ethnographic fieldwork will be used. *Prerequisite: GANTH 196 or permission of the instructor.*

ANTH 435. Ethnographic Genres and Methods. 4 credits (C,F). *Once a year.*

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.

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 instructor.*

ANTH 455. Archaeology: Methods of Analysis and Interpretation.

4 credits (A,F). *Offered spring.*

A review of the nature of inquiry, recent theory and the means by which archaeologists 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: GANTH 195 and ANTH 197.*

ANTH 485. Anthropology Course Assistantship. 1-6 credits, only 3 of which can apply to the major (May be A,B or C). *Offered fall and spring.*

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 s/he will serve as assistant, and may register by faculty invitation only.*

ANTH 486. Internship in Anthropology. 1-6 credits (May be A,B or C).

Offered fall and spring.

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.*

ANTH 490. Special Studies in Anthropology. 1-3 credits (May be A,B or C).

Offered fall and spring.

Course offers students an opportunity to do independent study under staff supervision. Admission only by recommendation of the instructor and permission of the department head.

ANTH/ARTH/HIST 492. American Material Culture. 3 credits (A).

Offered every two semesters.

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). *Offered summer.*

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. 2 or 4 credits (A). *Offered fall and spring.*
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 A,B,C. Honors. 6 credits. Year course (May be A,B or C).

Offered fall and spring.

An independent research topic initiated and completed by qualified senior majors who want to graduate with distinction.

Arabic

Department of Foreign Languages, Literatures and Cultures **ARAB 101-102. Elementary Arabic (4, 1).** 4 credits each semester.

Offered fall and spring.

The fundamentals of Modern Standard Arabic through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour of work a week in the language laboratory.

ARAB 111-112. Intensive Arabic. 6 credits each semester. *Offered May and June.*

The fundamentals of Arabic through listening, speaking, reading and writing. The first semester is the equivalent of ARAB 101-102 and the second is equivalent to ARAB 231-232. Offered May and June summer term only.

ARAB 231-232. Intermediate Arabic. 3 credits each semester. *Offered fall and spring.*

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Arabic or equivalent.*

ARAB 300. Arabic Grammar and Communication. 3 credits. *Offered fall.*

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 232.*

ARAB 320. Arabic Oral and Written Communication. 3 credits.

Offered spring.

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.*

ARAB 400. Arabic Advanced Conversation. 3 credits. *Offered fall.*

Discussions deal with topics of current interest. *Prerequisite: ARAB 320.*

Art

School of Art and Art History

ART 102. Two-Dimensional Design (0, 6). 3 credits. *Offered fall and spring.*

Application and appreciation of the principles and elements of design, with emphasis on line, form, color and texture as applied to two-dimensional space. Formerly ART 140.

ART 104. Drawing I (0, 6). 3 credits. *Offered fall and spring.*

An introductory course composed of problems in landscape, perspective, figure and still-life in several media. Formerly ART 160.

ART 106. Three-Dimensional Design (0, 6). 3 credits. *Offered fall and spring.*

A course exploring the basic problems in three-dimensional design. Formerly ART 240.

ART 108. Drawing II (0, 6). 3 credits. *Offered fall and spring.*

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 or permission of the instructor. Formerly ART 260.*

GART 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.

ART 205. Foundations Seminar. 3 credits. *Offered fall and spring.*

A required course for studio art majors focused on the exploration and exchange of ideas related to embarking on a studio art 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 Web site and digital portfolio. *Corequisites: ART 102, ART 106 and GARTH 206. Formerly ART 280.*

ART 210. Animation: 3-D Modeling (0, 9). 3 credits. *Offered fall and spring.*

An introduction to the techniques of 3-D modeling in computer animation. Lectures, demonstrations and projects will involve the professional gaming and animation studios' methods of modeling digital characters and objects. *Prerequisites: ART 102 and ART 104. Formerly ART 348.*

ART 212. Animation: 3-D Character Animation (0, 9). 3 credits. *Offered fall and spring.*

An introduction to the techniques of 3-D animation. Lectures, demonstrations and projects will involve the professional gaming and animation studios' methods of animating digital characters, objects and dynamic forces. *Prerequisites: ART 102 and ART 104. Formerly ART 349.*

ART 220. Introductory Ceramics: Potter's Wheel (0, 9). 3 credits.

Offered fall and spring.

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. Formerly ART 225.*

ART 222. Introductory Ceramics: Handbuilding (0, 9). 3 credits.

Offered fall and spring.

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. Formerly ART 226.*

ART 230. Weaving and Other Fiber Arts (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 321.*

ART 240. Metal and Jewelry (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 322.*

ART 242. Color Theory (0, 6). 3 credits. *Offering varies.*

An exploration of the nature and theories of color. Students will study the expressive and symbolic qualities of master colorists and apply this knowledge to theoretical and practical problems. *Prerequisite: ART 102.*

ART 260. Introductory Photography: Black and White (0, 9). 3 credits.

Offered fall and spring.

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. Formerly ART 255.*

ART 270. Printmaking: Screenprint (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 352.*

ART 272. Printmaking: Relief, Intaglio and Monotype (0, 9). 3 credits.

Offered fall and spring.

An introduction to the history and techniques of relief, intaglio and monotype 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. *Prerequisites: ART 102 and ART 104. Formerly ART 353.*

ART 274. Printmaking: Lithography (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 354.*

ART 280. Sculpture (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 335.*

ART 304. Methods of Art Criticism. 3 credits. *Offered fall and spring.*

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. *Formerly ART 317.*

ART/PHIL 305. Seminar in Aesthetics. 3 credits. *Offered fall and spring.*

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: GART 200, GARTH 205, GARTH 206 or GPHIL 101. Formerly ART 380.*

ART 310. Special Effects. 3 credits. *Offered fall and spring.*

A studio and lecture course exploring various techniques for creating computer graphics events. Special effects may include smoke, fire, explosions, rocket/comet trails, lava, particles, hard and soft body dynamics, shattered objects, and more. *Prerequisites:* ART 102 and ART 104.

ART 313. Introduction to Art Therapy (1, 4). 3 credits. *Offered fall and spring.*

A survey dealing with the origins, historical development and major theoretical trends in the field of art therapy. Examines a variety of patient/client populations and treatment approaches. Visits to institutional settings will be included. Intended primarily for students in the arts, education and social sciences.

ART 322. Intermediate Ceramics: Surface Development (0, 9). 3 credits.

Offered spring.

Research and experimentation with ceramic materials and finishes, glaze formulation, and application for finishing ceramic artwork. Forming processes may include any combination of the potters wheel, handbuilding and mold making. *Prerequisite:* ART 220 or ART 222 or by permission. Formerly ART 326.

ART 323. Papermaking (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

A creative approach to handmade paper as an art medium. Emphasis will be on one-of-a-kind pieces. Cast paper, mould and deckle, mould formation, collage and assemblage techniques will be explored. *Prerequisites:* ART 102 and ART 104.

ART 320 Intermediate Ceramics: Molds & Casting (0, 9). 3 credits. *Offered fall.*

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. *Prerequisites:* ART 220 or ART 222 or by permission.

ART 328. Stained Glass (0, 9). 1-3 credits, repeatable. *Offering varies.*

A comprehensive course in the design and construction of stained glass panels or windows. Traditional glazing techniques of lead came and copper foil will be explored, as well as epoxy resin bonding of dalle de verre. Glass surface decorating techniques of sandblasting, etching, plating, fusing, glue chipping and painting will be demonstrated. *Prerequisites:* ART 102 and ART 104.

ART 330. Intermediate Weaving and Other Fiber Arts (0, 9). 3 credits.

Offered fall and spring.

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. Formerly ART 331.

ART 340. Intermediate Metal and Jewelry (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

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 or permission of the instructor. Formerly ART 333.

ART 350. Figure Drawing (0, 9). 3 credits. *Offered fall and spring.*

An introductory course with problems stressing the fundamental skills, approaches and concepts involved in drawing the human figure. *Prerequisites:* ART 104 and ART 108. Formerly ART 360.

ART 352. Painting (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 362.

ART 354. Watercolor (0, 9). 3 credits. *Offering varies.*

Study of and practice in transparent and opaque watercolor techniques. *Prerequisites:* ART 102 and ART 104. Formerly ART 366.

ART 360. Intermediate Photography: Experimental Black and White (0, 9). 3 credits. *Offered fall.*

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. Formerly ART 356.

ART 362. Intermediate Photography: Digital (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 357.

ART 364. Intermediate Photography: Large Format (0, 9). 3 credits.

Offered spring.

An exploration of medium format and view camera techniques, film exposure, and advanced black and white printing. *Prerequisite:* ART 260. Formerly ART 358.

ART 380. Intermediate Sculpture (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly ART 336.

ART 390. Independent Studies in Art. 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.

ART 392. Topics in Art. 3 credits. *Offering varies.*

Study of selected topics in art at the intermediate level. May be repeated when course content changes. See e-campus for current topics. Formerly ART 389.

ART 410. Advanced Animation (0, 9). 3 credits, repeatable. *Offered fall and spring.*

An advanced study of the complex aspects of natural human movement and expressions as they relate to the field of 3-D computer animation. This is a lecture/studio class in which complex character modeling and animation will be explored. The goal is to create original models that move and express themselves similarly to those found in the movie industry. *Prerequisite:* ART 210. Formerly ART 448.

ART 420. Advanced Ceramics: Portfolio Development (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

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. Formerly ART 425.

ART 430. Advanced Fiber Arts (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

A series of fiber projects selected by the student with the approval of the instructor. *Prerequisite:* ART 330. Formerly ART 421.

ART 440. Advanced Metal and Jewelry (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

A series of metal arts projects selected by the student with the approval of the instructor. *Prerequisite:* ART 340. Formerly ART 422.

ART 450. Advanced Figure Drawing. 1-3 credits, repeatable. *Offered once a year.*

An advanced drawing course stressing inventive and in-depth approaches to portraying the human figure. *Prerequisite:* ART 350. Formerly ART 460.

ART 452. Advanced Painting (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

Advanced problems in media selected by the student with the advice of the instructor. *Prerequisite:* ART 352. Formerly ART 462.

ART 454. Advanced Watercolor (0, 9). 1-3 credits, repeatable. *Offering varies.*

Advanced problems in the use of watercolor and related water-based media. *Prerequisite:* ART 354. Formerly ART 466.

ART 460. Advanced Photography: Alternative Processes (0, 9). 1-3 credits, repeatable. *Offered spring.*

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. Formerly ART 455.

ART 462. Advanced Photography: Color (0, 9). 1-3 credits, repeatable. *Offered fall.*

Advanced study in color photography. *Prerequisite:* ART 360, ART 362 or ART 364. Formerly ART 457.

ART 464. Photography: Portfolio Development (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

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. Formerly ART 458.

ART 470. Advanced Printmaking (0, 9). 1-3 credits, repeatable. *Offered fall and spring.*

Advanced projects in printmaking to be determined by the student and instructor. *Prerequisite:* ART 270, ART 272 or ART 274 as appropriate. Formerly ART 454.

ART 480. Advanced Sculpture (0, 9). 1-3 credits, repeatable. *Offered fall and spring.* 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. Formerly ART 435.*

ART 490. Independent Studies in Art. 1-3 credits, repeatable. *Offered fall and spring.* 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. *Offered fall and spring.* 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. *Prerequisites: 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 e-campus for current topics.

ART 494. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits. *Offering varies.*

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. Formerly ART 450.*

ART 496. Internship in Art. 1-8 credits. *Offered fall and spring.* 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.*

ART 499. Honors. 6 credits total for three semesters (1, 3, 2). *Offered fall and spring.*

Art Education

School of Art and Art History

ARED 300. Art Activities in the Elementary School. (1, 4). 3 credits. *Offered fall and spring.*

A study of the aims and philosophy of art education in elementary school with an emphasis on child growth and development through art. Experience with art techniques and materials suitable from nursery school through grade eight with emphasis on appropriate motivational and teaching methods. Includes intensive field experiences for elementary grade levels. *Formerly ART 310.*

ARED 302. Secondary Art Education Methods. 3 credits. *Offered fall and spring.*

The study of art education methods, philosophy and contemporary practices as related to the middle and senior high school in public education. Includes class presentations, observation and practicum in the secondary grades. *Prerequisites: PSYC 270 and EDUC 360. Formerly ART 311.*

ARED 390. Independent Studies in Art Education. 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.

ARED 392. Topics in Art Education. 3 credits. *Offering varies.* Study of selected topics in art education at the intermediate level. May be repeated when course content changes. See e-campus for current topics. *Formerly ART 389.*

ARED 400. Visual Arts Across the Curriculum (1, 4). 3 credits. *Offered fall and spring.*

Explores ways in which the art teacher can promote relationships between 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 field experiences at the middle grade level. *Formerly ART 318.*

ARED 490. Independent Studies in Art Education. 1-3 credits, repeatable. *Offered fall and spring.*

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.

ARED 491. Studio Assistant. 1-3 credits, repeatable. *Offered fall and spring.* 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. *Prerequisites: Permission of the instructor.*

ARED 496. Internship in Art Education. 1-8 credits. *Offered fall and spring.* 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 494 if in museums and galleries.*

Art History

School of Art and Art History

GARTH 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.

GARTH 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.

ARTH 210. African Art and Culture in the Humanities. 3 credits. *Offered fall and spring.*

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. May be counted as **GHUM 252**.

ARTH 300. Art History Seminar. 3 credits. *Offered fall and spring.*

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. Fulfills the College of Visual and Performing Arts writing-intensive requirement for the major. *Prerequisite: GARTH 205, GARTH 206 or permission of the instructor.*

ARTH 303. History of Design. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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: GARTH 205 or GARTH 206.*

ARTH 310. African Art: The Sahara and Northern Sahel. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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: GARTH 205, GARTH 206 or permission of instructor.*

ARTH 313. Masterpieces of Italian Renaissance Art. 3 credits.

(Semester in Florence only.) Offered fall and spring.

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 only.) Offered fall and spring.*

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 315. Masterpieces of British Architecture. 3 credits. *(Semester in London only.) Offered fall and spring.*

This history and theory of British architecture from prehistoric to modern times. Weekly visits to the British Museum, Hampton Court, Avebury, Bath, Chiswick, the Victoria Albert Museum and other monuments.

ARTH 316. Masterpieces of British Art. 3 credits. *(Semester in London only.) Offered fall and spring.*

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 317. Masterpieces of French Art. 3 credits. *(Semester in Paris only.) Offered fall and spring.*

A survey of French art from the Middle Ages to the modern day. Weekly visits to the major museums of Paris including the Louvre, the Musee D'Orsay, Cluny and Centre Pompidou.

ARTH 320. Travel Study in Art History. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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: GARTH 205 or permission of the instructor.*

ARTH 340. Early Medieval Art. 3 credits. *Offered fall and spring.*

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: GARTH 205 or permission of the instructor.*

ARTH 346. Italian Renaissance Art. 3 credits. *Offered fall and spring.*

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: GARTH 206 or permission of the instructor.*

ARTH 360. Nineteenth Century Art. 3 credits. *Offered fall and spring.*

A study of European art (1750-1890) concentrating on Neoclassicism, Romanticism, Realism, Impressionism and Post-Impressionism in France. *Prerequisites: GARTH 206 or permission of the instructor.*

NDE 370. History of Interior Design. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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: GARTH 206 or permission of the instructor.*

ARTH 376. Modern Architecture. 3 credits. *Offered fall and spring.*

A study of European and American architecture from 1750 to the present day. Twentieth-century architects, such as Frank Lloyd Wright, Le Corbusier and Mies van der Rohe are emphasized. *Prerequisites: GARTH 206 or permission of the instructor.*

ARTH 380. American Art to 1870. 3 credits. *Offered fall and spring.*

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. *Prerequisites: GARTH 206 or permission of the instructor.*

ARTH 382. American Art from 1870. 3 credits. *Offered fall and spring.*

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. *Prerequisites: GARTH 206 or permission of the instructor.*

ARTH 389. Topics in Art History. 3 credits. *Offering varies.*

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 e-campus for current topics.

ARTH 390. Independent Studies in Art History. 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 director.

ARTH/HIST 394. Introduction to Museum Work. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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/HIST 408. The Museum: Histories and Controversies. 3 credits.

Offered every other spring as of spring 2007.

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: GARTH 206 or permission of instructor.*

ARTH 410. African Art: The Sahara and Northern Sahel. 3 credits.

Offered fall and spring.

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 419. Topics in African Art. 3 credits. *Offered fall and spring.*

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. *Prerequisite: GARTH 205, GARTH 206, ARTH 210 or permission of the instructor.*

ARTH 424. Arts of Ancient Egypt. 3 credits. *Offered fall and spring.*

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: GARTH 205 or GARTH 206.*

ARTH 430. Far Eastern Art. 3 credits. *Offered fall and spring.*

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: GARTH 205 or GARTH 206.*

ARTH 442. Art of Later Middle Ages. 3 credits. *Offered fall and spring.*

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: GARTH 205 or permission of the instructor.*

ARTH 444. Gothic and Gothic Revival Architecture. 3 credits. *Offered fall and spring.*

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: GARTH 205, GARTH 206 or permission of the instructor.*

ARTH 448. Studies in Leonardo and Michelangelo. 3 credits. *Offered fall and spring.*

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: GARTH 206 or permission of the instructor.*

ARTH 449. Topics in Renaissance Art. 3 credits. *Offered fall and spring.*

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: GARTH 206 or permission of the instructor.*

ARTH 450. Baroque Art. 3 credits. *Offered fall and spring.*

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: GARTH 206 or permission of the instructor.*

ARTH 452. Eighteenth Century Art. 3 credits. *Offered fall and spring.*

A 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: GARTH 206 or permission of the instructor.*

ARTH 459. Topics in Seventeenth and Eighteenth Century Art. 3 credits. *Offered fall and spring.*

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. *Prerequisite: GARTH 206 or permission of the instructor.*

ARTH 466. Art and Nationalism. 3 credits. *Offered every other fall.*

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: GARTH 205, GARTH 206 or permission of the instructor.*

ARTH 469. Topics in Nineteenth Century Art. 3 credits. *Offered fall and spring.*

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. *Prerequisite: GARTH 206.*

ARTH 472. Modern Art Since 1945. 3 credits. *Offered fall and spring.*

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: GARTH 206 or permission of the instructor.*

ARTH 474. The New Media and Contemporary Art. 3 credits. *Offered fall and spring.*

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, ARTH 472 or permission of the instructor.*

ARTH 476. Modern Architecture. 3 credits. *Offered fall and spring.*

Survey of architecture from 1851 to the present day. Thematic investigations will include regional, philosophical and technical developments in architectural space. Architects may include Labrousse, Berlage, Wagner and Richardson, through Wright, Mies, Le Corbusier, to the avant-garde Muncutt, Siza, Nouvel and Mockbee. *Prerequisite: GARTH 206 or permission of the instructor.*

ARTH 479. Topics in Twentieth Century Art. 3 credits. *Offered fall and spring.*

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. *Prerequisite: ARTH 372, ARTH 472 or permission of the instructor.*

ARTH 480. American Art to 1870. 3 credits. *Offered fall and spring.*

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: GARTH 206 or permission of instructor.*

ARTH 482. American Art from 1870. 3 credits. *Offered fall and spring.*

American painting, sculpture, architecture and decorative arts from 1870 to 1945. The 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: GARTH 206 or permission of instructor.*

ARTH 484. Art of the Americas. 3 credits. *Offered fall and spring.*

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/HIST 486. Monticello. 3 credits. *Offered fall and spring.*

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.*

ARTH 489. Topics in Art History. 3 credits. *Offered fall and spring.*

Study of selected topics in art history at the advanced level. May be repeated when course content changes. See e-campus for current topics.

ARTH 490. Independent Studies in Art History. 1-3 credits, repeatable.

Offered fall and spring.

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/ANTH/HIST 492. American Material Culture. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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/HIST 494. Introduction to Museum Work. 3 credits. *Offered fall and spring.*

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.

ARTH 495. Internship in Art History. 1-3 credits. *Offered fall and spring.*

An off-campus program prepared and monitored on an individual basis. Internships are designed to provide practical experience in the arts. Offered only with the consent of the instructor and the director. ARTH 394 is a prerequisite for internships in museums and galleries. *Prerequisites: Permission of the instructor. ARTH 394 if in museums and galleries.*

ARTH 499. Honors. 6 credits total for three semesters (1, 3, 2). *Offered fall and spring.*

Astronomy

Department of Physics and Astronomy

***ASTR 120. The Solar System.** 3 credits. *Offered once a year.*

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. Students may not receive credit for ASTR 120/121 and PHYS 120/121.

***ASTR 121. Stars, Galaxies and Cosmology.** 3 credits. *Offered once a year.*

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. Students may not receive credit for ASTR 120/121 and PHYS 120/121.

ASTR 220. General Astronomy I: The Night Sky, the Solar System and Stars. 3 credits. *Offered once a year.*

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. *Offered once a year.*

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. *Offered on demand.*

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. *Offered spring.*

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: GSCI 161, GSCI 162, GSCI 163 and GSCI 164.*

ASTR 320. Astronomical Techniques. 3 credits. *Offered on demand.*

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 397. Topics in Astronomy. 1-4 credits. *Offered on demand.*

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. *Offered on demand.*

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 398 and ASTR 398.

ASTR 480. Astrophysics. 3 credits. *Offered on demand.*

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. *Offered on demand.*

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. *Offered on demand.*

Research in a selected area of physics or astronomy as arranged with a faculty research advisor. A student may not earn more than a total of six credits for PHYS 498R and ASTR 498R. *Prerequisite: Proposal for study must be approved prior to registration.*

Athletic Training Education Program

Department of Health Sciences

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 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. *Prerequisite: 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. Field Applications in Athletic Training. 2 credits. *Offered fall.*

This course is designed for athletic training students to meet the educational competencies for national accreditation in the following areas: development of risk management/emergency action plans, 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 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.

Biology

Department of Biology

GBIO 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. *Formerly GSCI 103.* Students may not receive credit for both GSCI 103 and GBIO 103.

***BIO 114. Organisms (3, 3).** 4 credits. *Offered fall and spring.*

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.

BIO 124. Ecology and Evolution (3, 3). 4 credits. *Offered fall, spring and summer.*

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:* Grade of "C-" or better in BIO 114.

BIO 201. Trelawny Learning Community Seminar (3, 0). 3 credits. *Offered fall.*

An introduction to the biology major for first year students living in the Trelawny Learning Community. Topics will include research opportunities, careers, case studies and current topics. Faculty and upper class students from the department will interact with this course to provide different perspectives about the biology major. *Prerequisite:* Membership in the Trelawny Learning Community.

BIO 203/ISAT 165. Viral Discovery (0, 3). 1 credit. *Offered fall.*

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.

BIO 204/ISAT 166. Viral Genome and Bioinformatics (0,4). 2 credits.

Offered spring.

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. *Prerequisites:* BIO 203 or ISAT 165.

BIO 214. Cell and Molecular Biology (3, 3). 4 credits. *Offered fall and spring.*

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. Credit may not be earned in both BIO 214 and BIO 220. *Prerequisites:* Grades of "C-" or better in BIO 114 and either CHEM 131, CHEM 120 or permission of the instructor.

BIO 220. Cell Biology. (3, 0) 3 credits. *Offered periodically.*

A comparative and theoretical coverage of basic aspects of cell structure and function common to most biological systems, including integration of cell theory, metabolism and gene action. Credit may not be earned in both BIO 220 and CHEM 222. *Prerequisite:* CHEM 132, CHEM 120 or equivalent. Credit may not be earned in both BIO 220 and BIO 214.

BIO 224. Genetics and Development (3, 3). 4 credits. *Offered fall and spring.*

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. Credit may not be earned in both BIO 224 and BIO 230. *Prerequisites:* Grade of "C-" or better in BIO 214.

BIO 230. Genetics (3, 3). 4 credits. *Offered periodically.*

A study of the major principles of biological inheritance through lectures, readings, experimentation and discussions. Credit may not be earned in both BIO 230 and BIO 224. *Prerequisites:* BIO 120 and BIO 130.

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.

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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.

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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.

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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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Department of Biology

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BIO 214. Cell and Molecular Biology (3, 3). 4 credits. *Offered fall and spring.*

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BIO 220. Cell Biology. (3, 0) 3 credits. *Offered periodically.*

A comparative and theoretical coverage of basic aspects of cell structure and function common to most biological systems, including integration of cell theory, metabolism and gene action. Credit may not be earned in both BIO 220 and CHEM 222. *Prerequisite:* CHEM 132, CHEM 120 or equivalent. Credit may not be earned in both BIO 220 and BIO 214.

BIO 224. Genetics and Development (3, 3). 4 credits. *Offered fall and spring.*

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. Credit may not be earned in both BIO 224 and BIO 230. *Prerequisites:* Grade of "C-" or better in BIO 214.

BIO 230. Genetics (3, 3). 4 credits. *Offered periodically.*

A study of the major principles of biological inheritance through lectures, readings, experimentation and discussions. Credit may not be earned in both BIO 230 and BIO 224. *Prerequisites:* BIO 120 and BIO 130.

***BIO 270. Human Physiology (3, 2).** 4 credits. *Offered fall, spring and summer.*

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.*

BIO 280. Allied Health Microbiology (2, 4). 4 credits. *Offered fall, spring and summer.*

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: CHEM 120, GSCI 101, GBIO103 or equivalent.*

BIO 290. Human Anatomy (3, 3). 4 credits. *Offered fall, spring and summer.*

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.

BIO 301. Introductory Neuroscience. 3 credits. *Offered fall.*

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. *Prerequisite: CHEM 131, AND BIO 214 OR ISAT 351.*

BIO 305. Ornithology (1, 4). 3 credits. *Offered spring.*

Introduction to avian biology with exercises in field identification. *Prerequisite: BIO 124 or permission of instructor.*

BIO 310. General Entomology (2, 4). 4 credits. *Offered periodically.*

A laboratory and field study of insects. Morphology, physiology and behavioral aspects will be emphasized. Collection, identification and preservation of local insects by standard procedures will be part of the course. *Prerequisite: BIO 124 or permission of instructor.*

BIO 312. Animal Welfare (3, 0). 3 credits. *Offered spring.*

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 permission of the instructor.*

BIO 316. Principles of Animal Development (3, 3). 4 credits. *Offered fall.*

An introduction to the fundamental processes and mechanisms of animal development. The cellular and molecular bases of embryonic processes ranging from fertilization through organogenesis and of postembryonic processes including metamorphosis, regeneration, senescence and reproduction are explored in the primary vertebrate models (fish, frog, chick, mouse, human) and selected invertebrates. *Prerequisite: BIO 224.*

BIO 320. Comparative Anatomy of Vertebrates (2, 4). 4 credits. *Offered spring.*

A study of the evolution of vertebrate organ systems that integrates structure, function and development. *Prerequisite: BIO 124, BIO 290 or equivalent.*

BIO 330. Scanning Electron Microscopy (0, 3). 3 credits. *Offered periodically.*

This course will include the theory and application of scanning electron microscopy and energy dispersive spectrometry. Students will learn to prepare, view and analyze specimens. An individual research project will be required of each student. *Prerequisite: CHEM 132.*

BIO 340. Morphology and Anatomy of Vascular Plants (2, 4). 4 credits.

Offered fall even years.

A detailed study of the comparative morphology and anatomy of tracheophytes. *Prerequisite: BIO 124.*

BIO/MATH 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.*

BIO 345. Animal Field Biology. 3 credits. *Offered summer.*

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. *Prerequisites: BIO 114 or the equivalent.*

BIO/GEOL 350. Invertebrate Paleontology (3, 2). 4 credits. *Offered periodically.*

The history of nonvertebrate life from its origin, through evolving biogeochemical cycles, origin of eukaryotes and multicellularity, evolutionary records of all major groups and theoretical issues such as major group origins, adaptive radiation patterns, extinctions, functional adaptations and paleoecology. *Prerequisite: GEOL 230, BIO 114 or permission of the instructor.*

BIO 353. Basic Ecology (3, 3). 4 credits. *Offered fall.*

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. GSCI 166 or equivalent.*

BIO 360. Plant Biology (3, 0). 3 credits. *Offered spring.*

An introduction to the biology of plants including evolution, diversity, form and function, ecology, and biotechnology. *Prerequisites: BIO 124 and BIO 214.*

BIO/CHEM 361. Biochemistry I (3, 0). 3 credits. *Offered fall.*

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 342 and permission of instructor.*

BIO 364. Human Uses of Plants (3, 0). 3 credits. *Offered fall.*

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 permission of the instructor.*

BIO 365. Laboratory in Human Uses of Plants (0, 3). 1 credit. *Offered fall.*

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. Plants and Environment (3, 3). 4 credits. *Offered spring.*

Students will engage in a systematic investigation of plant structure and function. Ecological roles of plants and resource utilization by humans will be explored. *Prerequisites: Course is open only to IDLS majors and biology or biotechnology majors enrolled in the secondary education licensure pre-professional program. GSCI 166E or equivalent.*

BIO 370. Animal Physiology (3, 3). 4 credits. *Offered fall and spring.*

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 and CHEM 132 or permission of the instructor. One semester each of calculus and statistics are recommended.*

BIO 380. General Microbiology (2, 4). 4 credits. *Offered fall and spring.*

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 permission of the instructor.*

BIO 386. Field Botany (3, 3). 4 credits. *Offered spring odd years.*

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.*

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. *Prerequisite: Psychology majors: PSYC 211 or PSYC 213; biology or biotechnology majors: BIO 114 and 124 and one of the following ("C-" or better): MATH 205, 220, 231, 235, 285, 318.*

BIO 403. Animal Communication. 3 credits. *Offered summer.*

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 and MATH 220, MATH 285 or MATH 318 or Permission of the instructor.*

BIO 404. Evolutionary Analysis (3, 0). 3 credits. *Offered fall.*

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 or permission of the instructor.

BIO/GEOL 405. Vertebrate Paleontology (3, 1). 3 credits. *Offered periodically.*

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 124 or permission of instructor.

BIO 409. Marine and Freshwater Invertebrates (3, 0). 3 credits.

Offered fall.

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 equivalent.

BIO 410. Advanced Human Anatomy (1, 6). 3 credits. *Offered spring.*

An advanced study of topics in human anatomy using dissection techniques. *Prerequisites:* BIO 290 and/or BIO 320 and permission of instructor.

BIO 414. Clinical Anatomy for Occupational Therapists. 4 credits.

Offered fall.

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 416. Human Embryology (3, 3). 4 credits. *Offered spring.*

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. *Prerequisites:* BIO 224 or BIO 290.

BIO 420. Medical Parasitology (3, 0). 3 credits. *Offered fall.*

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 or permission of instructor.

BIO 421. Medical Parasitology Lab (0, 3). 1 credit. *Offered fall.*

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. *Offered periodically.*

Studies in specified areas of biology. May be repeated for credit when course content changes. *Prerequisite:* See e-campus for prerequisites for specific topics.

BIO 427. Topics in Biology with Laboratory. 1-4 credits. *Offered periodically.*

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 e-campus for prerequisites for specific topics.

BIO 430. Human Genetics (3, 0). 3 credits. *Offered spring and summer.*

Current topics in human genetics with emphasis on species and population variation, medical genetics and genetic applications that affect humans. *Prerequisite:* BIO 224.

BIO 440. Functional Neuroscience for Occupational Therapists.

3 credits. *Offered fall.*

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. *Prerequisites:* Admission to the Occupational Therapy program.

BIO 442. Immunology (3, 0). 3 credits. *Offered spring.*

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. Credit may not be earned in BIO 442 and BIO 542. *Prerequisite:* BIO 214 or permission of instructor.

BIO 443. Immunology Laboratory (0, 4). 1 credit. *Offered spring.*

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 442.

BIO 444. Virology (3, 0). 3 credits. *Offered fall.*

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:* BIO 214 and BIO 224 or permission of instructor.

BIO 445. Neurobiology (3, 3). 4 credits. *Offered periodically.*

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 370. *Physics recommended.*

BIO 448. Medical Microbiology (3, 3). 4 credits. *Offered spring.*

This class focuses on microorganisms of medical importance, mainly bacteria and viruses. Lecture follows an organism-by-organism approach. 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:* BIO 380.

BIO 450. Evolutionary and Societal Impacts of Developmental

Biology (3, 0). 3 credits. *Offered spring.*

Discussion-based course on topical issues in developmental biology and how they impact animal evolution, bioethics, human identity and environmental science. *Prerequisite:* BIO 224.

BIO 451. Ecological Systems (2, 4). 4 credits. *Offered periodically.*

Ecosystems are examined as basic ecological units which are comprised of communities interacting with their environments and are themselves components of landscape. Credit may not be earned in both BIO 451 and 551. *Prerequisites:* BIO 124 and BIO 214.

BIO 452. Population Ecology (2, 4). 4 credits. *Offered fall.*

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.

BIO 453. Microbial Ecology and Evolution (2, 4). 3 credits. *Offered spring.*

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, and BIO 280 or BIO 380.

BIO 454. Introduction to Biometrics (3, 1). 4 credits. *Offered spring even years.*

The design of biological experiments and applications of statistical techniques in ecology, cell biology, physiology, behavior, systematics, genetics and evolution. Experiments and data from the biological literature will be emphasized. Statistical software packages will be used. Credit may not be earned in both BIO 454 and BIO 554. *Prerequisite:* MATH 220 or equivalent.

BIO 455. Plant Physiology (3, 3). 4 credits. *Offered spring odd years.*

Function and structure of plants including water relations, mineral nutrition, transport phenomena, metabolism, growth and development, and selected topics in physiological ecology. Credit may not be earned in both BIO 455 and BIO 555. *Prerequisite:* BIO 214. *Prerequisite or corequisite:* CHEM 342.

BIO 456. Landscape Ecology (3, 3). 4 credits. *Offered periodically.*

The functional and descriptive study of the interaction of the mosaic of ecosystems that comprise the landscape prevalent in a region. *Prerequisite:* BIO 124.

BIO 457. Biological Applications of Geographic Information Systems (2, 4). 4 credits. *Offered fall.*

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 permission of the instructor.

BIO 458. Comparative Animal Physiology (2, 4). 4 credits. *Offered periodically.*
An investigation of animal physiological adaptations to biotic and abiotic environmental factors. Laboratory study emphasizes experimental methods utilized to examine adaptive mechanisms. Credit may not be earned in both BIO 458 and BIO 558. *Prerequisite:* BIO 270 or BIO 370.

BIO 459. Freshwater Ecology (2, 4). 4 credits. *Offered fall.*
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, CHEM 131 and CHEM 132.

BIO 460. Plant Cell and Tissue Culture (2, 4). 4 credits. *Offered spring even years.*
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 and CHEM 132.

BIO 465. Environmental Toxicology (3, 3). 4 credits. *Offered spring.*
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 equivalent.

BIO 466. Toxicology Seminar (3, 0). 3 credits. *Offered fall.*
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 equivalent.

BIO 470. Morphology of Nonvascular Plants (2, 4). 4 credits. *Offered fall odd years.*

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.

BIO 472. Human Metabolism (3, 0). 3 credits. *Offered spring.*
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 341 and BIO 214 or permission of the instructor.

BIO 475. Advanced Cell and Molecular Biology (3, 3). 3 credits. *Offered spring.*

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:* BIO 224.

BIO 480. Advanced Molecular Biology (2, 4). 4 credits. *Offered fall.*
Cellular constituents and genetics are emphasized at the molecular level. Credit may not be earned in both BIO 480 and BIO 580. *Prerequisite:* BIO 224. *Prerequisite or corequisite:* CHEM 342.

BIO 481. Genomics (3, 3). 4 credits. *Offered spring.*
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.

BIO 482. Human Histology (3, 3). 4 credits. *Offered fall.*
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 486. Systematics of Vascular Plants (2, 4). 4 credits. *Offered spring even years.*
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 permission of the instructor.

BIO 490. Biomechanics (3, 3). 4 credits. *Offered spring.*

A study of the interactions of organisms with their physical environment. Concepts from fluid and solid mechanics are applied to biological form and function. *Prerequisite:* BIO 114 or permission of the instructor.

BIO 494. Internship in Biology (0-12). 6 credits.
Students participate in research or applied biology outside of this university. A proposal must be approved prior to registration, and a final paper will be completed. *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.
Emphasis is placed on theory, methodology and the development of manipulative abilities. Students must notify the biology office of their interest the semester before registration. May be repeated for a maximum of two credits when course content changes. *Prerequisites:* GPA of 2.5 or greater.

BIO 496. Research Literature (0, 4). 1 credit.
A systematic review and study of the research literature in a selected field of biology. Proposal for study should be approved by sponsor and department head the semester before registration. May be repeated for a maximum of 2 credits when course content changes. *Prerequisites:* GPA of 2.5 or greater.

BIO 497. Biological Research (0, 4-8). 1-3 credits.
Research in a selected area of biology as arranged with sponsor. Research outline must be approved by sponsor and department head the semester before registration. Course may be repeated. *Prerequisites:* GPA of 2.5 or greater.

BIO 499. Honors in Biology (0, 6). 6 credits.
Three semester course taken as parts A, B and C; 2 credits each.

Biotechnology

College of Science and Mathematics and College of Integrated Science and Technology

BIO 260. Biotechnology Seminar. 1 credit. *Offered fall.*

An introduction to biotechnology. Topics will include research opportunities, careers and current topics in biotechnology. Not available for biology major or minor credit.

Business Law

College of Business

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. *Offered once a year.*

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 495. Contract Law, Sales and Secured Transactions. 3 credits. *Offered fall and spring.*

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 studies throughout. *Prerequisites:* COB 218 and COB 300.

BLAW 496. The Law of Business Organizations, Negotiable Property Instruments and Property. 3 credits. *Offered once a year.*

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 instructor.

BLAW 497. Legal Aspects of International Business. 3 credits. *Offered fall.* 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.

Business and Marketing Education

College of 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:* GWRT 101, GWRT 102 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. *Offered fall and spring.*

Provides opportunity to complete independent study or research on problems in business and marketing education. *Prerequisite:* Permission of the program coordinator.

Chemistry

Department of Chemistry and Biochemistry

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. *Offered fall and spring.*

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.

CHEM 120L. Concepts of Chemistry Laboratory. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.*

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. The laboratory and lecture portions of CHEM 131 must be taken concurrently. Chemistry majors take 135L rather than 131L.

CHEM 132. General Chemistry II. 3 credits. *Offered fall and spring.*

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 (chemistry majors take 136L).

CHEM 131L*-132L. General Chemistry Laboratories. 1 credit each semester. *Offered fall and spring.*

These laboratory courses are designed to complement and supplement the CHEM 131-132 lecture courses. The laboratory and lecture portions must be taken concurrently. Chemistry majors are to take CHEM 135L and 136L. *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. *Offered fall.*

An enriched laboratory course designed primarily for chemistry majors. *Corequisite:* CHEM 131.

CHEM 136L. Special General Chemistry Laboratory. 2 credits. *Offered spring.* 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 200. Computer Applications in Chemistry. 1 credit. *Offered fall.*

Students are given chemically relevant problems that require that they learn to use software that all literate chemists should be familiar with. In addition, students are introduced to a programming language, first by writing macros for spreadsheet, presentation or word processing programs and finally, by using a high level programming language. *Corequisite or prerequisite:* CHEM 341.

CHEM 221. Concepts of Organic Chemistry. 3 credits. *Offered fall.*

An introduction to the study of organic compounds with emphasis on the chemistry of functional groups, including methods of preparation and interconversions. The laboratory and lecture portions must be taken concurrently. *Prerequisites:* CHEM 132 and 132L.

CHEM 221L. Concepts of Organic Chemistry Laboratory. 1 credit. *Offered fall.*

Laboratory work will include training in the techniques of organic chemistry, preparation of compounds and some organic qualitative analysis. *Prerequisite or corequisite:* CHEM 221.

CHEM 222. Concepts of Biochemistry. 3 credits. *Offered spring.*

A 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. The laboratory and lecture portions must be taken concurrently; not available for major credit. Credit may not be earned in both CHEM 222 and BIO 220. *Prerequisites or corequisites:* CHEM 221 and CHEM 221L (or CHEM 342 and CHEM 346L).

CHEM 222L. Concepts of Biochemistry Laboratory. 1 credit. *Offered spring.*

The laboratory work will comprise experiments demonstrating some of the pertinent reactions including those of analytical value. *Prerequisite or corequisite:* CHEM 222.

CHEM/PHYS/MATS 275. An Introduction to Materials Science. 3 credits.

Offered fall.

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 280. An Alternative Lower-Division Chemistry Experience.

1-3 credits. *Offered fall and spring.*

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.

BLAW 497. Legal Aspects of International Business. 3 credits. *Offered fall.* 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.

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College of Education

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CHEM 120L. Concepts of Chemistry Laboratory. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.*

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. The laboratory and lecture portions of CHEM 131 must be taken concurrently. Chemistry majors take 135L rather than 131L.

CHEM 132. General Chemistry II. 3 credits. *Offered fall and spring.*

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 (chemistry majors take 136L).

CHEM 131L*-132L. General Chemistry Laboratories. 1 credit each semester. *Offered fall and spring.*

These laboratory courses are designed to complement and supplement the CHEM 131-132 lecture courses. The laboratory and lecture portions must be taken concurrently. Chemistry majors are to take CHEM 135L and 136L. *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. *Offered fall.*

An enriched laboratory course designed primarily for chemistry majors. *Corequisite:* CHEM 131.

CHEM 136L. Special General Chemistry Laboratory. 2 credits. *Offered spring.* 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 200. Computer Applications in Chemistry. 1 credit. *Offered fall.*

Students are given chemically relevant problems that require that they learn to use software that all literate chemists should be familiar with. In addition, students are introduced to a programming language, first by writing macros for spreadsheet, presentation or word processing programs and finally, by using a high level programming language. *Corequisite or prerequisite:* CHEM 341.

CHEM 221. Concepts of Organic Chemistry. 3 credits. *Offered fall.*

An introduction to the study of organic compounds with emphasis on the chemistry of functional groups, including methods of preparation and interconversions. The laboratory and lecture portions must be taken concurrently. *Prerequisites:* CHEM 132 and 132L.

CHEM 221L. Concepts of Organic Chemistry Laboratory. 1 credit. *Offered fall.*

Laboratory work will include training in the techniques of organic chemistry, preparation of compounds and some organic qualitative analysis. *Prerequisite or corequisite:* CHEM 221.

CHEM 222. Concepts of Biochemistry. 3 credits. *Offered spring.*

A 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. The laboratory and lecture portions must be taken concurrently; not available for major credit. Credit may not be earned in both CHEM 222 and BIO 220. *Prerequisites or corequisites:* CHEM 221 and CHEM 221L (or CHEM 342 and CHEM 346L).

CHEM 222L. Concepts of Biochemistry Laboratory. 1 credit. *Offered spring.*

The laboratory work will comprise experiments demonstrating some of the pertinent reactions including those of analytical value. *Prerequisite or corequisite:* CHEM 222.

CHEM/PHYS/MATS 275. An Introduction to Materials Science. 3 credits.

Offered fall.

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 280. An Alternative Lower-Division Chemistry Experience.

1-3 credits. *Offered fall and spring.*

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 300. Numerical Methods in Chemistry. 1 credit. *Offered fall.*

Students learn to use computational software and a high level scientific language to facilitate the solution of numerical chemical problems.

CHEM 325. Chemical Hazards and Laboratory Safety. 1 credit. *Offered fall.*

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. *Offered spring.*

A study of thermodynamics, solutions, kinetics and macromolecules with applications of chemical and biological problems. *Prerequisites:* CHEM 132 and either MATH 206 or MATH 236.

CHEM 336L. Applied Physical Chemistry Laboratory. 1 credit. *Offered spring.*

A laboratory course which emphasizes the applied experimental aspects of physical chemistry. *Prerequisite or corequisite:* CHEM 331.

CHEM 341-342. Organic Chemistry Lecture. 3 credits each semester.

Offered fall and spring.

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 for CHEM 341:* A grade of "C-" or higher in CHEM 132. *Prerequisite for CHEM 342:* A grade of "C-" or higher in CHEM 341. *Corequisite for CHEM 342:* CHEM 346L or CHEM 388L.

CHEM 346L. Organic Chemistry Laboratory. 2 credits. *Offered spring.*

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. *Prerequisite:* A grade of "C-" or higher in CHEM 341. *Corequisite:* CHEM 342.

CHEM 351. Analytical Chemistry. 4 credits. *Offered fall.*

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. *Offered spring.*

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 either MATH 205 or MATH 235.

CHEM 352L. Instrumental Analysis Laboratory. 2 credits. *Offered spring.*

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 354. Environmental Chemistry Field Camp. 3 credits. *Offered summer.*

Fundamentals of environmental chemistry with laboratory and field trip components. The basic chemical principals of environmental problems are studied. Field trips and laboratory work on real samples are integrated with lecture material. *Prerequisite:* CHEM 341 or permission of instructor.

CHEM/GEOL 355. Geochemistry of Natural Waters. 3 credits. *Offered fall.*

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. *Offered fall.*

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 342 and permission of instructor.

CHEM 362. Biochemistry II. 3 credits. *Offered spring.*

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 366L. Biochemistry Laboratory. 2 credits. *Offered spring.*

An introduction to laboratory techniques and experimental approaches associated with modern biochemistry. Isolation and characterization of enzymes and other biomolecules are emphasized. *Prerequisite:* CHEM 361.

CHEM 370. Inorganic Chemistry I. 3 credits. *Offered spring.*

A survey of the chemistry of the elements and modern theories of bonding. *Prerequisite:* A grade of "C-" or higher in CHEM 132 or CHEM 341.

CHEM 387L-388L. Integrated Inorganic/Organic Laboratory.

2 credits each semester. *Offered fall and spring.*

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 for CHEM 387L:* CHEM 341. *Prerequisites or corequisites for CHEM 388L:* CHEM 370 and CHEM 342 and a grade of "C-" or higher in CHEM 387L.

CHEM 390A,B. Problems in Chemistry. 1-3 credits, repeatable for a

total of 4 credits. *Offered fall and spring.*

A project is undertaken dealing with some aspect of chemistry under the guidance of a faculty adviser.

CHEM 395. Perspectives in Chemistry. 1 credit. *Offered fall.*

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. *Offered fall.*

A study of atomic and molecular energy levels and structure as interpreted by quantum theory. *Prerequisites:* CHEM 132; MATH 206 or MATH 236; and PHYS 150 or PHYS 250.

CHEM 438L. Physical Chemistry Laboratory. 2 credits. *Offered fall.*

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. *Offered spring.*

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 342.

CHEM 445. Polymer Chemistry. 4 credits. *Offered fall.*

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 342.

CHEM 450. Nuclear and Radiation Chemistry. 3 credits. *Offered spring.*

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.

Offered spring.

A laboratory course designed to demonstrate the topics covered in CHEM 450. *Corequisite:* CHEM 450. *Prerequisites:* CHEM 132 and PHYS 250 or permission of the instructor.

CHEM/PHYS 455. Lasers and Their Applications to Physical

Sciences. 3 credits. *Offered spring.*

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. *Offered fall.*

A study of selected topics in the field of advanced inorganic chemistry. *Prerequisite:* A grade of "C-" or higher in CHEM 370. *Prerequisite or corequisite:* CHEM 331.

CHEM 480. Selected Topics in Chemistry. 1-3 credits each semester.

Offered fall and spring.

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. *Offered fall.*

Provides instruction in methods of abstracting specific information from the body of chemical literature. Attendance at regularly scheduled department seminars is required.

CHEM 482. Literature and Seminar II. 1 credit. *Offered spring.*

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 494. Internship in Chemistry. 1-2 credits. May be repeated for a maximum of 6 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

Chinese

Department of Foreign Languages, Literatures and Cultures

CHIN 101-102. Elementary Chinese (4, 1). 4 credits each semester.

Offered fall and spring.

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 231-232. Intermediate Chinese. 3 credits each semester. *Offered fall and spring.*

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Chinese or equivalent.*

CHIN 300. Chinese Grammar and Communication. 3 credits. *Offered fall.* Intensive training in grammatical structures and their applications to oral and written conversation. Instruction is in Chinese. *Prerequisite: CHIN 232 or equivalent.*

CHIN 320. Chinese Oral and Written Communication. 3 credits.

Offered spring

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.*

Classics

Department of Foreign Languages, Literatures and Cultures

CLAS 100. Latin and Greek Roots of English Words. 2 credits. *Offered*

fall and spring.

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. *Offered fall and spring.*

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.

Offered fall and spring.

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. *Offered fall and spring.*

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. *Offered once a year.*

A study of selected topics in the culture of Ancient Greece and Rome. May be repeated for credit with change of topics.

College of Business

College of Business

COB 191. Business Statistics. 3 credits. *Offered fall and spring.*

The application of statistical methods to business. Introduces data presentation, descriptive statistics, probability, sampling, estimation and hypothesis testing. Emphasis is on using spreadsheet tools and functions of statistical analysis. *Prerequisite: MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam.*

COB 202. Interpersonal Skills. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

An introduction to computer-based information systems. 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 218. Legal Environment of Business. 3 credits. *Offered fall and spring.*

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.

COB 241. Financial Accounting. 3 credits. *Offered fall and spring.*

The role of financial data in contemporary society; the problems of measuring and reporting income, assets, liabilities and equities; interpretation of financial statements. *Prerequisite: Sophomore standing and declared business major.*

COB 242. Managerial Accounting. 3 credits. *Offered fall and spring.*

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. Introduction to Management Science. 3 credits. *Offered fall and spring.*

The application of quantitative modeling and analysis to decision making. Introduces linear programming, decision theory, queuing, simulation and forecasting methods. Emphasis is on implementing spreadsheet models for business applications. *Prerequisites: COB 191 and MATH 205 or equivalent.*

COB 300A. Integrated Functional Systems: Management. 3 credits.

Offered fall and spring.

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), a cumulative 2.8 grade point average in all courses taken at JMU, and formal admission to the College of Business.*

COB 300B. Integrated Functional Systems: Finance. 3 credits. *Offered*

fall and spring.

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), a cumulative 2.8 grade point average in all courses taken at JMU and formal admission to the College of Business.*

COB 300C. Integrated Functional Systems: Operations. 3 credits.

Offered fall and spring.

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), a cumulative 2.8 grade point average in all courses taken at JMU, and formal admission to the College of Business.*

COB 300D. Integrated Functional Systems: Marketing. 3 credits.

Offered fall and spring.

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), a cumulative 2.8 grade point average in all courses taken at JMU, and formal admission to the College of Business.*

COB 301. European Integration, Culture and History. 3 credits. *Offered fall and spring.*

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 487. Strategic Management. 3 credits. *Offered fall and spring.*

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.

Offered fall and spring.

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 Student Services.*

COB 491. Peer Advisor Training. 0 credits. *Offered fall and spring.*

This block course will provide peer advisor 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 Student Services one month prior to registration.*

COB 492. Peer Advising. 2 credit hours per semester, limit of 4 credit hours in total. *Offered fall and spring.*

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.*

Communication Sciences and Disorders

Department of 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. *Prerequisite: CSD majors only or by permission of instructor.*

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. *Prerequisite: 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.

CSD 310. Biostatistical Methods for Communication Sciences and Disorders. 3 credits.

An introduction to research conducted in and applied to the disciplines of speech-language pathology and audiology. Traditional statistical methods in behavioral and social sciences will be included as well as qualitative and quantitative research approaches relevant to individuals and populations with communication disorders.

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 200, CSD 207, CSD 300 or permission of instructor.*

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 of instructor.*

CSD 415. Neuroanatomy and Neurogenic Communication Disorders. 3 credits.

Introduces neurogenic communication disorders from a neuroanatomical approach.

CSD 416. Organic Speech Disorders. 3 credits.

Clinical procedures in the areas of fluency, oral-facial and voice disorders are studied. Evaluative and remedial aspects are emphasized.

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 of the instructor.*

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. Majors only. Must have senior status to enroll.

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: Permission of the instructor.*

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 sections titled "Graduation with Distinction" and "Graduation with Honors."

Communication Studies

School of Communication Studies

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. The Process of Human Communication. 3 credits.

Study of communication studies as a behavioral process employing verbal and nonverbal modes of interaction. Emphasis on learning theory, motivation, language, meaning and social interaction as applied to the theory of communication studies. Consideration of role of communication in all human endeavors.

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 100-level GCOM course or permission of the instructor.*

SCOM 243. 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 GCOM course or permission of the instructor.*

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.

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 100-level GCOM course or permission of the instructor.*

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 or permission of the instructor.*

SCOM 270. 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 GCOM course.*

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/ANTH 305. Language and Culture. 3 credits. *Offered once a year.*

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 credits.

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 or permission of instructor.*

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 International 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. *Prerequisites: 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 231 recommended.*

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 non-artistic proofs as they apply to human motivation. Consideration of the application of behavioral research findings to persuasion. *Prerequisites: SCOM 240 and SCOM 280 or permission of the instructor.*

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/WRITC 343. 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. *Prerequisite: GWRTC 103 (formerly GWRIT 103) or equivalent; For WRITC majors: WRITC 200, WRITC 210 or WRITC 211, and WRITC 220 and WRITC 240.*

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. *Prerequisites: SCOM 245 recommended and any 200-level SCOM course or permission of the instructor.*

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: GCOM 121, GCOM 122 or GCOM 123.*

SCOM/WMST 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 GCOM course or permission of the instructor.*

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 GCOM course or permission of instructor.*

SCOM 350. Organizational Communication. 3 credits.

Study of theories and principles of communication within organizations. Emphasis on analysis of formal and informal communication systems, networks, and interactions with organizational hierarchies. Consideration of both profit and not-for-profit contexts.

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: GWRTC 103 (formerly GWRT 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. *Prerequisite: SCOM 240.*

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 GPOSC 225 are recommended or permission of the instructor.*

SCOM 354. Communication, Environment and Environmentalism. 3 credits.

An exploration of how messages and information about nature and the environment are communicated, focusing on persuasive efforts by institutions, corporations, environmental managers, lobbyists, scientific experts, politicians and citizens to describe and shape human interactions with the environment and each other. This course seeks to increase our understanding of the ways that these environmental discourses persuade (and fail to persuade) different publics.

SCOM 358. Business and Professional Communication Studies. 3 credits.

Study of techniques of effective communication in business/ professional context. Emphasis on communication skills and results. Consideration of communication problems unique to the business/professional environment. *Prerequisites: Junior or senior status or permission of instructor.*

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 or permission of the instructor.*

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.*

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. *Prerequisites: Six hours of SCOM courses including SCOM 240 or permission of the instructor.*

SCOM 381. Communication Criticism. 3 credits.

Study of methods of evaluating acts of persuasive communication. Emphasis on developing and applying appropriate standards to determine effectiveness of persuasion. Consideration of criticism of advertising, mass media, public speaking and other forms of persuasive communication. *Prerequisites: SCOM 280 and any 100-level GCOM course or permission of the instructor.*

SCOM 383. Communication Research Methodologies. 3 credits.

The study of research methods in various areas of communication. Emphasis on ability to research literature and criticize research design. *Prerequisites: SCOM 280 and nine hours of SCOM courses or permission of the instructor.*

SCOM 385. Qualitative Communication 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 or permission of instructor.*

SCOM 386. Communication Survey Research. 3 credits.

Consideration of survey problems and methods unique to communication. Emphasis on using survey research methodology in communication audits, public relations problems and public opinion polling. *Prerequisite: SCOM 280 or permission of the instructor.*

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 394. Core Assessment in Communication Studies. 0 credits.

Students participate in testing, interviews and other assessment activities as approved by the School of Communication Studies. Grades will be assigned on a credit/no credit basis. *Prerequisites: SCOM 240, SCOM 242, SCOM 245, SCOM 280 and SCOM 341.*

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. *Prerequisite: Permission of the program director and school director required.*

SCOM/ WMST/WRTC420. 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.*

SCOM 425. Leadership Communication. 3 credits.

This course promotes leadership development through study of leadership theory and practical application. The course focuses on building leadership competencies in interpersonal communication, team building, multicultural environments, mentoring, problem solving and influence strategies used in interpersonal and public forums to bring about community and organizational change.

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 and Mediation Studies. 3 credits.

An advanced seminar, capstone course for students concentrating or minoring in conflict and mediation studies. Special topics are developed to include research in conflict resolution, current trends in dispute resolution, evolving practices in conflict 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. *Prerequisites: SCOM 280 or permission of the instructor.*

SCOM/ANTH/HIST 441. Oral History and Social Justice. 3 credits.

Offered spring semester.

This course will explore the theoretical and methodological questions that have been raised in the field of oral history related to evidence and objectivity, personal and collective memory, narrative structure, ethics and social justice. Throughout the course students will conduct multiple interviews in the Shenandoah Valley and prepare a final presentation based on this material. *Prerequisite: HIST 395 or permission of instructor.*

SCOM 448. Seminar in Cultural Communication. 3 credits.

Advanced study of theory and research in cultural communication and intercultural contact. Consideration of communication practices that construct and arrange social and ethnic identities within specific contexts. *Prerequisites: SCOM 248 and SCOM 349 or permission of the instructor.*

SCOM 449. Communication Training. 3 credits.

An examination of methods for planning, arranging and conducting communication training. Students become familiar with strategies and activities designed to help others improve their communication skills. *Prerequisites: Junior standing and 12 hours in SCOM or permission of the instructor.*

SCOM 450. Advanced Studies in Organizational Communication. 3 credits.

Integrated study of organizational communication theory and research. Analysis of communication systems within organizations and at their boundaries. Special attention to field studies. *Prerequisite: SCOM 350 or permission of the instructor.*

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. *Prerequisite: SCOM 353 or permission of the instructor.*

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. *Prerequisites: SCOM 341 and SCOM 361.*

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 261, SCOM 361, SCOM 386 and SCOM 460, or permission of the instructor.*

SCOM 463. 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; Corequisite: SCOM 460.*

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 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 clients/patients. Emphasis on the use of communication in health communication campaigns. *Prerequisite: SCOM 270 or permission of the instructor.*

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 Web site). 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 and Management Science

*College of Business***CIS/IA 210. Introduction to Global Competitive Intelligence.** 3 credits.

Offered fall.

This course will focus on the tools and methods for the analysis and interpretation of business data related to external competitors and internal performance management in a global environment. Students will develop skills in data retrieval, manipulation, analysis and interpretation. Not open to students pursuing a major or minor in CIS. Not open to any major in the COB other than International Business.

CIS 221. Principles of Programming. 3 credits. *Offered fall and spring.*

Instruction and practical experience in writing computer programs using object oriented design and event driven logic. Projects will include the use of control structures (sequence, selection and iteration) as well as file and array processing logic. Students will be required to demonstrate competency in the design of object-oriented solutions and the implementation of event driven logic to solve real-world business problems. Not open to students who have taken CS 239.

CIS 301. Operating Systems and Server Administration. 1 credit.

Offered fall and spring.

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. *Prerequisite for declared CIS minors: COB 204 and junior or senior standing. Prerequisite or corequisite for CIS majors: COB 300.*

CIS 304. Information Technology. 3 credits. *Offered fall and spring.*

This course is an intermediate-level information systems course. Course topics include the workings of hardware components including the processor, data storage media and peripheral devices. Also included are legal and ethical concepts. *Prerequisite for declared CIS minors: COB 204 or equivalent and junior or senior standing. Prerequisite or corequisite for CIS majors: COB 300.*

CIS/CS 320. Computing and Telecommunications Networks. 3 credits.

Offered fall and spring.

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 for CS majors: CS 139. Corequisite for CIS majors and minors: CIS 304. Prerequisite for ISAT majors: ISAT 252.*

CIS 330. Database Design and Application. 3 credits. *Offered fall and spring.*

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: CIS 221 with a "C" or better; prerequisite or corequisite: COB 300. Prerequisites for CIS minors: CIS 221 with a "C" or better and junior or senior standing.*

CIS 331. Intermediate Computer Programming. 3 credits. *Offered fall and spring.*

Study of concepts and techniques used in structured programming for business applications including program specification, design, development, testing, implementation and documentation. Topics include report processing, file processing and updating, programming for batch and interactive environments, data validation, array processing and software engineering principles. *Prerequisite or corequisite for CIS majors: COB 300 and CIS 221 or equivalent with a grade of "C" or better. Prerequisite for declared CIS minors: CIS 221 or equivalent with a grade of "C" or better and junior standing.*

CIS 354. Advanced Visual Basic Programming. 3 credits. *Offered as needed.*

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: CIS 221 with a grade of "C" or better.*

OM 360. Operations Management. 3 credits. *Offered as needed.*

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: CIS/COB 291 and junior standing.*

CIS 361. Computer Information Systems Internship. 0 credits. *Offered fall and spring.*

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/MS 363. Business Process Management. 3 credits. *Offered as needed.*

This course covers the fundamental principles of successful process management for business applications and its role in identifying and communicating system requirements during a project life cycle. Students will learn tools to map process flows, analyze operational variables and evaluate the effects of random variation. Emphasis will be placed on modeling process dynamics with discrete-event simulation software and applying statistical-based methodologies to support the design, analysis and control of business processes to improve performance. *Prerequisites: COB 291 or equivalent and junior or senior standing.*

CIS/MS 364. Decision Support Systems. 3 credits. *Offered as needed.*

This course provides students with an understanding of computer-based information systems, which enhance the decision making capabilities of managers. Students will learn to extend the capabilities of Microsoft Office using Visual Basic for Applications and build decision support systems. *Prerequisites: COB 291 or equivalent and junior or senior standing.*

CIS 366. Web Development. 3 credits. *Offered fall.*

This course is an introduction to the development of Web pages and Web sites. The three major topics covered are HyperText Markup Language (HTML), the principles of design for Web sites and the use of a programming language for Web development. *Prerequisite or corequisite for CIS majors: COB 300 and CIS 221 or equivalent with a grade of "C" or better. Prerequisite for declared CIS minors: CIS 221 or equivalent with a grade of "C" or better and junior or senior standing.*

MS/MGT 370. Quality Management. 3 credits. *Offered as needed.*

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 or senior standing.*

CIS 383. Introduction to Unix and Perl. 3 credits. *Offered as needed.*

Instruction and practical experience in designing and coding application software for business functions using Unix and Perl. *Prerequisites: CIS 221 or CS 139 and junior or senior standing or declared CIS minor.*

MS 391. Quantitative Business Modeling. 3 credits. *Offered as needed.*

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: COB 291 or equivalent and junior or senior standing.*

MS 393. Business Analytics: Data Mining. 3 credits. *Offered as needed.*

This course focuses on quantitative techniques and computer applications that allow the extraction of useful, previously unrecognized information from large data sets. 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. *Prerequisite: COB 291 or equivalent and junior or senior standing.*

CIS 411. Computer Forensics for Business. 3 credits. *Offered spring.*

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. *Prerequisite or corequisite: CIS 301 and junior or senior standing.*

CIS 420. Computer-Based Networking. 3 credits. *Offered spring.*

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. *Offered spring.*

Instruction and discussion in the design, development and implementation of a computer security program including legal and ethical considerations. *Prerequisites: CIS 221 and CIS 304.*

OM 426. Supply Chain Management. 3 credits. *Offered as needed.*

Supply Chain Management is the integration of the intra- and inter-company processes through which goods and services are delivered to customers. Topics include planning and designing the supply chain, managing materials, supply chain information systems, supply chain e-business, and managing relationships among the participants. *Prerequisite: COB 300.*

CIS 434. Information Technology Consulting. 3 credits. *Offered fall.*

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.*

MS 450. Issues in Operations Management. 3 credits. *Offered as needed.*

A capstone course for operations management majors. Focus is on the integration of the disciplines of management and decision sciences to a variety of problem situations. Extensive use of case studies, field trips and applied projects develop problem-solving expertise at the strategic, tactical and operating levels in both manufacturing and service organizations. *Prerequisite: MS/MGT 370, MS 426, MS 481 or permission of the program director.*

CIS 454. Systems Analysis and Design. 3 credits. *Offered fall and spring.*

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 330.*

CIS 463. Business Intelligence. 3 credits. *Offered fall.*

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. *Offered spring.* Students will develop knowledge and expertise applying techniques and tools used by systems analysts and project managers to plan and manage information systems implementations. *Prerequisite or corequisite for CIS majors: COB 300 and CIS 221 or equivalent with a grade of "C" or better. Prerequisite for declared CIS minors: CIS 221 or equivalent with a grade of "C" or better and junior standing.*

CIS 466. Advanced Web Development. 3 credits. *Offered as needed.* 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 (CIS 330 can be taken concurrently) or declared CIS minor.*

OM 481. Operations Planning and Control. 3 credits. *Offered as needed.* The design and management of planning and control systems for manufacturing and service organizations. Topics include advanced issues in MRP, JIT, capacity planning, scheduling, demand management, forecasting, inventory management and logistics. Case studies, simulation and projects are used to develop and analyze planning and control activities in business organizations. *Prerequisites: COB 300 and junior or senior standing.*

CIS 484. Information Systems Development and Implementation. 3 credits. *Offered fall and spring.*

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/MS 490. Special Studies in Computer Information Systems or Management Science. 3 credits. *Offered fall and spring.*

An advanced course in information and/or decision sciences 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/MS 496. Internship in Computer Information Systems or Management Science. 3 credits. Credit/No credit. *Offered fall and spring.*

An advanced course designed to give supervised practical experience in an operating data processing environment. Does not count toward the major. May be repeated. Pass/Fail only. *Prerequisites: Minimum 2.80 GPA, CIS/MS minor and permission of the department head.*

CIS 498. Special Topics in Computer Information Systems. 3 credits. *Offered fall and spring.*

An advanced course designed to allow exploration of current topics in information and/or decision sciences. Course content will vary. See adviser for current content. *Prerequisite: Permission of the instructor.*

MS 498. Special Topics in Management Science. 3 credits. *Offered fall and spring.*

An advanced course designed to allow exploration of current topics in information and/or decision sciences. Course content will vary. See adviser for current content. *Prerequisite: Permission of the instructor.*

CIS/OM 499. Honors. 6 credits. *Offered fall and spring.* Year course.

CS/MATH 227-228. Discrete Structures I-II. 3 credits each semester.

CS/MATH 227 offered fall and spring; CS/MATH 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 CS/MATH 228: CS/MATH 227.*

CS 239. Advanced Computer Programming (3, 2). 4 credits.

Students use various advanced problem-solving strategies to develop algorithms using classes and objects. Students also learn how to implement and use elementary data structures, including character strings, records, files, stacks and queues. *Prerequisite: CS 139 or equivalent with a grade of "C" or better.*

CS 240. Algorithms and Data Structures. 3 credits. *Offered fall and spring.*

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: CS/MATH 227 and a grade of "C" or better in CS 239.*

CS 252. Discrete Structures. 3 credits. *Not currently offered.*

Introduction to the mathematical structures used in computer science. Topics include logic and set theory, algebraic structures, automata theory and computability. *Prerequisite: CS 139.*

CS 274. Introduction to Databases. 3 credits. *Offered spring only.*

Students learn how to design and implement a normalized relational database. Emphasis is on the practical construction of an interactive database using graphical user interfaces and report generation.

CS 280. Projects in Computer Science. 1-3 credits. *Offered as demand warrants.*

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/CIS 320. Computing and Telecommunications Networks. 3 credits.

Offered fall and spring.

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 corequisite of CIS 304. Open to ISAT majors with prerequisite of ISAT 252. Open to CS majors with prerequisite of CS 139.*

CS 340. Assembly Language Programming. 3 credits. *Offered as demand warrants.*

Principles of assembly language programming. Assembly language contrasted with machine language. Assembly directives, conditional assembly and macros. Design of a two-pass assembler. The material in this course is useful for those interested in machine design, operating systems, embedded computer systems and microcontrollers, and other areas which require low-level knowledge of computer operation. *Prerequisite: CS 139.*

CS/ISAT 344. Intelligent Systems. 3 credits. *Offered fall and spring.*

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 239 or ISAT 340.*

CS/ISAT 345. Software Engineering. 3 credits. *Offered fall and spring.*

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 or ISAT 340 with sophomore standing in the ISAT major.*

CS 347. Web-Based Information Systems. 3 credits. *Offered fall.*

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: CS 239 with a grade of "C" or better and CS 345.*

Computer Science

Department of Computer Science

CS 110. Introduction to Computer Professionalism and Ethics. 1 credit.

Offered fall.

Seminar for first year students and transfer students focusing on professional and ethical issues in computer science. Topics include computer science degree requirements, the computer science profession, ethics of computing professionals, protection of software, Internet security and privacy issues, and current issues in computer science.

CS 139. Algorithm Development (3, 2). 4 credits. *Offered fall and spring.*

Students learn fundamental problem-solving techniques using computer software tools that support algorithm development and procedural abstraction to analyze a domain and create reusable software applications.

CS 349. Developing Interactive Multimedia. 3 credits. *Offered fall.*

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:* CS 240.

CS 350. Computer Organization. 3 credits. *Offered spring.*

Students learn how a computer works through principles of hierarchical computer organization, hardware (including registers, busses and arithmetic logic units) machine instruction sets, addressing techniques, input/output processing, and interrupt handling. Students are introduced to the Unix operating system. As part of this course, students will be provided with a version of Unix to install on a personal computer. *Prerequisites:* CS/MATH 227 and a grade of "C" or better in CS 239.

CS 402. Introduction to Information System Security. 3 credits. *Offered summer.*

This course provides an introduction to the design and management of operating systems and networks, focusing on those aspects that affect information security. It provides students with the skill or ability to design, execute and evaluate information system security procedures and practices. This course does not satisfy any requirements for majors or minors in computer science. *Prerequisite:* CS 139 or equivalent.

CS 403 Information Systems Security Management. 1 credit.

This course covers the basic material needed to maintain an information system. Topics covered include: granting final approval to operate, accreditation of the system and verifying compliance with stated policies and procedures. This course does not satisfy any requirements for majors or minors in Computer Science. *Prerequisite:* CS 402 or CS 457.

CS 404. Information System Security Administration. 1 credit.

This course prepares a student to ensure information systems and networks are used securely; to identify and report security incidents; to maintain configuration control of systems and software; and to identify anomalies or integrity loopholes. This course does not satisfy and requirements for majors or minors in Computer Science. *Prerequisites:* CS 402 or CS 457.

CS 405. Information System Security Operations. 1 credit. *Offered summer.*

This course covers the basic material needed by information system security officers to protect their information systems. Topics covered include: certification, accreditation, site security policy, security policy enforcement and security reporting. This course does not satisfy any requirements for majors or minors in computer science. *Prerequisite:* CS 402 or CS 457.

CS 406. Assessment of Secure Information Systems. 1 credit.

Offered summer.

This course considers the assessment of the technical and non-technical security features of an information system in an operational configuration. Upon completion of the course, students should be able to identify the assurance levels achieved in meeting all applicable security policies, standards and requirements. This course does not satisfy any requirements for majors or minors in computer science. *Prerequisite:* CS 402 or CS 457.

CS 430. Programming Languages. 3 credits. *Offered fall.*

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:* CS 240 and CS 350.

CS 444. Artificial Intelligence. 3 credits. *Offered fall.*

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:* CS 240.

CS 446. Software Analysis and Design. 3 credits. *Offered spring.*

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:* CS 240 and CS 345.

CS/ISAT 447. Interaction Design. 3 credits. *Offered fall.*

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 448-449. Numerical Mathematics and Computer Applications. 3 credits each semester.

Numerical solutions and error analysis of typical problems such as finding zeros of nonlinear functions, solving systems of linear and nonlinear equations, interpolation, approximation, integration, solving ordinary differential equations, optimization, and Monte Carlo methods. *Prerequisites for CS/MATH 448:* MATH 237, MATH 300 and MATH 248. *Prerequisites for CS/MATH 449:* CS/MATH 448 and MATH 336.

CS 450. Operating Systems. 3 credits. *Offered fall.*

Systems programming and operating systems Network environments, windowing environments, user interfaces. Memory management, process management, file system management and device management. *Prerequisite:* CS 350.

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:* CS/MATH 228 and CS 240.

CS 454. Internship in Computer Science. 1-3 credits. *Offered summer.*

An advanced course to give supervised practical experience in a professional computing environment. 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 instructor.

CS 457. Information Security. 3 credits. *Offered fall.*

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, intrusion detection systems) are also discussed. *Prerequisite:* CS 450.

CS 458. Cyber Defense. 3 credits. *Offered spring.*

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:* CS 457 and CS 460.

CS/ISAT 460. Local Area Networks. 3 credits. *Offered fall and spring.*

An overview of LAN hardware, LAN topology and design, and LAN protocols. Installation and management of LAN operating systems and LAN services (address management, name management, file and print sharing, account management). *Prerequisite:* CS 350 or CS/CIS 320 or equivalent.

CS/ISAT 461. Internetworking. 3 credits. *Offered spring.*

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/ISAT 460.

CS/ISAT 462. Network Applications Development. 3 credits. *Offered spring.*

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/ISAT 460 and either CS 239 or CIS 344.

CS/ISAT 463. Network Analysis and Design. 3 credits. *Offered spring.*

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/ISAT 460 and either CS 239 or ISAT 340.

CS/ISAT 464. Issues in the Telecommunications Business. 3 credits.

Offered spring.

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 474. Database Design and Application. 3 credits. *Offered spring.*
Students study database design and management with emphasis placed on data definition languages, data manipulation languages, query languages and management of the database environment. *Prerequisite:* CS 345, CS 274 or ISAT 340.

CS 475. Distributed Database Management. 3 credits. *Offered spring.*
Students learn the concepts of client-server architectures and other aspects that arise in the design of distributed database systems. *Prerequisite:* CS 474.

CS 476. Database Administration. 3 credits. *Offered spring.*
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:* CS 474.

CS 480. Selected Topics in Computer Science. 1-3 credits. *Offered as demand warrants.*

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:* CS 239. *Topics selected may dictate further prerequisites; students should consult the instructor prior to enrolling for course.*

CS 482. Selected Topics in Information Security. 1-3 credits. *Offered spring.*
Topics in information security. Offered only with the approval of the department head; may be repeated for credit when course content changes. *Prerequisite:* CS 240 and CS 350. *Topics selected may dictate further prerequisites; students should consult the instructor prior to enrolling for the course.*

CS 488. Computer Graphics Applications. 3 credits. *Offered as demand warrants.*
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:* CS 240 and CS 350.

CS 497. Independent Study. 1-3 credits. *Offered fall and spring.*
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. *Offered fall and spring.*
Year course.

Continuing Education

Outreach Programs

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

Department of Justice Studies

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 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.

CRJU/SOCI 325. Criminology. 3 credits. *Offered fall and spring.*
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.

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:* POSC 210 or PUAD 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 401. Internship in Criminal Justice. 4 credits. *Offered each semester as requested.*

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.

CRJU 496. Internship in Criminal Justice. 4 credits. *Offered each semester as requested.*

Provides students with an opportunity for experiential learning in an agency setting. Research paper required. *Prerequisite:* Permission of instructor.

Dance

School of Theatre and Dance

DANC 110. Associate Group Dance Repertory I (0, 4). 1 credit. *Offered fall.*

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. *Offered fall and spring.*
Emphasis on modern dance technique and fundamentals of improvisation and choreography. May be repeated for credit.

DANC 142. Elementary Ballet (0, 4). 2 credits. *Offered fall and spring.*
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. *Offered fall.*
Fundamentals of jazz technique, basic vocabulary and combinations. May be repeated for credit.

DANC 147. Tap Dance (0, 4). 2 credits. *Offered fall.*
Fundamentals of tap dance, basic vocabulary and combinations. May be repeated for credit.

DANC/THEA 171. Performance Production. 3 credits. *Offered fall and spring.*
An introduction to the methods of the production of scenery, properties, costumes, lighting, sound and performance management for theater and dance performances. 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.

DANC 210. Associate Group Dance Repertory II (0, 4). 1 credit. *Offered spring.*
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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*
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. *Offered fall and spring.*
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. *Offered fall.*
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. *Offered spring.*
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. *Offered once every other year.*
Intermediate skills in tap dance technique, vocabulary and models of sequencing. May be repeated for credit. *Prerequisite:* DANC 147 or permission of instructor.

DANC 248. History of Dance: Renaissance Through the 20th Century. 3 credits. *Offered spring.*

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 311 Contemporary Dance Ensemble Repertory II (0, 4). 2 credits.
Offered fall and spring.

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.
Offered fall and spring.

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.
Offered fall.

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. 2 credits. *Offered spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*
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. *Offered spring.*
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.
Offered fall.

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 instructor.

DANC 390. New Directions in Dance. 1-3 credits. *Offered once a year.*
Study of selected timely topics in dance. May be repeated when course content changes. See e-campus for current topic.

DANC 411. Contemporary Dance Ensemble Repertory III (0, 4). 2 credits. *Offered fall and spring.*

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.
Offered fall and spring.

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. *Offered fall and spring.*
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. *Offered fall and spring.*
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. *Offered fall.*
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. *Offered spring.*
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. *Offered fall.*
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.

DANC 450. The Open Studio: An Interdisciplinary Approach to Creative Arts. 3 credits. *Offered once every other year.*

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. *Offered once every other year.*
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. *Offered spring.*
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.

DANC 490. Special Studies in Dance. 1-3 credits each semester.
Offered fall and spring.

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. *Offered fall and spring.*
A faculty arranged, prepared and monitored internship program designed to provide practical experiences in dance. *Prerequisite:* Permission of dance area coordinator.

DANC 499. Honors. 6 credits. *Offered fall and spring.*
Year course.

Early Childhood Education

College of 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. *Prerequisites:* 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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Prerequisite:* 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.

Offered fall and spring.

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. *Offered fall and spring.*

Economics

College of Business**GECON 200. Introduction to Macroeconomics.** 3 credits. *Offered fall, spring and summer.*

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.

ECON 201. Principles of Economics (Micro). 3 credits. *Offered fall, spring and summer.*

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. *Offering to be announced.*

Application of elementary economic theory to current economic issues. Special emphasis is placed on public policy alternatives. *Prerequisites:* ECON 201 and GECON 200.

ECON 270. International Economics. 3 credits. *Offered fall, spring and summer.*

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 372. *Prerequisites:* ECON 201 and GECON 200.

ECON 300. Special Topics in Economics. 3 credits. *Offering to be announced.*

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:* GECON 200 and ECON 201 or equivalent.

ECON 301. Economies in Transition. 3 credits. *Offered spring.*

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 GECON 200.

ECON 302. History of Economic Thought. 3 credits. *Offered spring.*

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 GECON 200.

ECON 305. Environmental Economics. 3 credits. *Offered fall.*

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.

Offered fall.

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. *Offering to be announced.*

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. *Offering to be announced.*

A survey of the economic growth and development of the United States from Colonial times to the present. *Prerequisites:* ECON 201 and GECON 200.

ECON 312. Comparative Economic Systems. 3 credits. *Offered fall.*

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 GECON 200.

ECON/FIN 325. Money and Banking. 3 credits. *Offered summer.*

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 GECON 200.

ECON 326. Public Finance. 3 credits. *Offered fall.*

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 GECON 200.

ECON 331. Intermediate Microeconomic Theory. 3 credits. *Offered fall and spring.* Intermediate analysis of the determination of price, resource allocation and product distribution in a free enterprise economy. *Prerequisites:* ECON 201, GECON 200, and MATH 205 or MATH 235.

ECON 332. Intermediate Macroeconomic Theory. 3 credits. *Offered fall and spring.*

Intermediate-level analysis of the major approaches to the determination of economic aggregates with emphasis given to structuring a common analytic framework. *Prerequisites:* ECON 201, GECON 200, and MATH 205 or MATH 235.

ECON 340. Economics of Natural Resources. 3 credits. *Offered fall.*

Emphasizes availability of exhaustible resources and optimum utilization rates. Examines questions of intertemporal allocation and costs of growth. *Prerequisites:* ECON 201 and GECON 200.

ECON 345. Industrial Organization. 3 credits. *Offered fall and spring.*

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 GECON 200.

ECON 360. Labor Economics. 3 credits. *Offered fall.*

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 GECON 200.

ECON 365. Economic Development. 3 credits. *Offered fall.*

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 GECON 200.

ECON 370. International Trade and Trade Policies. 3 credits. *Offered fall.*

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 GECON 200.

ECON/FIN 372. International Finance and Payments. 3 credits.

Offered fall, spring and summer.

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 GECON 200.

ECON 382. Urban Economics. 3 credits. *Offered spring.*

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 GECON 200.

ECON 385. Econometrics. 3 credits. *Offered fall and spring.*

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:* ECON 201, GECON 200, COB 191 or MATH 220, and MATH 205 or MATH 235.

ECON 394. Economics Internship. 3 credits. *Offered fall, spring and summer.*

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 GECON 200.

ECON 400. Advanced Topics in Economics. 3 credits. *Offering to be announced.*

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 instructor.

ECON 401. Senior Assessment in Economics. 0 credits. *Offered fall and spring.*

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. *Offered spring.*

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, GECON 200, and junior or senior standing.

ECON 426. Theory of Public Choice. 3 credits. *Offered spring.*

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. *Offered spring.*

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. *Offered fall.*

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. *Offered fall.*

Study of macroeconomics at an advanced level. Topics will normally include, but are not limited to, long-run models of economic growth and short-run models of economic fluctuations. Alternative policies for improving economic performance will be identified and evaluated. *Prerequisites:* ECON 332, and MATH 205 or MATH 235.

ECON 455. Economics of Regulated Industries. 3 credits. *Offered fall.*

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. *Offered fall.*

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. *Offered spring.*

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. *Prerequisite:* ECON 200 and ECON 201.

ECON 484. Mathematical Economics. 3 credits. *Offering to be announced.*

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. *Offered spring.*

Theory and application of statistical techniques to study empirical relationships among economic variables. Students will use econometrics to develop forecasts of economic activity, to estimate limited dependent variable and simultaneous equation models, and to model various time-series processes. *Prerequisite:* ECON 385.

ECON 487. Economic Consulting. 3 credits. *Offered fall.*

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. 3 credits. *Offered fall and spring.*

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.

Offered fall, spring and summer.

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. Year course. 6 credits. *Offered fall and spring.*

See catalog description entitled "Graduation with Distinction" and "Graduation with Honors."

Education

College of 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, 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 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.

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 and unique characteristics of students in grades 6-12, including culture, heritage, language and learning abilities. *Corequisites:* MIED 311 and READ 312 for middle students. EDUC 312 for special education 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 332. Single Camera TV Operation. 1 credit.

A basic understanding of the principles of video equipment along with skills in the use, set up and operation of one-half inch portable videocassette systems.

EDUC 336. Photography in Education. 1 credit.

An introduction to the use and operation of 35mm SLR cameras. Note: All needed equipment will be supplied.

EDUC 339. Production of Computer-based Materials for Education. 1 credit.

Creating educational material in a variety of media for computer-based presentations. Principles of creating visual messages will be examined.

EDUC 360. 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 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.

EDUC 375. Selected Topics in Media. 1-2 credits.

An in-depth study of a narrowly defined topic or practice in media. May be repeated for credit when course content changes.

EDUC 381. Field Experience in English as a Second Language. 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. *Prerequisite:* Completion of ESL minor requirements.

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 SPED 410.

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:* GPSYC 160, PSYC 270, EDUC 360, appropriate methods courses and permission of the coordinator of field experiences.

EDUC 490. Special Topics in Education. 3 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. Honors. 3-6 credits.

Independent research topic initiated and completed by qualified upper-division students. See catalog sections entitled "Graduation with Distinction" and "Graduation with Honors."

Elementary Education

College of 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:* GPSYC 160 and admission to teacher education. *Corequisites:* ELED 309, ELED 310, ELED 311 and READ 366.

ELED 309. Learning and Teaching in the Elementary School. 3 credits.

This course provides pre-service teachers with an introduction to learning and teaching processes. Factors affecting learning and the discoveries from brain research set the stage for decisions teachers make about instruction. Models of instruction, active engagement, creating a climate for learning and appropriate planning, implementation and reflection will foster the development of teachers. Throughout the course, issues of age, culture, learning preferences and ability will be presented. *Prerequisite:* Admission to teacher education. *Corequisites:* ELED 308, 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 Connections. 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, ELED 309, 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 implement 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, and materials and strategies for organizing the learning environment for elementary learners will be examined. *Prerequisites: ECED 372, ELED 308, ELED 310, ELED 311 and READ 366. 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.

Engineering

School of Engineering

ENGR 112. Introduction to Engineering (1,2). 3 credits.

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. *Prerequisites: MATH 235, PHYS 240 and PHYS 140L.*

ENGR 212. Statics and Dynamics (3,1). 4 credits.

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: ENGR 112, PHYS 240 and PHYS 140L. Corequisite: MATH 238.*

ENGR 221. Management of Technology I: Systems Analysis and Project Management. 3 credits.

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. *Prerequisite: ENGR 112.*

ENGR 231. Engineering Design I. 1 credit.

ENGR 231 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: ENGR 112.*

ENGR 232. Engineering Design II. 1 credit.

ENGR 232 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: ENGR 231.*

English

Department of English

GENG 235. Survey of English Literature: From Beowulf to the 18th Century. 3 credits. *Offered fall and spring.*

A general survey presented chronologically.

GENG 236. Survey of English Literature: 18th Century to Modern. 3 credits.

Offered fall and spring.

A general survey presented chronologically.

GENG 239. Studies in World Literature. 3 credits. *Offered fall and spring.*

Introduction to masterpieces of world literature with emphasis on non-Western literature. (May be focused regionally or topically.)

GENG 247. Survey of American Literature: From the Beginning to the Civil War. 3 credits. *Offered fall and spring.*

A general survey presented chronologically.

GENG 248. Survey of American Literature: From the Civil War to the Modern Period. 3 credits. *Offered fall and spring.*

A general survey presented chronologically.

GENG 260. Survey of African-American Literature. 3 credits. *Offered fall and spring.*

Survey of literature by African-American authors from the 18th century to the present.

ENGR/WRTC 290. Intermediate Composition. 3 credits. *Offered fall and spring.*

This course stresses the argumentative and persuasive essay as well as grammar and usage.

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. *Offered fall and spring.*

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. *Prerequisites: Major or minor status and approval of the internship director. Does not count as an English elective.*

ENG 299. Writing About Literature. 3 credits. *Offered fall and spring.*

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 302. Special Topics in Literature and Language. 3 credits.

Offered fall and spring.

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 304. Modern Literature and Religion. 3 credits.

Using a variety of readings, this course explores 20th-century literary perspectives on the religious and literary culture of the western traditions. Genre, readings and emphasis may vary with the instructor.

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 311. Medieval Literature and Culture. 3 credits.

An introduction to 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 312. Special Topics in Medieval Literature. 3 credits.

Studies in medieval literature. May be organized by theme, genre, geography or date and may focus on cultural context and critical or theoretical issues. May be repeated for credit when course content changes.

ENG 313. Poetry and Prose of the Early British Renaissance. 3 credits.

Chief poets and prose writers of the early British Renaissance, including Skelton, More, Sidney, Spenser, Marlowe and Shakespeare.

ENG 314. 17th-Century British Literature. 3 credits.

Chief prose writers of the 17th century, including such writers as Bacon, Burton, Browne, Walton, Hobbes, Dryden and Pepys.

ENG 315. 17th-Century British Poetry. 3 credits.

Chief poets of the 17th century from Donne to the Restoration.

ENG 316. Renaissance and 17th-Century British Drama. 3 credits.

Major works of British dramatists, excluding Shakespeare, from 1500-1660.

ENG 321. Restoration and 18th-Century British Prose and Poetry. 3 credits.

A study of the poetry and prose (other than the novel) from the Age of Satire, including works by Dryden, Swift, Pope and Johnson.

ENG 322. Restoration and 18th-Century British Drama. 3 credits.

Dramatists from Dryden and Wycherley to Goldsmith and Sheridan.

ENG 323. 18th-Century British Novel. 3 credits.

A study of the rise and development of the novel in England during the 18th century.

ENG 325. Romantic Poetry. 3 credits.

A study emphasizing selected works of major Romantic poets. Attention given to critical theories, intellectual and cultural movements and 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. The Gothic: Change and Continuity. 3 credits.

A study of the origins, influence and transformations of Gothic fiction from the 18th century to the present, with emphasis on the literary uses of the supernatural.

ENG 329. Victorian Literature. 3 credits.

Study of British literature of the Victorian period with primary emphasis on poetry and nonfiction prose.

ENG 330. The 19th-Century English Novel. 3 credits.

The development of the English novel in the 19th century and the study of representative works.

ENG 331. Modern Poetry. 3 credits.

British and American poetry from 1900 to 1945.

ENG 332. Contemporary Poetry. 3 credits.

British and American poetry from 1945 to the present.

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 Novel. 3 credits.

The British novel from 1900 to 1945.

ENG 341. Contemporary British Novel. 3 credits.

The British novel from 1945 to the present.

ENG 342. Early American Literature. 3 credits.

Significant genres, writers and literary movements of the 17th and 18th centuries.

ENG 343. Writers of the American Renaissance. 3 credits.

Selected works of major figures such as Emerson, Thoreau, Hawthorne, Poe, Melville and Whitman.

ENG 344. American Realism and Naturalism. 3 credits.

Selected works of major figures such as Dickinson, Twain, Howells, James, Crane, Norris and Dreiser.

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 20th century.

ENG 356. Modern American Novel. 3 credits.

The American novel from 1914 to 1945.

ENG 357. Contemporary American Fiction. 3 credits.

A study of contemporary American novels and short stories written since 1945 with emphasis on current fiction. May be repeated for credit when course content changes.

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 361. African American Fiction Writers. 3 credits.

Selected works of fiction by major African-American writers of the 20th century.

ENG 362. African American Poets. 3 credits.

Selected works of poetry by major African-American writers of the 20th century. May be repeated for credit when course content changes.

ENG/WMST 367. Women's Poetry. 3 credits.

A study of poetry by women.

ENG/WMST 368. Women's Fiction. 3 credits.

A study of novels and short stories by women.

ENG/WMST 370. Exploring Gay and Lesbian 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. Texts 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 374. Introduction to Anglo-Irish Literature. 3 credits.

Selected writings in English by outstanding Irish poets, playwrights and novelists.

ENG 375. Studies in Anglo-Irish Literature. 3 credits.

Study of the works of one or more Anglo-Irish writers.

ENG 381. An Introduction to Film to 1960. 3 credits. *Offered fall.*

An analysis of film from its beginnings to the modernism of the 1950s and early 1960s.

ENG 382. An Introduction to Film Since 1960. 3 credits.

An analysis of world cinema from early modernism through the present.

ENG 383. Major Film Genres. 3 credits. *Offered spring odd years.*

The literary and critical study of film genres.

ENG 384. Major Film Directors. 3 credits. *Offered spring even years.*

Literary or critical study of several major directors.

ENG 391. Introduction to Creative Writing—Nonfiction. 3 credits.

Offered fall and spring.

A basic workshop in reading and writing works of creative nonfiction.

ENG 392. Introduction to Creative Writing – Poetry. 3 credits. *Offered fall and spring.*

A basic workshop in reading and writing poetry.

ENG 393. Introduction to Creative Writing – Fiction. 3 credits. *Offered fall and spring.*

A basic workshop in reading and writing fiction. May be repeated for credit when course content changes.

ENG/WRTC 396. Advanced Composition. 3 credits. *Offered fall and spring.*
Extensive exercises in expository writing, with emphasis on rhetorical types of composition, designed to develop sophistication of style in the student's writing.

ENG 410. Major Author. 3 credits. *Offered fall and spring.*
Study of the works of one or more major British or American authors. May be repeated for credit when course content changes; credit may not be earned in both ENG 410 and ENG 510 unless course content changes.

ENG 412. Special Topic Seminar. 3 credits. *Offered fall and spring.*
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 416. Old English Language and Literature. 3 credits.
An introduction to the Old English language through selected readings in poetry and prose. Credit may not be earned in both ENG 416 and ENG 503.

ENG 418. English Linguistics. 3 credits.
Introduction to English linguistics including sociolinguistics and psycholinguistics.

ENG 419. 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 421. 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 422. 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 425. Survey of Literary Criticism to 1950. 3 credits.
Survey of the nature, function and development of literary criticism from Aristotle to Eliot. Credit may not be earned in for both ENG 425 and ENG 508.

ENG 426. Contemporary Practices in Literary Criticism. 3 credits.
Study of the major debates in current critical discourse. Credit may not be earned for both ENG 426 and ENG 509.

ENG 427. Studies in South Asian Literature. 3 credits.
A study of selected works of South Asian literature.

ENG 429. Postcolonialism. 3 credits.
Study of selected works of postcolonial literature. *Prerequisite: Completion of ENG 299 for English majors.*

ENG 430. Studies in Comparative Literature. 3 credits.
Comparative study of selected world literature.

ENG 431. Studies in Caribbean Literature. 3 credits.
A survey of the literary achievement of novelists, poets and dramatists of the Caribbean.

ENG 432. 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 course content changes.

ENG 433. Studies in Arabic Literature. 3 credits.
A study of Arabic writers. May be repeated for credit when content varies.

ENG/SPAN 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.

ENG/FR 435. Studies in French Literature. 3 credits.
A study of selected works of French literature. Instruction is in English. May be repeated for credit when course content changes.

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. 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.

ENG 440. 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.)

ENG 441. 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.)

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 451. Chaucer. 3 credits.

The Canterbury Tales and other major works of Chaucer.

ENG 456. Shakespeare's Tragedies and Romances. 3 credits.

A study of selected tragedies and romances; nondramatic work may be considered.

ENG 457. Shakespeare's Comedies and Histories. 3 credits.

A study of selected comedies and histories; nondramatic work may be considered.

ENG 458. 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 456 or ENG 457 but may not be taken for credit in addition to both.

ENG 461. Milton. 3 credits.

Major prose and poetical works of John Milton with special emphasis on Paradise Lost.

ENG/WMST 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.*

ENG 467. Feminist Literary Theory. 3 credits.

An intensive study of a variety of feminist critical approaches and their applications to literature. *Prerequisite: ENG 367 or ENG 368.*

ENG 471. 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.

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. Creative Nonfiction. 3 credits.

The writing of nonfiction narratives as a creative art. *Prerequisite: ENG 393, ENG 396 or instructor's permission.*

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 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 392 or ENG 393.*

ENG 499. Honors. 6 credits.

Year course.

Environment

Cross Disciplinary Studies

ENVT 200. Environmental Systems Theory. 3 credits. *Offered every other fall.*

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 the environmental management or environmental studies minor for geology or earth science majors.*

ENVT 400. Capstone Seminar in Environmental Problem Solving.

3 credits. *Offered fall and spring.*

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 instructor. Students wishing to complete more than one of the environmental minors (environmental studies, environmental science, environmental management) may receive dual credit for ENVT 400.*

Environmental Management

College of Integrated Science and Technology

ENVM 480. Selected Topics in Environmental Management.

1-4 credits. *Offered by arrangement.*

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. *Offered by arrangement.*

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 & II. 3 credits each. *Offered by arrangement.*

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.*

Exceptional Education

College of Education

EXED 200. Nature and Issues of Disabilities. 3 credits.

The nature, needs and problems of exceptional children and how these relate to educational provisions are studied. The status of the disabled in society will be emphasized. Federal and state laws ensuring the rights of the disabled will be stressed.

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. *Prerequisite: EXED 200 or 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 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 only.*

EXED 310. Survey of Emotional/Behavioral Disorders. 2 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. *Prerequisite: EXED 200 or permission of the instructor.*

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. *Prerequisite: Teaching and non-teaching minors only; Corequisite: EDUC 310.*

EXED 320. Survey of Learning Disabilities. 2 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. *Prerequisite: EXED 200 or permission of the instructor.*

EXED 330. Survey of Mental Retardation. 2 credits.

A detailed study of the characteristics, diagnosis, treatment and education of individuals with mental retardation. 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 mental retardation. *Prerequisite: EXED 200 or permission of the instructor.*

EXED 340. Classroom Observations in Special Education. 1 credit.

This practicum experience will provide an opportunity to observe the learning and behavioral characteristics of students with learning disabilities, mental retardation and emotional disturbance in various educational settings. *Prerequisite: Teaching licensure students only; corequisites: EXED 310, EXED 320 and EXED 330.*

EXED 341. Characteristics of High-Incidence Disabilities. 4 credits.

A detailed study of the definitions, characteristics, and learning and behavioral supports needed for students with high-incidence disabilities who are accessing the general education curriculum, including but not limited to students with learning disabilities, emotional disturbance, mental retardation, developmental delay, autism, other health impairment, traumatic brain injury and multiple disabilities. Content will include age span and developmental issues, emotional and behavioral adjustment, social development, language, development, cognitive functioning, medical aspects, and cultural/ethnic and socioeconomic factors impacting individuals with disabilities. *Prerequisites: EXED 200, EDUC 310, EDUC 360.*

EXED 350. Psychoeducational Assessment of Learning and Behavior Problems. 3 credits.

A detailed study of psychoeducational assessment procedures and instruments for eligibility, instructional planning and evaluation for students with mental retardation, learning disabilities and emotional disturbance. The course emphasizes skills in administering formal and informal instruments, interpreting results and using assessment data for decision making in educational planning, delivery and monitoring. *Prerequisite: EXED 341.*

EXED 375. Overview Study of Autism Spectrum Disorders. 3 credits.

This course is designed to provide an overview of the current issues involved in working with children 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. We will discuss positive behavioral supports; social skills development; sensory processing, motor planning and sensory integration; and communication and language development. We will review current research related to the evaluation, planning, instruction and supports for students with a disability on the autism spectrum. A range of institutional methodologies and techniques will be emphasized throughout the course.

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 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 & 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 O&M; 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 and 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 300.*

EXED 450. Principles of Specialized Reading Instruction. 3 credits.

The content of this course will focus on the acquisition and development of reading skills for students with disabilities. Content will include: characteristics of students with reading disabilities; informal assessment strategies; the relationship of oral language to reading; stage-development of reading skills; research-based instructional methods; principles of specialized reading instruction; scientifically-based reading programs for students with disabilities; and collaboration with parents to enhance students' reading skills. *Prerequisite: READ 430.*

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. *Prerequisite: EXED 200 or equivalent.*

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.

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 470. Directed Practicum in Special Education. 3 credits.

This practicum course provides a structured supervised experience teaching students with disabilities. Application of skills in planning direct instruction, creating instructional materials, collecting performance data, managing behavior and developing social skills will be emphasized. *Prerequisite: EXED 475.*

EXED 471. Practicum in Integrated Primary EXED. 1 credit.

This practicum experience will provide an opportunity to enhance understanding of the scope and sequence of the general education curriculum, to observe the learning and behavioral characteristics of primary grades students with developmental delays and/or disabilities in inclusive educational settings and to observe methods for delivering instruction in inclusive classrooms. *Prerequisite: This course is for EXED-ECSE students only. Corequisite: READ 430.*

EXED 475. IEP and Curriculum-Based Assessment. 3 credits.

A detailed study of purposes and procedures involved in the development of Individualized Educational Programs (IEP) for students with disabilities. In addition, the course emphasizes the selection or design of curriculum-based assessment to plan and evaluate instruction in academics, social behaviors and life skills. *Prerequisite: EXED 350.*

EXED 485. Systematic Behavioral Interventions. 3 credits.

An application of various systematic behavioral interventions to the management of behavior and learning of individuals with disabilities. Approaches to teaching social skills are also addressed. *Corequisite: EXED 470.*

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 program coordinator.*

EXED 499. Honors. 6 credits.

See catalog sections titled "Graduation with Distinction" and "Graduation with Honors."

Family Studies

Department of Social Work**FAM 133. The Contemporary Family.** 3 credits. *Offered fall and/or spring.*

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. *Offered on a rotating basis.*

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: GPSYC 101, GPSYC 160 or equivalent.*

FAM 330. Family Relations. 3 credits. *Offered on a rotating basis.*

A study of the structures, functions and dynamics of contemporary families with consideration of diverse cultural definitions and contexts. *Prerequisite: FAM 133 or SOCI 276.*

FAM 335. Parent-Child Relationships Across the Lifespan. 3 credits.

Offered on a rotating basis.

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 276.*

FAM/GERN/NPS/SOWK 375. Grant Writing for Agencies. 3 credits.

Offered on a rotating basis.

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 are examined with guest speakers providing current insights. Students research, write and complete a funding proposal.

FAM/SOWK 386. Youth Empowerment Strategies (YES). 3 credits.

Offered fall and/or spring.

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. *Offered fall and spring.*

This seminar is designed to integrate and apply knowledge from the student's major and the family studies 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 276, three additional courses in the family studies minor, and junior or senior standing.*

FAM 487. Special Topics in Family Studies. 3 credits. *Offered on a rotating basis.*

Examination of selected topics that are of current importance to family studies. Course may be repeated for credit. *Prerequisite: FAM 133 or SOCI 276.*

FAM 490. Special Studies in Family Studies. 1-3 credits. *Offered fall and/or spring.*

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 276 and two additional courses in the family studies minor or permission of the instructor.*

Finance

College of Business**FIN 210. Principles of Real Estate.** 3 credits. *Offered fall and spring.*

Emphasizes industry principles and economic factors influencing the real estate business. Subjects include contracts, deeds, valuation, financing and subdivision development.

FIN 250. Introduction to Quantitative Finance. 3 credits.

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. *Prerequisite: MATH 236 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 300.*

EXED 450. Principles of Specialized Reading Instruction. 3 credits.

The content of this course will focus on the acquisition and development of reading skills for students with disabilities. Content will include: characteristics of students with reading disabilities; informal assessment strategies; the relationship of oral language to reading; stage-development of reading skills; research-based instructional methods; principles of specialized reading instruction; scientifically-based reading programs for students with disabilities; and collaboration with parents to enhance students' reading skills. *Prerequisite: READ 430.*

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. *Prerequisite: EXED 200 or equivalent.*

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.

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 470. Directed Practicum in Special Education. 3 credits.

This practicum course provides a structured supervised experience teaching students with disabilities. Application of skills in planning direct instruction, creating instructional materials, collecting performance data, managing behavior and developing social skills will be emphasized. *Prerequisite: EXED 475.*

EXED 471. Practicum in Integrated Primary EXED. 1 credit.

This practicum experience will provide an opportunity to enhance understanding of the scope and sequence of the general education curriculum, to observe the learning and behavioral characteristics of primary grades students with developmental delays and/or disabilities in inclusive educational settings and to observe methods for delivering instruction in inclusive classrooms. *Prerequisite: This course is for EXED-ECSE students only. Corequisite: READ 266.*

EXED 475. IEP and Curriculum-Based Assessment. 3 credits.

A detailed study of purposes and procedures involved in the development of Individualized Educational Programs (IEP) for students with disabilities. In addition, the course emphasizes the selection or design of curriculum-based assessment to plan and evaluate instruction in academics, social behaviors and life skills. *Prerequisite: EXED 350.*

EXED 485. Systematic Behavioral Interventions. 3 credits.

An application of various systematic behavioral interventions to the management of behavior and learning of individuals with disabilities. Approaches to teaching social skills are also addressed. *Corequisite: EXED 470.*

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 program coordinator.*

EXED 499. Honors. 6 credits.

See catalog sections titled "Graduation with Distinction" and "Graduation with Honors."

Family Studies

Department of Social Work**FAM 133. The Contemporary Family.** 3 credits. *Offered fall and/or spring.*

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. *Offered on a rotating basis.*

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: GPSYC 101, GPSYC 160 or equivalent.*

FAM 330. Family Relations. 3 credits. *Offered on a rotating basis.*

A study of the structures, functions and dynamics of contemporary families with consideration of diverse cultural definitions and contexts. *Prerequisite: FAM 133 or SOCI 276.*

FAM 335. Parent-Child Relationships Across the Lifespan. 3 credits.

Offered on a rotating basis.

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 276.*

FAM/GERN/NPS/SOWK 375. Grant Writing for Agencies. 3 credits.

Offered on a rotating basis.

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 are examined with guest speakers providing current insights. Students research, write and complete a funding proposal.

FAM/SOWK 386. Youth Empowerment Strategies (YES). 3 credits.

Offered fall and/or spring.

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.

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This seminar is designed to integrate and apply knowledge from the student's major and the family studies 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 276, three additional courses in the family studies minor, and junior or senior standing.*

FAM 487. Special Topics in Family Studies. 3 credits. *Offered on a rotating basis.*

Examination of selected topics that are of current importance to family studies. Course may be repeated for credit. *Prerequisite: FAM 133 or SOCI 276.*

FAM 490. Special Studies in Family Studies. 1-3 credits. *Offered fall and/or spring.*

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 276 and two additional courses in the family studies minor or permission of the instructor.*

Finance

College of Business**FIN 210. Principles of Real Estate.** 3 credits. *Offered fall and spring.*

Emphasizes industry principles and economic factors influencing the real estate business. Subjects include contracts, deeds, valuation, financing and subdivision development.

FIN 250. Introduction to Quantitative Finance. 3 credits.

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. *Prerequisite: MATH 236 or permission of the instructor.*

FIN/ECON 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 GECON 200.

FIN/MATH 328. Time Series Analysis. 3 credits.

Regression and exponential smoothing methods for forecasting nonseasonal and seasonal time series, stochastic processes, Box-Jenkins' autoregressive and moving average models. *Prerequisites:* MATH 238 and MATH 318.

FIN 345. Finance for the Non-Financial Manager. 3 credits. *Offered fall and spring.*

Study of theoretical concepts and analytical techniques to aid management decisions on financial problems. Topics include: working capital and fixed asset management for profit expansion. *Prerequisites:* COB 241, junior standing (56 hours) and a cumulative 2.0 grade point average in all courses taken at JMU. Restricted to non-college of business majors.

FIN 355. International Financial Management. 3 credits. *Offered fall and spring.*

The purpose of this course is to provide a comprehensive examination of the investing and financing decisions of a multinational firm. Particular emphasis is placed upon 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. *Prerequisites:* COB 300B.

FIN 360. Analytical Methods in Finance. 3 credits. *Offered fall and spring.*

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 theoretical determination of asset prices, risk and return, as well as the estimation and analysis and asset prices. *Prerequisite or corequisite:* COB 300. Not permitted for quantitative finance majors.

FIN 362. Financial Analysis. 3 credits. *Offered fall and spring.*

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. This course provides a foundation for further study in managerial finance and investments. *Prerequisite:* COB 300.

FIN 365. Intermediate Financial Management. 3 credits. *Offered fall and spring.*

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. *Prerequisite or corequisite:* FIN 360. For quantitative finance majors only, prerequisite: FIN 250.

FIN 370. Real Estate Finance. 3 credits. *Offered once a year.*

A comprehensive examination of the decision-making processes involved in purchasing and financing real assets. The focus is on cost of funds and optimal financial structure of complex real estate projects. *Prerequisite:* COB 300.

FIN 371. Principles of Investments. 3 credits. *Offered fall and spring.*

The investor's view of the operation of the capital markets. Theories and practice of investments, including analysis of financial instruments and real assets and their effective combination into portfolios. *Prerequisite:* FIN 250 or FIN 360.

FIN/ECON 372. International Finance and Payments. 3 credits.

Offered fall and spring.

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 GECON 200.

FIN 375. Madison Investment Fund Management. 3 credits. *Offered fall.*

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. *Prerequisite:* FIN 371 and instructor permission with membership in the Madison Investment Fund.

FIN 380. Elemental and Derivative Securities Analysis. 3 credits.

Offered fall and spring.

This course undertakes an in-depth examination of the broad array of financial instruments traded in contemporary finance markets, which are available for financing, investing and managing financial price risk. *Prerequisite:* FIN 250 or FIN 360.

FIN/MATH 395. Mathematical Finance. 3 credits. *Offered once a year.*

This course presents 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. *Offered once a year.*

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.

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. *Offered once a year.*

Forward contracts, futures, swaps and options are treated as 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 FIN 380.

FIN 455. Advanced International Financial Management. 3 credits.

Offered fall and spring.

This course will 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. *Prerequisite:* FIN 355 and FIN 371 or ECON 372 and FIN 371.

FIN 460. Commercial Banking. 3 credits.

A study of 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 dramatic changes in their operating and regulatory environments. *Prerequisite:* 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.

A 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. Advanced Topics in Investments. 3 credits.

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.

This course will introduce students to practical methods used to identify, quantify, predict, value, diversify and manage risk in the financial environment. Students will 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. *Prerequisite:* FIN 365 and FIN 371.

FIN 480. Seminar in Financial Engineering. 3 credits. *Offered once a year.*

Financing engineering 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. *Offered fall and spring.*

The financing of a new business enterprise or expansion and the financial condition of existing firms is examined within 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. *Completion of 105 hours. Open only to finance majors.*

FIN 490. Special Studies in Finance. 1-3 credits. *Offered fall and spring.*

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 494. Business Internship. 3 credits.

Elective for finance majors offered only during summer between junior and senior year. Students must apply to internship coordinator by the deadline and will obtain credit only if pre-approved by the coordinator prior to the start of the internship. Application deadline will be enforced. See <http://www.jmu.edu/finance> for application and information. *Prerequisites:* Minimum GPA of 2.5, application received by the application deadline and approved by the internship coordinator prior to the beginning of the internship.

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. *Prerequisites:* FIN 250 or FIN 360.

FIN 499. Honors. 6 credits. *Year course. Offered fall and spring.*

See catalog sections entitled "Graduation with Distinction" and "Graduation with Honors."

Foreign Language

Department of Foreign Languages, Literatures and Cultures

FL 267. The Literature of Opera in Translation. 3 credits. *Offered fall and spring.*

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. *Offering varies.*

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. *Offered fall or spring.*

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. *Offered fall or spring.*

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. *Offered fall or spring.*

Students will study a particular topic in the linguistics of a specific country. Topics could include sociolinguistics or psycholinguistics. Course may be repeated. *Prerequisite:* Permission of the instructor.

FL 490. Special Studies in Foreign Languages.** 1-4 credits each semester. *Offered fall and spring.*

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. *Offered fall and spring.*

**These courses are taught in the various languages offered by the department. The title of the course will designate the specific language studied.

French

Department of Foreign Languages, Literatures and Cultures

FR 101-102. Elementary French (4, 1). 4 credits each semester. *Offered fall and spring.*

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.

FR 109. Accelerated Review of Elementary French (3, 1). 3 credits.

Offered fall and spring.

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 or qualify through the placement exam. *Prerequisite:* Permission of the department head.

FR 111-212. Intensive French. 6 credits each semester. *Offered May and summer.*

The fundamentals of French through listening, speaking, reading and writing. The first semester is the equivalent to FR 101-102 and the second is the equivalent to FR 231-232.

FR 231-232. Intermediate French. 3 credits each semester. *Offered fall and spring.*

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite:* One year of college French or equivalent.

FR 266. French Literature in Translation. 3 credits. *Offered fall and spring.*

French literature, 1800 to the present. All lectures and readings are in English. Does not count toward a major, minor or licensure in French.

FR 300. French Grammar and Communication. 3 credits. *Offered fall and spring.*

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 232 or equivalent.

FR 307. History of French Civilization. 3 credits. *Offered fall.*

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. *Offered spring.*

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. *Offered fall and spring.*

Intensive drill in French sounds and intonation patterns. Instruction is in French. *Prerequisite:* FR 300.

FR 320. French Oral and Written Communication. 3 credits. *Offered fall and spring.*

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. *Offered spring.*

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 320.

FR 335. Introduction to French Literature. 3 credits. *Offered fall and spring.*

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. *Offered fall or spring.*

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 400. Advanced Conversation. 3 credits. *Offered fall or spring.*

Discussions deal with topics of current interest. *Prerequisite:* FR 320.

FR 405. Nineteenth-Century French Literature. 3 credits. *Offered fall or spring.*

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. *Offered fall or spring.*

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. *Offered fall or spring.*
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. *Offered fall and spring.*
A study of selected works of French literature. Instruction is in English. May be repeated for credit when course content changes.

FR 440. Stylistics and Translation. 3 credits. *Offered fall or spring.*

An intensive course in writing and translation from and into English and French. Contemporary topics taken from various fields. Comparative terminology. *Prerequisite: FR 320.*

FR 446. Special Topics in French Literature. 3 credits. *Offered fall or spring.*
Study of a particular topic in French literature. It may cover all or specific French literature genre. *Prerequisite: FR 320.*

FR 447. Special Topics in French Civilization and Culture. 3 credits.
Offered fall or spring.

Students will study a particular topic in the civilization and/or culture of Francophone countries. Course may be repeated. *Prerequisite: FR 320.*

FR 448. Special Topics in French Linguistics. 3 credits. *Offered fall or spring.*
Students will study a particular topic of French linguistics. Topics could include an introduction to French sociolinguistics and psycholinguistics. Course may be repeated. *Prerequisite: FR 320.*

FR 465. French Cinema 1930-1980. 3 credits. *Offered every other fall.*

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. *Every other spring.*

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.*

General Business

College of Business

GBUS 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

A **G** in bold and italics or an asterisk (*) preceding the course prefix and number indicates a course which potentially meets general education requirements. See Pages 81-88 for General Education information.

GAFT 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.

GAMST 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.

GANTH 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.

GANTH 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.

GANTH 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.

GART 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.

GARTH 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.

GARTH 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.

***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. Students may not receive credit for ASTR 120/121 and PHYS 120/121.

***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. Students may not receive credit for ASTR 120/121 and PHYS 120/121.

GBIO 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.

***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.

***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.*

GBUS 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.

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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. *Offered fall or spring.*
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. *Offered fall and spring.*
A study of selected works of French literature. Instruction is in English. May be repeated for credit when course content changes.

FR 440. Stylistics and Translation. 3 credits. *Offered fall or spring.*

An intensive course in writing and translation from and into English and French. Contemporary topics taken from various fields. Comparative terminology. *Prerequisite: FR 320.*

FR 446. Special Topics in French Literature. 3 credits. *Offered fall or spring.*
Study of a particular topic in French literature. It may cover all or specific French literature genre. *Prerequisite: FR 320.*

FR 447. Special Topics in French Civilization and Culture. 3 credits.
Offered fall or spring.

Students will study a particular topic in the civilization and/or culture of Francophone countries. Course may be repeated. *Prerequisite: FR 320.*

FR 448. Special Topics in French Linguistics. 3 credits. *Offered fall or spring.*
Students will study a particular topic of French linguistics. Topics could include an introduction to French sociolinguistics and psycholinguistics. Course may be repeated. *Prerequisite: FR 320.*

FR 465. French Cinema 1930-1980. 3 credits. *Offered every other fall.*

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. *Every other spring.*

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.*

General Business

College of Business

GBUS 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

A **G** in bold and italics or an asterisk (*) preceding the course prefix and number indicates a course which potentially meets general education requirements. See Pages 81-88 for General Education information.

GAFST 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.

GAMST 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.

GANTH 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.

GANTH 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.

GANTH 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.

GART 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.

GARTH 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.

GARTH 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.

***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. Students may not receive credit for ASTR 120/121 and PHYS 120/121.

***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. Students may not receive credit for ASTR 120/121 and PHYS 120/121.

GBIO 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.

***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.

***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.*

GBUS 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.

***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. The laboratory and lecture portions of CHEM 131 must be taken concurrently. Chemistry majors take 135L rather than 131L.

***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.

GCOM 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.

GCOM 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.

GCOM 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.

GECON 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.

GEIC 101. Wellness Dimension: Individual Perspectives. 3 credits.

The study of individuals developing and functioning in the human community. Emphasis placed on genetics, social influences and interaction, health and wellness-related behaviors, and personal choices. Suggestions are given as to how these factors contribute to human development and influence dimensions of personal health and wellness throughout lifelong process.

GEIC 102. The Sociocultural Dimensions: Community Perspective. 3 credits.

The study of principles and practices of participation in communities. Emphasis placed on how leadership affects communication, conflict, diversity, community change and social responsibility. Primary focus on interpreting behavior, identifying and evaluating one's actions, understanding ethical and non-ethical practices, and identifying sociocultural and psychological variables within the social context.

GENG 235. Survey of English Literature: From Beowulf to the 18th Century. 3 credits.

A general survey presented chronologically.

GENG 236. Survey of English Literature: 18th Century to Modern. 3 credits.

A general survey presented chronologically.

GENG 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.)

GENG 247. Survey of American Literature: From the Beginning to the Civil War. 3 credits.

A general survey presented chronologically.

GENG 248. Survey of American Literature: From the Civil War to the Modern Period. 3 credits.

A general survey presented chronologically.

GENG 260. Survey of African-American Literature. 3 credits.

Survey of literature by African-American authors from the 18th century to the present.

GGEOL 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.

GGEOL 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. Students may not receive credit for both GGEOL 102 and GSCI 102.

***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.

GGEOL 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 re-occurring questions of this class are: What are Earth's climate stories? How do we know?

***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.

***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.

GHIST 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.

GHIST 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.

GHIST 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.

GHIST 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.

GHTH 100. Personal Wellness. 3 credits.

Emphasizes lifestyle behaviors contributing to health promotion and disease prevention. General areas affecting health status are identified and suggestions made as to how health-related behaviors, self-care and individual decisions contribute to wellness and influence dimensions of health. A one-hour weekly individual physical wellness lab is included.

GHUM 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.

GHUM 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.

GHUM 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.

GHUM 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.

GHUM 252. Cross-Cultural Perspectives. 3 credits.

This course is a cross-disciplinary study of a non-Western culture. Students examine the ways people have responded to the human condition from different historical, religious and philosophical positions, and with their own artistic, musical and theatrical expressions. Sections, which vary by instructor, include East-Asian experiences and West-African humanities.

GISAT 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.

GISAT 113. Issues in Science and Technology: Living Systems
(2, 2). 3 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.

GISAT 151. Analytical Methods I: Applied Calculus. 4 credits.

This course introduces the concepts of differential and integral calculus and ordinary differential equations to model real-world problems in the sciences, business, and economics. Includes a laboratory component emphasizing numerical applications on the computer. Course assumes familiarity with algebra and trigonometry.

GISAT 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.

GISAT 251. Analytical Methods III: Introduction to Statistical Reasoning and Data Analysis. 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 sectors and health related fields. *Prerequisite:* Sophomore standing or permission of instructor.

GJUST 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.

GKIN 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.

GMAD 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.

***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.

***MATH 205. Introductory Calculus I.** 3 credits.

Topics from differential calculus with applications to the social, behavioral or life sciences and business or management. *Prerequisite:* 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 235. Not recommended for chemistry majors.

***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. *Prerequisite:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. Not open to majors in mathematics.

***MATH 231. Calculus with Functions I.** 4 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. *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. *Prerequisite:* Sufficient score on the Mathematics Placement Exam. MATH 235 is not open to students who have already earned credit in MATH 232.

GMUS 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.

GMUS 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.

GMUS 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.

GPIL 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.

GPIL 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.

***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.

***PHYS 140L. General Physics Laboratory.** 1 credit.

This laboratory course is designed to complement and supplement the PHYS 140 and PHYS 240 lecture courses. *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. *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. *Corequisite: MATH 232 or MATH 235.*

GPOSC 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.

GPOSC 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.

GPSYC 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.

GPSYC 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.

GPSYC 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.

GREL 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.

GSCI 101. Physics, Chemistry and the Human Experience (3,0). 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. *Prerequisite or corequisite: One of the following: MATH 103, MATH 107, MATH 205, MATH 220, MATH 231 or MATH 235.*

GSCI 104. Scientific Perspectives (0, 2). 1 credit.

A study of topics selected to allow students to participate in mathematical and scientific problem solving approaches to knowledge. *Prerequisite or corequisite as indicated on e-campus.*

GSCI 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.

GSCI 161. Science Processes. 1 credit.

Observing, classifying, measuring, inferring, communicating, predicting and experimenting in all science disciplines. This course will introduce core science process skills for all science disciplines in a hands-on, integrated laboratory block.

GSCI 162. The Science of the Planets. 2 credits.

The course will focus on the Earth and its neighbors, including the formation, evolution and dynamics of the Solar System. Students will also explore the similarities and differences of different solar system bodies (stars, planets, asteroids, comets) and the possibilities for finding life elsewhere. *Prerequisite: GSCI 161.*

GSCI 163. The Matter of Matter. 1 credit.

This course will focus on the topic of matter: particle theory, forms, characteristics, properties, atomic theory and models, conservation of mass and energy, nuclear reactions, heat transfer within matter, chemical bonds and chemical structures.

GSCI 164. Physical Science: Learning Through Teaching. 2 credits.

A hands-on conversation on how technology, science and engineering come together to describe our world. The course will cover many of the traditional concepts presented in an introductory physics course. The course will treat coordinate systems and their use in describing motion, forces and energy conservation, thermodynamics (temperature, pressure, heat), light (color, ray model, wave model), waves (sound), magnetism, and electricity. The course will indirectly reinforce skills developed in other courses in the cluster including scientific tools (mathematics, graphing, diagramming, experimenting and analyzing data) and using informational resources. *Corequisite: GSCI 163.*

GSCI 165. The Way Life Works. 1 credit.

Patterns, energy, information, life's machinery, feedback, community and evolution. These are major themes in how life works. This course will use these themes as a backdrop for looking at the way life works.

GSOCI 110. Social Issues in a Global Context. 3 credits.

An examination of current social issues, such as inequality and the changing workplace. Addresses questions of definition, nature, history, patterns and trends of various issues. Examines applicable theories and available research, social controls and social policy.

GSOCI 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?

GTHEA 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 playwrighting.

GWRTC 103. Critical Reading and Writing. 3 credits.

The course emphasizes the process of constructing a focused, logical, coherent, well-supported thesis or point of view. The students will employ research and formal documentation to produce writing stylistically appropriate to its audience, purpose and occasion. The course also places emphasis on editing for clarity and control of conventions. Instruction in writing and research includes critical analysis of primary and secondary sources through a series of reading and writing assignments. Students are prepared to use reading and writing in their personal, academic and civic lives. *GWRTC 103, or its equivalent, fulfills the General Education Cluster One writing requirement and is a prerequisite for all WRTC courses numbered 200 or above. Formerly GWRIT 103.*

Geographic Science

Department of Integrated Science and Technology

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. *Offered fall and spring.*

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.

GEOG 205. Cultural Geography. 3 credits. *Offered fall and spring.*

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 philosophy, power, race, class and gender. Exploitation and sustainability will be introduced as dimensions of cultural and environmental interaction.

GEOG 210. Physical Geography (2, 2). 4 credits. *Offered fall and spring.*

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. Geospatial Tools I – Cartography and GIS. 3 credits. *Offered fall.*

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. Geospatial Tools II – Remote Sensing and GPS. 3 credits.

Offered spring.

An introduction to remote sensing, global positioning systems (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 sensing images from a variety of different instruments. Environmental applications will be featured.

GEOG 230. Spatial Thinking and Problem Solving. 3 credits. *Offered spring.*

Introduction to the critical thinking skills associated with problems inherent with spatial components. Identification of the spatial elements of a given problem, the data requirements for addressing that problem, collections/acquisition, and organization of data and use of geographic information systems to explore spatial patterns relevant to the problem of interest. *Prerequisites:* GEOG 215, GEOG 216 and an introductory course in statistics (GISAT 251 or equivalent) or permission of instructor.

GEOG 260. Selected Topics in Geography. 3 credits. *Offered occasionally.*

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.

Offered fall and spring.

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 Interactions with the Physical Environment.

3 credits. *Offered spring.*

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 205 and GEOG 210.

GEOG 300. Population Geography. 3 credits. *Offered fall and spring.*

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 305. History and Philosophy of Geography. 4 credits. *Offered fall and spring.*

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. *Prerequisite:* Junior standing or permission of the instructor.

GEOG/GEOL 310. Environmental Issues. 1-4 repeatable credits, no limit.

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. *Offered spring.*

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. *Offered spring.*

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. *Offered once a year.*

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 related to the climate, biodiversity, natural resources and human populations. Sustainability will be introduced as a dimension of human development. *Prerequisite:* GEOG 290.

GEOG 322. Agricultural Systems. 3 credits. *Offered spring.*

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. *Prerequisites:* GEOG 290 or permission of instructor.

GEOG 325. Environmental Ethics. 3 credits. *Offered fall.*

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. *Offered spring.*

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.

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. *Offered spring.*
A survey of the physical and cultural environments of China, Taiwan, Japan, the Koreans, 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. *Offered spring.*
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. *Prerequisite: GEOG 290 or permission of the 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. *Offered summer.*

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 340. Biogeography. 3 credits. *Offered spring.*
This course emphasizes geographical biogeography and is 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.*

GEOG 341. Wilderness Techniques. 3 credits. *Offered spring.*
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 instructor.*

GEOG 342. Management and Protection of Natural Resources. 3 credits. *Offered fall.*

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. *Offered fall and spring.*
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. *Offered fall.*

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. *Offered once a year.*
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 350. Topics in Geography. 1-3 credits. *Offered spring.*
Examination of geographic topics that are of current interest. Can be repeated as course content changes. *Prerequisite: Permission of instructor.*

GEOG 365. Cartography and Geospatial Visualization. 3 credits. *Offered fall and spring.*

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 visualizations. Students will also develop a portfolio of hard copy and soft copy visualizations. *Prerequisite: GEOG 215.*

GEOG 366. Introduction to Geographic Information Science. 3 credits. *Offered fall.*

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. *Prerequisite: GEOG 215 or permission of the instructor.*

GEOG 375. Political Geography. 3 credits. *Offered fall and spring.*
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. *Offered spring.*
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 385. Principles of Remote Sensing (2, 2). 3 credits. *Offered fall and spring.*
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 types of remote sensing, the properties of common data types, making measurements using aerial photographs, basic digital image processing and applications. *Prerequisite: GEOG 216.*

GEOG 390. Senior Project Design. 1 credit.
The first in a sequence of three courses designed to involve students in research projects. This course focuses on identifying and designing a research project. *Prerequisite: Junior standing.*

GEOG/ISAT 429. Sustainability: An Ecological Perspective. 3 credits. *Offered spring.*

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 320, senior standing or permission of instructor.*

GEOG 430. Geography of Crop Plants. 3 credits. *Offered periodically.*
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 465. Topics in GIS. 3 credits. *Offered periodically.*
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. *Offered fall.*

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 instructor.

GEOG 467. GIS Project Management. 3 credits. *Offered fall.*

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 instructor.

GEOG 468. Internet Geographic Information Systems. 3 credits. *Offered spring.*

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 366 or permission of instructor.

GEOG 469. Applications of Geographic Information Systems. 3 credits.

Offered once a year.

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 instructor.

GEOG 470. Senior Seminar in Environmental Conservation, Sustainability and Development. 3 credits. *Offered fall and spring.*

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. *Prerequisite:* GEOG 320, senior standing or permission of instructor.

GEOG 485. Processing Remotely Sensed Data. 3 credits. *Offered spring.*

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 instructor.

GEOG 486. High Spatial Resolution Remotely Sensed Data. 3 credits.

Offered periodically.

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 Project II. 3 credits. *Offered fall and spring.*

Student performs an independent research project, either alone or within an investigative team, to identify and analyze a problem from a geographic perspective. *Prerequisites:* GEOG 390 and permission of instructor.

GEOG 491. International Studies. 3 credits. *Offered fall and spring.*

This course fulfills the capstone experience requirement for students majoring in geography. Students 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 or work will be carried out in the country of travel. *Prerequisites:* GEOG 390 and permission of instructor.

GEOG 495. Internship in Geography. 3-6 credits. *Offered fall and spring.*

Practical experience in and observation of a public agency utilizing geographic methodology. Work experience will be supervised by an official of the agency and a faculty member. Periodic seminars and written reports are required. *Prerequisites:* Geography major of junior or senior standing and permission of department head.

GEOG 496. Senior Project III. 2 credits. *Offered fall and spring.*

Student completes an independent research project, either alone or within an investigative team, to identify and analyze a geographic problem or phenomenon, and provide a written and oral report on the problem analysis and solution. *Prerequisites:* GEOG 390 and either GEOG 490, GEOG 491 or GEOG 495.

GEOG 499. Honors. 6 credits. *Offered fall and spring.*

Year course.

Geology

Department of Geology and Environmental Science

GGEOL 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. *Prerequisite:* GSCI 101. Formerly GSCI 102. Students may not receive credit for both GGEOL 102 and GSCI 102.

***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.

GGEOL 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 warning. 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? Formerly GSCI 115.

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.

GEOL 167. History & Philosophy of the Geosciences. 3 credits. *Offered fall.*

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.

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.

***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.

GEOL 220. Genetic Mineralogy (2, 2). 3 credits. *Offered fall and spring.*

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.

GEOL 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:* GEOL 110 or permission of instructor.

GEOL 272. Planetary Geology. 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. *Prerequisite: GGEO 102 or GEOL 110.*

GEOL 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: GEOL 110.*

GEOL 290. Optical Mineralogy (3, 2). 3 credits.

A study of the optical properties of minerals and mineral identification with the petrographic microscope. *Prerequisite: GEOL 280.*

GEOL 300. Introduction to Petrology (3, 2). 3 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. *Prerequisite: GEOL 280 and CHEM 131, or consent of instructor.*

GEOL 301. Earth Sciences for Teachers. 4 credits. *Offered fall.*

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/GEOG 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. GEOL/GEOG 310 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 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. Soils and Land Use (2, 2). 3 credits.

The origin, distribution and properties of soils are emphasized in the lecture, laboratory and field. These aspects are used to determine the value of various soil types for such uses as agriculture, forestry, recreation, urban development and structural foundations. *Prerequisites: GEOL 110 and CHEM 131.*

GEOL/BIO 350. Invertebrate Paleontology (3, 2). 4 credits.

The history of nonvertebrate life from its origin, through evolving biogeochemical cycles, origin of eukaryotes and multicellularity, evolutionary records of all major groups and theoretical issues such as major group origins, adaptive radiation patterns, extinctions, functional adaptations and paleoecology. *Prerequisite: GEOL 230, BIO 114 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 364. Stratigraphy and Basin Analysis (3, 3). 4 credits.

Lecture emphasizes application of sedimentologic and stratigraphic principles to identify and interpret depositional systems and examines how eustasy (sequence theory) and local tectonics influence the distribution of depositional systems under different plate tectonic regimes. Lab emphasizes critical field observation, application of theory to stratigraphic analysis and writing scientific papers. *Prerequisite: GEOL 230.*

GEOL 365. Structural Geology (3, 2). 3 credits. *Offered fall and spring.*

Major and minor structures of the Earth's crust. Mechanical principles involved in folding, faulting, jointing and penecontemporaneous structures. The causes and results of mountain building processes. Preparation and interpretation of geologic maps. *Prerequisite: GEOL 110; GEOL 230 recommended.*

GEOL 367. Genesis of Solid Earth Materials (2, 2). 4 credits. *Offered fall.*

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 110.*

GEOL 377. Earth Surface Processes (2, 2). 3 credits. *Offered spring.*

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. Not acceptable for B.S. in geology. *Prerequisite: GEOL 230.*

GEOL 385. Geomorphology (2, 2). 3 credits.

The description, classification, analysis, origin and evolution of land forms. The physical and chemical processes that have formed the present landscape. Advanced interpretation of topographic maps. *Prerequisite: GEOL 110 or GEOG 210.*

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 275 or ISAT 300.*

GEOL 399. Field Geology. 6 credits.

Field methods include use of Brunton compass, telescopic alidade and plane table, and compass traversing. A synthesis of geologic concepts and principles leading to the construction and interpretation of geologic and topographic maps. *Prerequisites: GEOL 364 and GEOL 365 or permission of the instructor.*

GEOL/BIO 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, BIO 124 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 340 and either MATH 205 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 364 and GEOL 365 or permission of the instructor.*

GEOL 440. Geophysics (3, 2). 3 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. *Prerequisites:* GEOL 110 or PHYS 140-150 or PHYS 240-250 or permission of the instructor.

GEOL 444. Topics in Geophysics. 3 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 110 and two semesters of calculus or permission of the instructor.

GEOL 467. Stratigraphy, Structure and Tectonics (3, 2). 4 credits.

Offered spring.

Examination of how stratigraphic, structural and tectonic principles control the character and distribution of rocks. Practical study of principles, regional patterns in sedimentary rocks and stresses the 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 Virginia region and its connection with the tectonic processes through the rest of the world. Not acceptable for B.S. in geology. *Prerequisites:* GEOL 110 and GEOL 230.

GEOL 477. Contemporary Issues in the Geosciences. 3 credits.

Offered spring of alternate years.

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). 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 Research. 3 credits.

Provides instruction in the definition of a geological problem, sources and strategies for a literature search and the preparation of both written and oral reports. *Prerequisites:* Geology major (senior standing) and 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 and a geology GPA of 2.5 or higher.

GEOL 497. Problems in Geology. 1-3 credits each semester.

An undergraduate research course in one of the fields of geology. Open to advanced students who have adequate preparation. *Prerequisite:* Permission of the instructor.

GEOL 499. Honors in Geology. 6 credits.

Three semester sequence. *Prerequisite:* 3.25 GPA or higher.

German

Department of Foreign Languages, Literatures and Cultures**GER 101-102. Elementary German (4, 1).** 4 credits each semester.

Offered fall and spring.

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.

GER 111-212. Intensive German. 6 credits each term. *Offered May and summer.*

The fundamentals of German through listening, speaking, reading and writing. The first semester is the equivalent to GER 101-102 and the second is the equivalent to GER 231-232.

GER 231-232. Intermediate German. 3 credits each semester. *Offered*

fall and spring.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite:* One year of college German or equivalent.

GER 266. Contemporary German Literature in Translation. 3 credits.

Offered fall and spring.

German literature from the 1920s to the present. All lectures and readings are in English. Does not count toward a major, minor or licensure in German.

GER 300. German Grammar and Communication. 3 credits. *Offered fall.*

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 equivalent.

GER 307. A History of German Civilization. 3 credits. *Offered every other fall.*

A study of society, economics, politics and the arts in central Europe from Indo-European beginnings to the 1900s. 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. *Offered spring.*

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. *Offered spring.*

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. *Offered periodically.*

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. *Offered periodically.*

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.

Offered spring.

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 400. Advanced Conversation. 3 credits. *Offered periodically.*

Discussions deal with topics of current interest. *Prerequisite:* GER 300 or equivalent.

GER 405. The Age of German Classicism. 3 credits. *Offered periodically.*

Reading and interpretation of significant works of Lessing, Schiller and Goethe. Instruction is in German. *Prerequisite:* GER 300 or equivalent.

GER 415. German Romanticism and Realism. 3 credits. *Offered periodically.*

A study of Romanticism and Realism with emphasis on Romantic poetry and the Realistic novel. Instruction is in German. *Prerequisite:* GER 300 or equivalent.

GER 426. Modern German Literature. 3 credits. *Offered periodically.*

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. *Offered periodically.*

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. *Offered periodically.*

Study of a particular topic in German literature. It may cover all or specific German literature genre. *Prerequisite:* GER 300.

GER 447. Special Topics in German Civilization and Culture. 3 credits.

Offered periodically.

Students will study a particular topic in the civilization and/or culture of Germany. Course may be repeated. *Prerequisite:* GER 300.

GER 446. Special Topics in German Literature. 3 credits. *Offered periodically.*

Study of a particular topic in German literature. It may cover all or specific German literature genre. *Prerequisite:* GER 300.

GER 448. Topics in German Linguistics. 3 credits. *Offered periodically.*

Students will study a particular topic in German linguistics. Topics could include an introduction to German sociolinguistics and psycholinguistics. Course may be repeated. *Prerequisite:* GER 300.

GER 465. German Cinema. 3 credits. *Offered periodically.*

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 equivalent.

Gerontology

Department of Social Work

GERN/SOCI 280. Social Gerontology. 3 credits. *Offered fall and/or spring.*

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.

GERN 305. Programs and Services for the Elderly. 3 credits. *Offered fall.*

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.

Offered on a rotating basis.

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 are examined with guest speakers providing current insights. Students research, write and complete a funding proposal.

GERN 400. Skills and Techniques in Gerontological Assessment.

3 credits. *Offered spring.*

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. *Offered on a rotating basis.*

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. *Offered fall and spring.*

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 instructor.

GERN 495. Field Experience/Seminar in Gerontology (1, 6).

3 credits. *Offered fall, spring and summer.*

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.

Graphic Design

School of Art and Art History

GRPH 200. Computer Graphics (0, 6). 3 credits. *Offered fall and spring.*

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. Formerly GRPH 243.

GRPH 202. Design Methodology (0, 9). 3 credits. *Offered fall and spring.*

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. Formerly GRPH 244.

GRPH 206. Introduction to Typography (0, 9). 3 credits. *Offered fall and spring.*

Introduction to the study of letter forms for their aesthetic and communicative value. Emphasis will be placed on the form and function of basic type including a fundamental understanding of electronic prepress. *Prerequisite:* GRPH 200. Formerly GRPH 246.

GRPH 208. Portfolio Review. 0 credit. *Offered fall and spring.*

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. Formerly GRPH 250.

GRPH 300. Illustration (0, 9). 3 credits. *Offering varies.*

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. Formerly GRPH 349.

GRPH 304. Package Design (0, 9). 3 credits. *Offering varies.*

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. Formerly GRPH 347.

GRPH 306. Intermediate Typography (0, 9). 3 credits. *Offered fall and spring.*

Continued study of letter forms for their aesthetic and communicative value. Emphasis will be placed on historical and sociological issues. *Prerequisite:* GRPH 208. Formerly GRPH 346.

GRPH 312. Web Design. 3 credits. *Offered fall and spring.*

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. *Prerequisites:* GRPH majors: GRPH 208; SMAD majors: SMAD 202. Formerly GRPH 339.

GRPH 340. Poster Design (0, 9). 3 credits. *Offering varies.*

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 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 any area of the school's offering must be arranged with the instructors who will direct them. Offered only with the consent of the director. *Prerequisite:* GRPH 208.

GRPH 392. Topics in Graphic Design. 3 credits. *Offering varies.*

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 e-campus for current topics. *Prerequisite:* GRPH 208. Formerly GRPH 389.

GRPH 406. Advanced Typography (0, 9). 3 credits. *Offered fall and spring.*

Advanced study of letter forms for their aesthetic and communicative value. Emphasis will be placed on creative solutions reflecting knowledge of contemporary typography and design issues. *Prerequisite:* GRPH 306. Formerly GRPH 446.

GRPH 408. Type and Image (0, 9). 3 credits. *Offered fall and spring.*

This course emphasizes creative solutions of type and image in visual communication. *Prerequisite or corequisite:* GRPH 406. Formerly GRPH 447.

GRPH 410. Graphic Design Portfolio. 3 credits. *Offered fall and spring.*

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. *Corequisite:* GRPH 408. *Formerly* GRPH 498.

GRPH 490. Independent Studies in Graphic Design. 1-3 credits, repeatable. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Prerequisites:* *Permission of the instructor.*

GRPH 492. Topics in Graphic Design. 3 credits. *Offered fall and spring.*

Study of selected topics in graphic design at the advanced level. May be repeated when course content changes. See e-campus for current topics.

GRPH 496. Internship in Graphic Design. 1-8 credits. *Offered fall and spring.*

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. ARTH 494 if in museums and galleries.*

GRPH 499. Honors (1, 3, 2). 6 credits total for three semesters. *Offered fall and spring.*

Prerequisite: GRPH 208.

Greek

Department of Foreign Languages, Literatures and Cultures

GRK 101-102. Elementary Greek. 4 credits each semester. *Offered fall and spring.*

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.

GRK 231-232. Intermediate Greek. 3 credits each semester. *Offered fall and spring.*

An intensive reading course. Selections from Classical Greek writers and and/or the New Testament. *Prerequisite:* *One year of college Greek or equivalent.*

Health

Department of Health Sciences

GHTH 100. Personal Wellness. 3 credits. *Offered fall and spring.*

Emphasizes lifestyle behaviors contributing to health promotion and disease prevention. General areas affecting health status are identified and suggestions made as to how health-related behaviors, self-care and individual decisions contribute to wellness and influence dimensions of health. A one-hour weekly individual physical wellness lab is included.

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Formerly* HTH 303.

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:* GHTH 100.

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 300. Medical Terminology. 3 credits. *Offered fall and spring.*

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 308. Therapeutic Assessment. 3 credits. *Offered spring.*

The purpose of this course is to present an overview of established and current knowledge in the major content areas of physiology by examining the impact of work and the working environment on human body systems as they relate to health and wellness. *Prerequisite:* BIO 290.

HTH/KIN 312. The Profession of Teaching Health & Physical Education. 2 credits. *Offered fall and spring.*

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/HHS/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 their relation to health science applications and issues. It also reinforces the logical processes associated with statistical decision making, again with particular reference to health and medical research methods. *Prerequisites:* MATH 220 and HTH 354.

HTH 330. Introduction to Human Disease. 3 credits. *Offered fall and spring.*

An overview of the incidence, prevalence, causation, and prevention of the major chronic and 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. *Prerequisite:* HTH 230.

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. *Prerequisite:* HTH 230.

HTH 354. U.S. Health Care System. 3 credits. *Offered fall and spring.*

This course examines the structure and organization of the health care delivery system in the United States. The components, functions, financing and resources of this system are described.

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An investigation of environmental factors and their effects on the health of the individual, community and society. *Prerequisite:* HTH 230.

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This course examines the structure and organization of the health care delivery system in the United States. The components, functions, financing and resources of this system are described.

HTH 355. AIDS and Other Sexually Transmitted Diseases. 1 credit.*Offered fall and spring.*

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 360. Contemporary Health Issues. 3 credits. *Offered fall and spring.*

This course will provide an overview of the leading health indicators and contemporary health issues based upon the Healthy People 2010 and 2020 initiatives from the US Department of Health and Human Services. Topics of discussion include current health, health care, and ethical issues such as community, consumer, and environmental health issues; focusing on the interaction between psychological, sociological, political, and environmental factors. *Prerequisite:* HTH 230.

HTH 368. International Health and Nutrition Studies. 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:* HTH 230; 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. *Prerequisite:* 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 e-campus 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 additions, 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 credentialed as a Certified Peer Educator (CPE). *Prerequisite:* Permission of 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 230 and MATH 220, senior status or permission of instructor.

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. *Prerequisite:* Admission into the occupational studies concentration and successful completion of all previous concentration course work.

HTH 424. Occupational Development Through the Lifespan. 3 credits.*Offered fall.*

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 fall.*

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. *Prerequisite:* 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. *Prerequisite:* Admission to the occupational studies concentration and successful completion of all previous concentration course work.

HTH 439. Leadership. 3 credits. *Offered fall and spring.*

This course will introduce students to the concept of leadership, provide opportunities to develop leadership skills, relate leadership to ethics and personal values, and assist students in creating a bridge between leadership theory and practice.

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. *Prerequisite:* 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. *Prerequisite:* 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 230 and senior health sciences major or permission of instructor.

HTH 451. Health Behavior Change. 3 credits. *Offered fall and spring.*
Factors which influence health behavior and characteristics of these individuals and groups. Analysis of previous programs designed to change these behaviors and the formulation of new health modification programs included. *Prerequisites:* HTH 230 and upper division senior health sciences major or permission of instructor.

HTH 453. Public Health Education Methods. 3 credits. *Offered spring.*
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 230, HTH 451 and senior public health education concentration students or permission of instructor.

HTH 454. 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. *Prerequisite:* Permission of the instructor and a 2.5 grade point average.

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:* HTH 230, HSA 358 or HTH 451 and senior health sciences major or permission of instructor.

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. *Prerequisite:* 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. *Prerequisite:* 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. *Prerequisite:* 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. *Prerequisite:* 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 intervention 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. *Prerequisite:* Admission into the occupational studies concentration and successful completion of all previous concentration course work.

HTH 499A. Honors. 1 credit. *Offered spring.*

HTH 499B. Honors. 1-3 credits. *Offered fall.*

HTH 499C. Honors. 2 credits. *Offered spring.*

Health and Human Services

Institute for Innovation in Health and Human Services

HHS 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. *Prerequisites: Membership in the Huber Learning Community.*

HHS 202. Health Care Service in Diverse Communities. 2 credits.

Offered spring.

HHS 202 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: HHS 201 and Membership in the Huber Learning Community.*

HHS 220. Adult Health and Development Program. 3 credits. *Offered*

fall and spring.

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.

HHS/HTH/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.

HHS 315. Risk Management in the Health Care System. 2 credits.

This course explores current factors having impact on the risk management of the American healthcare system. It explores the many dimensions of risk management and leadership roles, and the dissemination and utilization of risk research in hospitals.

HHS 316. Problems in Health Care Law. 3 credits.

This class is organized to highlight the general principles of health care law and examines both the underlying conflicts between public policies and the legal solutions to these problems. It addresses the major organizational, physical and staffing resources that are necessary to deliver quality healthcare in today's world. This course also covers relationships with patients, handling of medical information, financing of health care services, liability issues, determination of death and the handling of dead bodies.

HHS 320. Adult Health and Development Program –Leadership.

3 credits. *Offered fall and spring.*

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. *Prerequisite: Permission of the instructor and completion of one semester of AHDP.*

HHS 391. Introduction to Informatics for Health Care Professionals. 1 credit.

A multidisciplinary introduction to informatics in health care focusing on technology, data, information and knowledge and their applications in health care. Emerging trends and issues are examined.

HHS 415. Ethical Decision-Making in Healthcare: An

Interprofessional Approach. 1 credit. *Offered fall and spring.*

Health care ethics is a shared, relevant concern among health and human service disciplines and is an ideal vehicle for students from different fields to learn about one another's disciplines and to participate in inter-professional team analysis, discussion, and problem solving. We have designed an integrated cross-disciplinary learning experience for students interested in the complex, real-world dilemmas encountered in practice. The readings and activities will emphasize ethical, legal, moral and spiritual issues and principles for practice within the context of communicating in inter-professional teams.

HHS 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.

HHS/NSG 460. Healthcare Informatics. 2 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.*

HHS 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.

Health Services Administration

Department of Health Sciences

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 spring.*

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 instructor.*

HSA 366. Health Politics and Policy. 3 credits. *Offered fall.*

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.*

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:* HTH 354, HSA 358 and GERN 280 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. *Prerequisite:* HTH 354, 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 fall.*

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, FIN 345 and HTH 320.

Hebrew

Department of Foreign Languages, Literatures and Cultures

HEBR/REL 131-132. Elementary Biblical Hebrew. 4 credits each semester. *Offered fall and spring.*

An introductory course for students who intend to acquire the ability to read the Massoretic text of the Bible. Systematic study of the fundamentals of grammar, with emphasis on reading, pronunciation and translation.

HEBR/REL 231-232. Intermediate Biblical Hebrew. 3 credits each semester. *Offered fall and spring.*

An intensive reading course. Selections from the Massoretic text of the Bible. An introduction to the critical apparatus used within the Massoretic text as well as the variant reading apparatus printed in the Biblia Hebraica Stuttgartensia. *Prerequisite:* One year of college biblical Hebrew or equivalent.

History

Department of History

GHIST 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.

GHIST 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.

GHIST 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 the General Education Cluster One. A seminar format emphasizes the development and articulation of well reasoned arguments in organized and grammatically acceptable prose.

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.

GHIST 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.

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 267. Latin America. 3 credits.

A survey of the history of Latin America examining the pre-Columbian Indian civilizations, the Spanish and Portuguese conquests, the colonial era and its impact, the wars of independence, and selected case studies of the early national period.

HIST 268. Contemporary Latin America. 3 credits.

A survey of the historical development of Latin America during the 20th century with emphasis on selected nations which have played a significant role in Latin American affairs.

HIST 269. Middle and Near East: 500-1500. 3 credits.

A survey of the Middle and Near East from the Late Roman world through the rise of the Ottoman Empire. 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 then and now.

HIST 270. Modern Middle East. 3 credits.

A survey of the political evolution of the modern Middle East. Emphasis is placed on the impact of Western imperialism, problems of Arab nationalism, origins of the Arab-Israeli conflict and involvement of Russia and the United States in the Middle East today.

HIST 273. Asia to 1600. 3 credits.

A broad survey of Eastern civilizations from their beginnings to about 1600 with emphasis on their distinctive aesthetic and intellectual traditions as well as the development of their political, social and economic institutions.

HIST 274. Modern Asia. 3 credits.

A historical survey of East, South and Southeast Asia with emphasis on the impact of the West on the traditional societies and governments of the Eastern World, as well as nationalism, colonialism, wars, revolutions and industrialization in Asia in modern times.

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 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 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 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 315. History of Sport in America. 3 credits.

An interpretive survey that examines the social and cultural history of America from the late 19th century to the present through sports.

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: GHIST 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 328. History of Science, 1543-1859. 3 credits.

An intellectual and social survey of science from Copernicus' *de Revolutionibus* to Darwin's *The Origin of Species*. Topics include Renaissance natural philosophy, the Scientific Revolution, Enlightenment science and the birth of geology and biology.

HIST 329. History of Science Since 1859. 3 credits.

A survey of pure and applied science since the publication of Darwin's *The Origin of Species*. Topics include the development of relativity and quantum theory; Darwinism and the eugenics movement; rocketry, radar and the Manhattan Project; and the revolutions in biochemistry, genetics, materials science and information technology.

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 or HIST equivalent.

HIST 337. Workshop in 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 the e-campus for current classes. The course may be repeated when content changes. Prerequisite: GHIST 225.

HIST/SOCI 338. U.S. Urban Social History. 3 credits.

This course will examine the complex social interactions among people in the US urban areas from the colonial period through the present focusing on the themes of race, gender, sexuality, labor, housing, consumption and the environment. Participants of this course will engage in a collective research project examining the transformation of Harrisonburg in the post-World War II era.

HIST 339. Selected Themes in U.S. History. 3 credits.

Selected themes are studied in depth. See e-campus 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 e-campus and the history department Web site 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. Afro-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. Afro-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. Prerequisites: 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 362. Introduction to U.S. Religious History. 3 credits.

The course introduces the religious history of the colonies and 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 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 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 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, 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 380. From Samurai to Peacekeepers: Japanese Military Culture from the Medieval to the Present. 3 credits.

This course traces the development of military culture in Japan from the first emergence of the samurai, through the centuries of warrior rule and the era of Japanese imperialism, to Japan's role today of peacekeeping missions. It explores the use of an imagined heroic past as a tool of propagandists, the intertwining of Buddhist teachings with martial ideals, and the disjunction between popular images of samurai valor and the lived reality of warrior existence.

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. Russia to 1855. 3 credits.

A survey of Russian history from the origins of the Russian state down through the reign of Nicholas I. Attention is given to such topics as the Kievan state, the Muscovite state, the rise of Imperial Russia and the emergence of Russia as a Western European power.

HIST 386. Russia Since 1855. 3 credits.

A survey of Russian history from the reign of Alexander II to the present. Attention is given to such topics as the decline of Imperial Russia, the rise of the revolutionary movement, the emergence and consolidation of the Soviet state, and contemporary Russia.

HIST 387. Germany to 1871. 3 credits.

A survey of the German-speaking lands of Central Europe from the end of the Thirty Years War to the creation of the Second Reich. Emphasis is given to political, diplomatic and military affairs, although social, economic and cultural developments are included.

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 389. France to 1789. 3 credits.

A survey of French history from the Capetians to the end of the old Regime, 987-1789. Particular attention is given to France's medieval heritage; the impact of the Renaissance; the Protestant revolt; the policies of Richelieu, Colbert and Louis XIV; and the background of the French Revolution.

HIST 390. France Since 1789. 3 credits.

A study of the social and political events which determined the course of French history from the Revolution through the Fifth Republic. Particular attention is given to the social, economic and cultural currents which have contributed to the making of contemporary France.

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. Prearrangements 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 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/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 discipline and types of collections.

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 18th-century Virginia and Massachusetts. Colonial Massachusetts is studied through the use of printed materials, films and lectures. Published sources, lectures and a four-day study visit to Colonial Williamsburg are used for the study of Virginia. Supplemental fee required. *Prerequisite: HIST 395 or permission of 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 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 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 instructor.*

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: GARTH 206 or permission of instructor.*

HIST 411. Colonial America. 3 credits.

An interpretive survey of England's mainland colonies from 1558-1776. *Prerequisite: HIST 395 or permission of instructor.*

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 transfer to the British North American colonies, and the development of the first national and state constitutions in the United States. *Prerequisites: GHIST 225 and HIST 395, or permission of 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 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 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 instructor.*

HIST 427. U.S. Environmental History. 3 credits.

This course examines the role nature plays in North America's history. Students will explore how natural forces shape history, how humankind affects nature, and then how those ecological changes reciprocally affect human life once again. Topics addressed include the familiar (the industrial revolution, slavery and the Civil War) and the less well-known (soil fertility, fast food and garbage). *Prerequisite: HIST 395 or permission of 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 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 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 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 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 instructor.*

HIST 434. Recent America. 3 credits. *Offered every other fall.*

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 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 instructor.*

HIST 439. Selected Topics in American History. 3 credits.

Selected topics are studied in depth. See e-campus for current topic. Course may be repeated for credit when content changes. *Prerequisite: HIST 395 or permission of instructor.*

HIST/SCOM/ANTH 441. Oral History and Social Justice. 3 credits.

This course will explore the theoretical and methodological questions that have been raised in the field of oral history related to evidence and objectivity, personal and collective memory, narrative structure, ethics and social justice. Throughout the course students will conduct multiple interviews in the Shenandoah Valley and prepare a final presentation based on this material. *Prerequisite: HIST 395 or permission of 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 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 instructor.*

HIST 445. Latin America and the United States.** 3 credits.

An examination of the diplomatic relations between Latin America and the United States from the era of the Latin American revolutions for independence to the present. Emphasis is placed on the Monroe Doctrine and its extensions, as well as the development of the Pan-American system. *Prerequisite: HIST 395 or permission of instructor.*

HIST 446. Mexico, Central America and the Caribbean.** 3 credits.

A study of the nations of the area with special attention given to Mexico, Panama and Cuba. *Prerequisite: HIST 395 or permission of instructor.*

HIST 447. South America.** 3 credits.

Historic development of the continent with special attention to selected nations since the early national period of the 19th century. *Prerequisite: HIST 395 or permission of instructor.*

HIST 448. Gender in Colonial Latin America.** 3 credits.

This course is designed to introduce students to critical issues in colonial Latin American history and the theories and methods of gender history. Students will explore pre-contact conceptions of the roles of women and men from Spain, Portugal, Western Africa and the Americas and the continuities and changes those ideas underwent as a result of contact and conquest in the New World. *Prerequisite: HIST 395 or permission of 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: GHIST 101, GHIST 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 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: GHIST 102 and HIST 395 or permission of 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 instructor.*

HIST 461. Marxism-Leninism in Global Affairs.** 3 credits.

A study of the most significant ideas concerning politics, society, economics and philosophy, which shaped Communism and Marxist varieties of Socialism. *Prerequisite: HIST 395 or permission of instructor.*

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 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 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 instructor.*

HIST 465. Twentieth-Century Britain. 3 credits.

An examination of the major themes of British history in the 20th century, with attention to political, social, economic, diplomatic and imperial topics from the pre-World War I through post-World War II decades. *Prerequisite: HIST 395 or permission of 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 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 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 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 instructor.*

HIST 473. The Islamic World.** 3 credits.

The rise of Islam and spread of the Ottoman Empire. A survey of the Middle East from the pre-Islamic period to World War I. This course provides a background for understanding the present situation in the Middle East. *Prerequisite: HIST 395 or permission of instructor.*

HIST 474. The Byzantine Empire. 3 credits.

A survey of the political, economic, military and religious history of the Byzantine Empire, 330-1453. *Prerequisite: HIST 395 or permission of 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 instructor.*

HIST 476. Ancient History.** 3 credits.

A survey of the rise and fall of ancient civilizations of the Near East and Mediterranean area. *Prerequisite: HIST 395 or permission of 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 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 instructor.*

HIST 480. Modern China. 3 credits.

China since 1840, with special emphasis on China's response to the West, the disintegration of imperial China, the abortive experiments in republicanism, the origin and nature of Chinese Communism. China under Mao and post-Mao developments. *Prerequisite: HIST 395 or permission of instructor.*

HIST 481. Early Modern Europe: The New Worlds of Exploration and Science. 3 credits.

A study of the major changes in world view brought on by exploration and science in the 15th, 16th and 17th centuries in Europe. Attention is given to the causes, individuals and technology involved in each movement. *Prerequisite: HIST 395 or permission of 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 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 instructor.*

HIST 485.** Colonialism in the Greater Middle East. 3 credits.
A comparative examination of colonialism focusing on the cultural and intellectual dimensions of colonial encounters. Lectures and readings will emphasize European strategies and techniques of rule in the Arab world (including North Africa), Iran and India. Research and writing assignments will allow for the consideration of American involvement in Palestine-Israel, Iraq and Afghanistan. *Prerequisite: HIST 395 or permission of instructor*

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 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 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 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 e-campus and the history department Web site for information on current classes. *Prerequisite: HIST 395 or permission of 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 instructor.*

HIST/ANTH/ARTH 492. American 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 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 instructor.*

HIST 495. Introduction to Archives and Manuscripts. 3 credits.
Offered every other fall.

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 instructor.*

HIST/ANTH 496. Research Thesis. 2 or 4 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 497. Genealogical Research and Family History. 3 credits.
Focus is on the methodology associated with genealogical research, the evaluation of sources, methods of documentation, the availability of online resources and the analysis of evidence. The course will require that those enrolled utilize local and state repositories and work with local research topics as well as with personal data. Personal genealogical information should be secured at home before the start of the semester. *Prerequisite: HIST 395 or permission of instructor*

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. *Offered each fall and spring.*
Year course. *Prerequisite: HIST 395.*

** This course satisfies the Department of History world history requirement.

Hospitality and Tourism Management

College of Business

HTM 100. Hospitality and Tourism Management Seminar. 1 credit.
Offered fall and spring.

A one-credit seminar course designed to expose students interested in hospitality and tourism management to current issues, trends, career opportunities and company profiles within the service industry.

HTM 250. Overview of Hospitality and Tourism Management. 3 credits.
Offered fall and spring.

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: HTM major.*

HTM 251. Internship Preparation. 1 credit. *Offered fall and spring.*
A career search and skills development course. Special attention is given to the creation of effective resumes and business correspondence; developing and refining networking and interviewing skills; gaining practical experience in executing a job search; and developing leadership and managerial skills. *Prerequisite: HTM 250.*

HTM 261. Internship. 0 credits. *Offered fall and spring.*
Required 600 hours of approved hospitality and tourism work experience. CR/NC only. 0 credits. All work sites must be approved.

HTM 271. Introduction to Foodservice Management. 1 credit. *Offered fall and spring.*

An introduction to food and beverage service procedures, techniques and intermediate level commercial food production. Attention is given to special events management. *Corequisite or prerequisite: HTM 250 or permission of the instructor.*

HTM 298. Special Studies in Hospitality and Tourism Management. 3 credits. *Offered fall and spring.*

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. *Prerequisites: Open only to non-HTM majors.*

HTM 330. Hotel Operations and Hospitality Technology. 3 credits.

Offered fall and spring.

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:* HTM 250, HTM 261, COB 300 and HTM major.

HTM 331. Hospitality Law. 3 credits. *Offered fall and spring.*

The course focuses on the application of the law to the hospitality and tourism 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. Food service and beverage service certification included. *Prerequisites:* HTM 250 and HTM 261. *Corequisite or prerequisite:* COB 300 and HTM major.

HTM 371. Culinary Arts. 3 credits. *Offered fall and spring.*

An application of basic food preparations for the restaurant industry. Focus is on preparing students to understand gastronomy and communicate with culinarians. Menu development, plate presentation, preparations methods, and flavor development and food service trends will be experienced. Lab fee applies. *Prerequisites:* HTM 250 and COB 300.

HTM 400. Hospitality and Tourism Management Senior Seminar I.

1 credit. *Offered fall and spring.*

A discussion with hospitality industry leaders about the future of the industry and the opportunities that exist for young managers. The course will explore the challenges that young hospitality managers will face in the first three to five years after graduation and will help them cope with the transition. Guest speakers and industry management books will guide the learning. *Prerequisites:* COB 300 and senior HTM major. *Corequisite or prerequisite:* HTM 461.

HTM 412. Club and Resort Management. 3 credits. *Offered fall.*

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. *Prerequisite:* COB 300 and HTM major.

HTM 425. Hospitality Human Resources Management. 3 credits.

Offered fall and spring.

Identification and exploration of the information needs of the HTM 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 area. *Prerequisites:* COB 300 and HTM major.

HTM 431. Advanced Lodging. 3 credits. *Offered spring.*

A senior capstone course designed to expose students to strategic issues concerning the lodging industry on a whole. The interactive course draws upon concepts from functional disciplines (i.e., marketing, finance, accounting and operations) in the diagnosis, analysis and resolution of complex lodging situations. *Prerequisites:* HTM 330 and HTM major.

HTM 434. Purchasing, Cost Controls and Financial Management.

3 credits. *Offered fall and spring.*

This course applies purchasing, production and fundamentals of cost controls and financial management to the hospitality industry. Specifically it is an application of food, beverage, and labor cost controls and their deployment in an operations budget for a special event. *Prerequisite:* COB 300. *Corequisite:* HTM 470. *Corequisite or prerequisite:* HTM 331.

HTM 450. Special Events and Meeting Management. 3 credits. *Offered fall.*

A senior-level 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. *Prerequisites:* COB 300 and HTM major.

HTM 451. Entertainment Management. 3 credits. *Offered spring.*

A senior capstone course designed to expose students to strategic issues concerning the entertainment industry. Course content will vary. *Prerequisite:* COB 300, be 21 years of age at the beginning of the semester and HTM major.

HTM 461. Supervisory Internship. 0 credits. *Offered fall.*

Required 400 hours of approved hospitality and tourism supervisory experience. CR/NC only. All work sites must be pre-approved. *Prerequisites:* HTM 261, COB 300 and/or permission of the instructor. *Corequisite or prerequisite:* HTM 250.

HTM 470. Catering Operations and Event Management. 3 credits.

Offered fall and spring.

Management teams are required to plan, organize and budget for an entertaining evening composed of high quality food, exceptional service and entertainment. Team dynamics, creative problem solving, and integration of food, beverage, entertainment, décor, finance, and employee management are discussed and integrated into a detailed plan. *Prerequisite:* COB 300. *Corequisite:* HTM 434. *Corequisite or prerequisite:* HTM 331.

HTM 471. Hospitality Leadership. 3 credits. *Offered fall and spring.*

Management teams are required to produce an enjoyable evening composed of quality food and entertainment while staying within budget. Management teams are expected to supervise up to 50 student workers. Students will analyze and evaluate different leadership styles observed during the events, during internships and by hospitality industry leaders. Senior assessment may also occur. *Prerequisite:* HTM 470. *Corequisite or prerequisite:* HTM 461.

HTM 473. Beverage Management and Marketing. 3 credits. *Offered spring.*

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. *Prerequisites:* COB 300, senior HTM major and be 21 years of age at the beginning of the semester.

HTM 490. Special Studies in Hospitality and Tourism

Management. 1-3 credits. *Offered fall and spring.*

The course is designed to give capable students in hospitality and tourism management an opportunity to complete independent study under faculty supervision. *Prerequisites:* Permission of the instructor and director prior to registration.

HTM 498. Special Topics. 3 credits. *Offered fall and spring.*

This course is designed to allow exploration of areas of current topical concern or to exploit special situations. Course content will vary. For course content consult your adviser. *Prerequisite:* Permission of the instructor.

HTM 499. Honors. 6 credits. *Offered fall and spring.*

Year course. See catalog sections entitled "Graduation with Distinction" and "Graduation with Honors."

Human Resource Development

College of Education

HRD 100. Human Resource Development Leadership Laboratory.

2 credits. *Offered fall and spring.*

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 peer 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. *Offered fall and spring.*

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.

Offered fall and spring.

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 (train 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. *Offered fall and spring.*

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 of Human Resource Development. 3 credits.

Offered fall and spring.

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.

HRD 245. Leadership in Organizational Settings. 3 credits. *Offered fall and spring.*

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.

HRD 370. Performance and Task Analysis in Human Resource Development. 3 credits. *Offered fall and spring.*

This course is designed to provide the basic skill level for students in the area of occupational analysis and subsequent assessment. Particular emphasis is placed on actual analysis and assessment situations with application to program and curricular design.

HRD 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. *Prerequisites: HRD 240 and must be an HRD minor or major. Corequisite: HRD 370.*

HRD 400. Occupational Internship. 3 credits.

A structured occupational internship experience designed to provide students with the opportunity to observe within an actual occupational 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 HRD 401.

HRD 470. Diversity and International HRD. 3 credits.

The course is designed to prepare students for meeting the challenges presented by globalization and workforce diversity in HRD. Topics explored include the impact of increasing globalization and diversity in 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 and professionalism, etc.) as they relate to managing training, conflict resolution, career development, mentoring, performance improvement, team-building and peer rating methods. *Prerequisites: HRD 240 and HRD 245. Must be an HRD minor or major.*

HRD 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, casework and a range of guest speakers. *Prerequisite: HRD 245.*

HRD 480. Learning in Adulthood. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

This course is designed to provide 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.

HRD 490. Special Study in Human Resource Development. 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: HRD 240 or permission of the instructor.*

Human Science

College of Arts and Letters, College of Integrated Science and Technology, College of Science and Mathematics

HSC 400. Human Science. 1 credit.

Seminar course in which current topics in human science will be examined from the multiple perspectives of anthropology, biology and psychology. Students can expect to study, and attempt to synthesize, proximate (mechanistic), ontogenetic and evolutionary explanations for each of the topics examined. Open only to human science minors.

Humanitarian Affairs

Cross Disciplinary Studies**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.

Inclusive Early Childhood Education

College of Education**IECE 200. Introduction to Inclusive Early Childhood Education.** 1 credit.

This course is designed to introduce students to inclusive early childhood education as a profession. Students will become acquainted with professional ethics and standards, professional organizations, and the roles and responsibilities of teachers in inclusive environments. Students will engage in observation of and reflection on practices in inclusive early childhood education.

IECE 300. Programming and Practices 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. *Prerequisite: Admission to teacher education pre-professional licensure program.*

IECE 301. Inclusive Early Childhood Education Programming and Practices Practicum. 1 credit.

This practicum supports IECE 300 and 310 by requiring students to engage in community service learning within the Harrisonburg/Rockingham community. 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 310.*

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.

Offered fall and spring.

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 (train 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. *Offered fall and spring.*

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 of Human Resource Development. 3 credits.

Offered fall and spring.

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.

HRD 245. Leadership in Organizational Settings. 3 credits. *Offered fall and spring.*

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.

HRD 370. Performance and Task Analysis in Human Resource Development. 3 credits. *Offered fall and spring.*

This course is designed to provide the basic skill level for students in the area of occupational analysis and subsequent assessment. Particular emphasis is placed on actual analysis and assessment situations with application to program and curricular design.

HRD 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. *Prerequisites: HRD 240 and must be an HRD minor or major. Corequisite: HRD 370.*

HRD 400. Occupational Internship. 3 credits.

A structured occupational internship experience designed to provide students with the opportunity to observe within an actual occupational 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 HRD 401.

HRD 470. Diversity and International HRD. 3 credits.

The course is designed to prepare students for meeting the challenges presented by globalization and workforce diversity in HRD. Topics explored include the impact of increasing globalization and diversity in 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 and professionalism, etc.) as they relate to managing training, conflict resolution, career development, mentoring, performance improvement, team-building and peer rating methods. *Prerequisites: HRD 240 and HRD 245. Must be an HRD minor or major.*

HRD 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, casework and a range of guest speakers. *Prerequisite: HRD 245.*

HRD 480. Learning in Adulthood. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

This course is designed to provide 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.

HRD 490. Special Study in Human Resource Development. 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: HRD 240 or permission of the instructor.*

Human Science

College of Arts and Letters, College of Integrated Science and Technology, College of Science and Mathematics

HSC 400. Human Science. 1 credit.

Seminar course in which current topics in human science will be examined from the multiple perspectives of anthropology, biology and psychology. Students can expect to study, and attempt to synthesize, proximate (mechanistic), ontogenetic and evolutionary explanations for each of the topics examined. Open only to human science minors.

Humanitarian Affairs

Cross Disciplinary Studies**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.

Inclusive Early Childhood Education

College of Education**IECE 200. Introduction to Inclusive Early Childhood Education.** 1 credit.

This course is designed to introduce students to inclusive early childhood education as a profession. Students will become acquainted with professional ethics and standards, professional organizations, and the roles and responsibilities of teachers in inclusive environments. Students will engage in observation of and reflection on practices in inclusive early childhood education.

IECE 300. Programming and Practices 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. *Prerequisite: Admission to teacher education pre-professional licensure program.*

IECE 301. Inclusive Early Childhood Education Programming and Practices Practicum. 1 credit.

This practicum supports IECE 300 and 310 by requiring students to engage in community service learning within the Harrisonburg/Rockingham community. 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 310.*

IECE 310. Diversity in Inclusive Early Childhood Education. 3 credits.
This course guides students in critically examining their own perspectives regarding diversity and how these personal values impact their own teaching and the learning of young children representing diverse backgrounds, abilities, languages, and experiences. Students will expand their awareness and understanding of diverse individuals and groups and will explore issues and practices that embrace the whole community of young learners, birth to eight years, and their families. *Prerequisite:* Admission to teacher education pre-professional licensure program. *Corequisites:* IECE 300 and IECE 301.

IECE 320. Development and Assessment of Infants. 3 credits.
This course provides students with an understanding of the development of infants and toddlers with and without exceptionalities. Students will acquire knowledge and skills in authentic assessment to be used in decision making and service planning. *Prerequisites:* IECE 300 and IECE 301. *Corequisites:* IECE 321 and IECE 322.

IECE 321. Practicum Supporting the Development of Infants and Toddlers. 2 credits.
This practicum supports IECE 320 and 322 by requiring students to engage in supervised and planned naturalistic interactions with infants and toddlers, who are typically developing or have developmental delays or disabilities, and their families. Students will have the opportunity to observe, assess, and support infants and toddlers' development while collaborating with families. *Prerequisites:* IECE 300 and IECE 301. *Corequisites:* IECE 320 and IECE 322.

IECE 322. Supporting the Development of Infants and Toddlers. 3 credits.
This course explores, analyzes and evaluates curriculum and methodology related to designing and managing nurturing, supportive and enriching learning environments for infants and toddlers. Focus is on naturalistic teaching methods, curricula planning, implementation strategies, environmental arrangements and accommodation for all infants and toddlers, in collaboration with the primary caregiver. Students will learn to use technology to support children's learning. *Prerequisites:* IECE 300 and IECE 301. *Corequisites:* IECE 320 and IECE 321.

IECE 420. Development of the Young Child. 3 credits.
This course provides students with an understanding of the development of young children, ages four to nine 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. *Prerequisites:* IECE 320, IECE 321 and IECE 322. *Corequisites:* IECE 421 and IECE 422.

IECE 421. Practicum in Development of the Young Child. 1 credit.
This practicum is designed to support IECE 420 and IECE 421, by giving students experience in a preschool classroom. Students will observe young children, collect data, assist classroom teachers, and interact appropriately with the individuals within the learning environment. Students will analyze the preschool environments for access by all young children. *Prerequisites:* IECE 300, IECE 301, IECE 320 and IECE 322. *Corequisites:* IECE 420 and IECE 422.

IECE 422. 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 learning environment for children ages 3 - 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. *Prerequisites:* IECE 320, IECE 321 and IECE 322. *Corequisites:* IECE 420 and IECE 421.

IECE 423. Practicum: Teaching Young Children. 1 credit.
This practicum is designed to give students the opportunity to practice knowledge and skills learned in IECE 422. Students will participate as a member of the teaching team, demonstrate professional behavior and interactions with young children and adults and support instruction in a preschool setting. *Prerequisites:* IECE 320, IECE 321 and IECE 322. *Corequisites:* IECE 420, IECE 421 and IECE 422.

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. Practicum in Primary Grades. 3 credits.
This practicum allows students to develop educational decision-making skills through planning, implementing and evaluating appropriate activities for young children of diverse interests, needs, and abilities. Students apply strategies to assess learning, guide behavior, and collaborate with other service providers and families. Students engage in conversations designed to make connections between their experiences and IECE content. *Prerequisites:* IECE 420, IECE 421, IECE 422, IECE 423 and IECE 366. *Corequisites:* IECE 460, IECE 462, IECE 464, IECE 466 and IECE 436.

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. Seminar in Managing Classrooms and Guiding Behavior. 1 credit.
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.

Individualized Study

Outreach and Engagement

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 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. *Prerequisite:* Individualized studies majors and individualized studies special students only.

IS 202. Orientation to Career and Life Planning. 1 credit.
A short orientation course designed to prepare students for transition into higher learning education programs. Specific content includes accessing career resources, career decision-making skills, self-awareness and life planning. *Prerequisites:* BIS major or BIS special student 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. *Prerequisite:* 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 Center for Leadership, Service and Transition and credit awarded as appropriate. *Prerequisite:* IS 203.

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 departments/schools. Course content will vary. *Prerequisites:* 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 "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. *Prerequisite:* Approval of the "Course Agreement Form" by the Individualized Study department head.

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

School of Art and Art History**INDU/INDE 220. CAD I: Digital Design.** 3 credits. *Offered fall and spring.*

A studio course introducing computer-aided design experiences. Exploration of CAD, including terms, conventions and drawing techniques from beginning to intermediate concepts to two and three-dimensional tools and commands.

INDU/INDE 320. CAD II: Digital Design. 3 credits. *Offered fall and spring.*

An intermediate studio course incorporating computer-aided design experience in digital design. Continuation of CAD design processes from the foundation course toward advanced three-dimensional drawing techniques, solid modeling and rendering, lighting theory, plotting, and animation. *Prerequisite:* INDU/INDE 220.

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/INDE 420. CAD III: Digital Design. 3 credits. *Offered fall and spring.*

An advanced studio course expanding computer-aided design knowledge. Continued exploration of the digital virtual space from intermediate to advanced concepts of the design process, communication with diverse design programs, animation, sound and digital transformation. *Prerequisite:* INDU/INDE 320.

INDU 490. Independent Studies Interior Design. 1-3 credits,

repeatable. Offered fall and spring.

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. *Offered fall and spring.*

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. *Prerequisites:* Permission of the instructor.

INDU 492. Topics Industrial Design. 3 credits. *Offered fall and spring.*

Study of selected topics in industrial design at the advanced level. May be repeated when course content changes. See e-campus for current topics.

INDU 496. Internship in Industrial Design. 1-8 credits. *Offered fall and spring.*

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.

Information Analysis

College of Integrated Science and Technology**IA 200. Introduction to National Security Intelligence.** 3 credits.

Offered yearly.

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/CIS 210. Introduction to Global Competitive Intelligence. 3 credits.

Offered yearly.

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.

IA 261. Hypothesis Testing. 3 credits. *Offered yearly.*

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 Information Analysis. 3 credits. *Offered yearly.*

This course will examine projects of interest to lower-division students in information (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/PHIL 312. Causal Analysis. 3 credits. *Offered yearly.*

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.

IA/PHIL 313. Counterfactual Reasoning. 3 credits. *Offered yearly.*

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.

IA/PHIL 314. Strategy Assessment. 3 credits. *Offered yearly.*

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.

IA 340. Data Mining, Modeling and Knowledge Discovery. 3 credits.

Offered yearly.

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:* ISAT 251, ISAT 252.

IA 341. System Dynamics Modeling, Simulation and Analysis. 3 credits.

Offered yearly.

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. *Prerequisites:* ISAT 251 and ISAT 252.

IA 342. Visualization Methods, Technologies and Tools for Information Analysis. 3 credits. *Offered yearly.*

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, ISAT 252.

IA 400. Cognitive Science and Information Analysis. 3 credits. *Offered yearly.*

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 information analysis. The course is team-oriented, project-based and grounded in the relevant legal and ethical context. *Prerequisites:* ISAT 251, ISAT 252, IA 340 and either IA 341 or IA 342.

IA 405. Ethics, Law and Information Analysis. 3 credits. *Offered yearly.*

This course will examine ethical and legal issues raised in the practice of information 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 information analysis, particularly issues of information privacy, civil liberties and limitations on government action. *Prerequisites:* Senior standing.

IA 440. Seminar in Information Analysis. 3 credits. *Offered yearly.*

This course will focus on important issues in the theory and practice of information 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.

IA 450. Capstone Project in Information Analysis. 3 credits. *Offered yearly.*

Building on the Seminar on Issues in Information 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. *Prerequisites:* IA 440.

IA 480. Selected Topics in Information Analysis. 3 credits. *Offered yearly.*

This course will examine topics of interest to upper-division students in information (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.

GISAT 112. Environmental Issues in Science and Technology (2, 2). 4 credits. *Offered fall and spring.*

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.

GISAT 113. Issues in Science and Technology: Living Systems (2, 2). 3 credits. *Offered fall and spring.*

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.

ISAT 131. Technology, Science and Society (1, 2). 3 credits. *Offered spring.*

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.

GISAT 151. Analytical Methods I: Applied Calculus. 4 credits.

This course introduces the concepts of differential and integral calculus and ordinary differential equations to model real-world problems in the sciences, business, and economics. Includes a laboratory component emphasizing numerical applications on the computer. Course assumes familiarity with algebra and trigonometry.

ISAT 151L. Analytical Methods I: Applied Calculus Laboratory. 1 credit.

Offered fall and spring.

This course is the computer laboratory portion of GISAT 151 Analytical Methods I: Applied Calculus. 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. *Prerequisites:* Permission of instructor or department required.

GISAT 160. Problem Solving Applications in Science and Technology. 3 credits. *Offered fall and spring.*

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.

ISAT165/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. *Prerequisites:* ISAT 165 or BIO 203.

ISAT 180. Topics in Integrated Science and Technology. 1-4 credits.

Offered fall and spring.

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 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 as assessment of the non-technical issues that surround the technical problem.

ISAT 211. Issues in Modern Production (2, 2). 3 credits. *Offered fall.*

This course introduces the structure and function of a manufacturing enterprise, product design and process selection with emphasis on computer-based automation and integration technologies. Total Quality Management (TQM), statistical process control, principles of engineering

Integrated Science and Technology

Department of Integrated Science and Technology

First Year Student – Sophomore Sequence

ISAT 101. ISAT Freshman Seminar. 1 credit. *Offered fall.*

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.

drawings and engineering economy will also be covered. *Prerequisite: GISAT 151 or consent of instructor.*

ISAT 212. Energy Issues in Science and Technology (2, 2). 3 credits.

Offered spring.

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 231. Political Economy of Technology and Science. 3 credits.

Offered fall.

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 241. Analytical Methods III (2, 2). 3 credits. Not offered 2009-2010.

This course is a continuation of ISAT 142 with a focus on single-variable calculus (including an introduction to differential equations) to model systems involving work, energy, waves, electricity and magnetism. Applications are made to lasers and optics. *Prerequisite: ISAT 142 or equivalent.*

GISAT 251. Analytical Methods III: Introduction to Statistical Reasoning and Data Analysis. 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 sectors and health related fields. *Prerequisite: Sophomore standing or permission of instructor.*

ISAT 252. Analytical Methods IV: Programming and Problem Solving (2, 2). 3 credits. Offered spring.

Use of formal logic to represent and assess properties of natural language constructs important to scientific inquiry, with application to the development and use of knowledge-based systems; introduction to procedural programming and its uses for producing and tailoring information systems supporting scientific, technical and business problem solving. *Prerequisite: Sophomore standing or permission of instructor.*

ISAT 253. Analytical Methods V: Instrumentation and Measurement (2, 2). 3 credits. Offered spring.

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 251 and ISAT 152.*

ISAT 280. Projects in Integrated Science and Technology. 1-4 credits.

Offered fall and spring.

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 instructor.*

Junior – Senior Sequence

ISAT 301. Instrumentation and Measurement in Energy (0, 2). 1 credit.

Offered fall.

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 instructor.*

ISAT 302. Instrumentation and Measurement of the Environment (0, 2). 1 credit. Offered fall and spring.

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. Offered spring.

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 instructor.*

ISAT 305. Instrumentation and Measurement in Biotechnology (0, 2). 1 credit. Offered fall.

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 310. Energy Fundamentals I. 3 credits. Offered fall.

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. Offered spring.

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. 3 credits. Offered fall.

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: GISAT 112 or permission of instructor.*

ISAT 321. Fundamentals of Environmental Science and Technology II. 3 credits. Offered spring.

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: GISAT 112 or permission of instructor.*

ISAT 330. Manufacturing Systems: Techniques and Technologies. 3 credits. Offered fall.

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 152 and ISAT 211 or permission of instructor.*

ISAT 331. Automation in Manufacturing. 3 credits. Offered spring.

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 152 and ISAT 211 or permission of instructor.*

ISAT 340. Software Development. 3 credits. Offered fall.

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. Offered spring.

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 instructor.

ISAT/CS 344. Intelligent Systems. 3 credits. *Offered fall and spring.*

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:* Junior standing and ISAT 340 or CS 139.

ISAT/CS 345. The Software Industry. 3 credits. *Offered fall and spring.*

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 or ISAT 340 and sophomore standing.

ISAT 348. The Multimedia Industry. 3 credits. *Offered fall and spring.*

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. *Offered fall.*

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:* GLSAT 113 or equivalent.

ISAT 351. Biotechnology for the New Millennium II. 3 credits. *Offered spring.*

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. *Corequisite:* ISAT 305.

ISAT 360. Fundamentals of Telecommunication. 3 credits. *Offered fall.*

An introduction to telecommunications systems, including principles of electromagnetism and electromagnetic waves, transmission media, encoding systems, and information theory; the social impacts of telecommunications systems and an overview of telecommunication policy and regulation; and the telecommunications industry sectors, major corporate players and regulatory agencies. *Prerequisite:* ISAT 152, PHYS 250 or permission of instructor.

ISAT 399. Instrumentation and Measurement in Telecommunications.

1 credit. *Offered fall.*

This course is designed to prepare students to safely and intelligently use laboratory and field instrumentation (with associated software) commonly encountered in the telecommunications field. The student will also be required to plan, design, build and present a semester project involving the use of principles learned in the course. *Prerequisite:* ISAT 152 or PHYS 250.

ISAT 401. Advanced Computer-Based Instrumentation I. 3 credits.

Offered fall.

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 253 and ISAT 252 or permission of instructor.

ISAT 402. Advanced Computer-Based Instrumentation II. 3 credits. *Offered spring.*

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 253 and ISAT 252 or the permission of the instructor.

ISAT 406. Transmission Electron Microscopy. 3 credits. *Not offered 2009-2010.*

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 instructor.

ISAT 410. Sustainable Energy Development. 3 credits. *Offered spring.*

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 instructor.

ISAT 411. Energy Economics and Policy. 3 credits. *Offered fall.*

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 instructor.

ISAT 412. Dynamic Control of Energy Systems. 3 credits. *Offered spring.*

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. *Offered fall.*

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. *Offered once a year.*

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 instructor.

ISAT 416. International Energy Studies. 3 credits. *Offered summer as study*

abroad course only.

Study-abroad course examining international energy problems and providing team-oriented project experiences. Course 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. *Offered fall.*

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 instructor.

ISAT 421. Environmental Policy and Regulation. 3 credits. *Offered spring.*

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 instructor.

ISAT 422. Industrial Environmental Management. 3 credits. *Offered fall.*

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. *Offered spring.*

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 instructor.*

ISAT 424. Natural Resource Management. 3 credits. *Offered fall.*

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. *Prerequisite: ISAT 320 and ISAT 321 or permission of the instructor.*

ISAT 425. Environmental Hydrology. 3 credits. *Offered spring.*

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 instructor.*

ISAT 426. Environmental Information Systems. 3 credits. *Offered summer.*

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 instructor.*

ISAT 427. Industrial Hygiene. 3 credits. *Offered spring.*

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. *Offered summer.*

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. The course addresses 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. *Offered spring.*

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 instructor.*

ISAT/MATS 430. Materials Science in Manufacturing. 3 credits. *Offered fall.*

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 152 or permission of instructor.*

ISAT/MATS 431. Manufacturing Processes. 3 credits. *Offered spring.*

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 instructor.*

ISAT/MATS 432. Selection and Use of Engineering Materials. 3 credits.

Offered fall.

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 211 or permission of instructor.*

ISAT 433. Selected Problems in Manufacturing. 3 credits. *Offered fall.*

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 instructor.*

ISAT 435. Integrated Product and Process Development. 3 credits.

Offered spring.

This courses 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 instructor.*

ISAT/MATS 436. Micro-Nanofabrication and Applications. 3 credits.

Offered spring.

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 instructor.*

ISAT 440. Seminar in Knowledge Management. 3 credits. *Offered fall and spring.*

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. *Offered fall.*

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. *Offered fall.*

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.

Offered fall and spring.

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. *Prerequisite: ISAT 330 or ISAT 350.*

ISAT 452. Medical Biotechnology. 3 credits. *Offered fall.*

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 permission of instructor.*

ISAT 453. Energy and Living Systems. 3 credits. *Offered spring.*

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, ISAT 351 or permission of instructor.

ISAT 454. Computer Applications in Biotechnology. 3 credits. *Offered fall and spring.*

Students learn how complex biological molecules support and regulate processes in living systems through building interactive computer models of protein and nucleic acid structures. Other computer applications include image processing, genome data manipulation and NMR data processing. Written and oral presentations are also required. *Prerequisite:* ISAT 350 or permission of instructor.

ISAT 455. Regulatory Issues in Biotechnology. 3 credits. *Offered fall.*

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 permission of instructor.

ISAT 456. Ethical, Legal and Social Implications of Biotechnology. 3 credits. *Offered spring.*

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 permission of instructor.

ISAT 457. Business of Biotechnology. 3 credits. *Not offered 2009-2010.*

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 459. Awareness and Understanding of Chemical, Biological and Radiological Weapons of Mass Destruction. 3 credits. *Offered spring.*

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:* ISAT 350 or BIO 214.

ISAT/CS 460. Local Area Networks. 3 credits. *Offered fall and spring.*

An overview of LAN hardware, LAN topology and design, and LAN protocols. Installation and management of LAN operating systems and LAN services (address management, name management, file and print sharing, account management). *Prerequisite:* CS 350, CIS 320 or equivalent. Formerly CS 451.

ISAT/CS 461. Internetworking. 3 credits. *Offered spring.*

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. *Offered fall and spring.*

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 239 or CIS 344 and ISAT/CS 460.

ISAT/CS 463. Network Analysis and Design. 3 credits. *Offered spring.*

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/ISAT 460 and ISAT 340 or equivalent.

ISAT/CS 464. Issues in the Telecommunications Business. 3 credits. *Offered fall.*

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.

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. *Offered once a year.*

This course introduces transportation as a CLIQS (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 477. Complex Systems and How They Fail. 3 credits. *Offered fall.*

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. *Offered fall and spring.*

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 491, 492, 493. Senior Thesis. 6 credits. *Offered fall and spring.*

Three-course sequence. Student performs an independent research project, either alone or within an investigative team, to identify and analyze a technologically based problem, develop alternative solutions, recommend the best solution, and provide a written and oral technical report. ISAT 491 (one credit) is for project identification and proposal. ISAT 492 (two credits) and ISAT 493 (three credits) follow.

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 499. Honors Thesis. 6 credits. *Offered fall and spring.*

Three-course sequence. Student performs an independent research project that meets the requirements set forth by the Honors program. Student must identify and analyze a technologically based problem, develop alternative solutions, recommend the best solution, and provide a written and oral technical report of the effort. May be taken in lieu of ISAT 491, ISAT 492, ISAT 493 sequence.

Interdisciplinary Liberal Studies

Interdisciplinary Liberal Studies

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 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 Social Science

Cross Disciplinary Studies

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: Requires junior standing.*

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.

Interior Design

School of Art and Art History

INDE 200. Interior Design Studio I. 3 credits. *Offered fall and spring.*

Studio focusing upon the design process and creating interior spaces. Projects involve investigations into syntax and design language, program interpretation, ritual, use and the constructed order of built space. Emphasis is upon experimentation, risk and play. Design studies will incorporate drawing, diagramming, models and writing. *Formerly INDE 201.*

INDE 202. Interior Design Studio II. 3 credits. *Offered fall and spring.*

Design studio building on the fundamentals of INDE 201. Projects will address both three-dimensional design of spaces and the objects within the spaces. Projects will include questions of ritual, ergonomics, material properties and full-scale prototypes. Introduction of workshop, digital graphics and photography incorporated in studio work. *Prerequisite: INDE 200.*

INDE 208. Portfolio Review. 0 credits. *Offered spring.*

Portfolio review required to enroll in interior design courses at 300 level and above. *Prerequisite: INDE 200. Corequisite: INDE 202. Formerly INDE 250.*

INDE 210. Architectural Graphics. 3 credits. *Offered fall and spring.*

Introduction to the tools and craft of the constructed drawing. Drawing types include plan, elevation, section, axonometric and perspective with emphasis upon synthesis and understanding of volumetric space. Media explorations used to increase sensitivity to materials, craft and precision of drawing. *Formerly INDE 221.*

INDE/INDU 220. CAD I: Digital Design. 3 credits. *Offered fall and spring.*

A studio course introducing computer-aided design experiences. Exploration of CAD, including terms, conventions and drawing techniques from beginning to intermediate concepts to two and three-dimensional tools and commands. *Formerly INDE 222.*

INDE 300. Interior Design Studio III. 3 credits. *Offered fall and spring.*

Intermediate design studio building upon skills of INDE 201-202 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: INDE 208. Formerly INDE 301.*

INDE 302. Interior Design Studio IV. 3 credits. *Offered fall and spring.*

Intermediate design studio building upon skills of INDE 302. Projects will be an extension of INDE 301 but with 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: INDE 300.*

INDE/INDU 320. CAD II: Digital Design. 3 credits. *Offered fall and spring.*

An intermediate studio course incorporating computer-aided design experience in digital design. Continuation of CAD design processes from the foundation course toward advanced three-dimensional drawing techniques, solid modeling and rendering, lighting theory, plotting, and animation. *Prerequisite: INDE 220. Formerly INDE 322.*

INDE 330. Materials and Methods I. 3 credits. *Offered fall and spring.*

A lecture course introducing components and materials used in construction and building systems. *Prerequisite: INDE 208. Formerly INDE 331.*

INDE 332. Materials and Methods II. 3 credits. *Offered fall and spring.*

The second lecture class in a required sequence focused on building systems and materials. Topics introduced in INDE 331 are studied in greater depth with an emphasis on understanding the interrelationships among elements found in a complete construction documents package. *Prerequisite: INDE 330.*

INDE 390. Independent Studies in Interior 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.

INDE 392. Topics in Interior Design. 3 credits. *Offering varies.*

Study of selected topics in interior design at the intermediate level. May be repeated when course content changes. See e-campus for current topics. *Formerly INDE 389.*

INDE 400. Interior Design Studio V. 3 credits. *Offered fall and spring.*

An upper-level design studio building upon the design rigor and technical craft acquired in the INDE 301-302 sequence. Expansion of the design role into collaborative teams, interdisciplinary teams, actual clients, service projects and competition projects. *Prerequisite: INDE 302. Formerly INDE 401.*

INDE 402. Interior Design Studio VI. 3 credits. *Offered fall and spring.*

Final upper-level interior design studio culminating in a thesis project. Complete student initiative across every phase of the project. *Prerequisite: INDE 401.*

INDE/INDU 420. CAD III: Digital Design. 3 credits. *Offered fall and spring.*

An advanced studio course expanding computer-aided design knowledge. Continued exploration of the digital virtual space from intermediate to advanced concepts of the design process, communication with diverse design programs, animation, sound and digital transformation. *Prerequisite: INDE 320. Formerly INDE 422.*

INDE 440. Professional Practices in Interior Design. 3 credits. *Offered fall and spring.*

Procedures and practices involved in the interior design profession. *Prerequisite: INDE 302. Formerly INDE 492.*

INDE 490. Independent Studies Interior Design. 1-3 credits, repeatable. *Offered fall and spring.*

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.

INDE 491. Studio Assistant. 1-3 credits, repeatable. *Offered fall and spring.*
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. *Prerequisites: Permission of the instructor.*

INDE 492. Topics Interior Design. 3 credits. *Offered fall and spring.*
Study of selected topics in interior design at the advanced level. May be repeated when course content changes. See e-campus for current topics. *Formerly INDE 489.*

INDE 496. Internship in Interior Design. 1-8 credits. *Offered fall and spring.*
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. Formerly INDE 495.*

International Affairs

College of Arts and Letters

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. 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.*

International Business

College of Business

IBUS 298. Special Topics in International Business. 3 credits. *Offered fall, spring and summer.*

The course is designed to allow exploration of current topics in international business. Course content will vary. See program director for current content.

IBUS 480. International Business Theory and Policy. 3 credits. *Offered fall and spring.*

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. *Prerequisites: IBUS major, senior standing and permission of instructor.*

IBUS 490. Special Studies in International Business. 1-3 credits. *Offered fall and spring.*

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.*

IBUS 494. International Business Internship. 3 credits. *Offered fall, spring and summer.*

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: IBUS 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.*

IBUS 498. Special Topics in International Business. 3 credits. *Offered fall and spring.*

An advanced course designed to allow exploration of current topics in international business. Course content will vary. See the program director for current content. *Prerequisite: COB 300 and permission of the instructor.*

IBUS 499. Honors. 6 credits. *Year course. Offered fall and spring.*
See catalog sections entitled "Graduation with Distinction" and "Graduation With Honors."

International Liberal Studies

Division of Academic Affairs

ILS 290. Selected Topics in International Liberal Studies. 3 credits. *Offering varies.*
Directed exploration of the literature, history, contemporary life and general culture in London, Paris, Florence, Martinique, Salamanca and other international studies programs sponsored by JMU. Approved topics will vary.

Interscience Research

Departments of Biology, Chemistry and Biochemistry, Geographic Science, Mathematics, Physics and Astronomy, and Computer Science

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.*

Italian

Department of Foreign Languages, Literatures and Cultures

ITAL 101-102. Elementary Italian (4, 1). 4 credits each semester. *Offered fall and spring.*

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.

ITAL 111-212. Intensive Italian. 6 credits each term. *Offered May and summer.*
The fundamentals of Italian through listening, speaking, reading and writing. The first semester is the equivalent to ITAL 101-102 and the second is the equivalent to ITAL 231-232.

ITAL 231-232. Intermediate Italian. 3 credits each semester. *Offered fall and spring.*
A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Italian or equivalent.*

ITAL 300. Italian Grammar and Communication. 3 credits. *Offered fall and spring.*
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 307. Italian Civilization. 3 credits. *Offered fall.*
A study of Italian society, economics, politics and the arts from the Roman Republic to 1814. *Prerequisite: ITAL 300.*

ITAL/HIST 308. Contemporary Italian Civilization. 3 credits. *Offered spring.*
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. *Offered fall.*
Intensive drill in Italian sounds and intonation patterns. Instruction is in Italian. *Prerequisite: ITAL 232 or equivalent.*

ITAL 320. Italian Oral and Written Communication. 3 credits. *Offered fall and spring.*

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. *Offered fall or spring.*
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. *Offered fall or spring.*
A survey of Italian literature from its beginning to the present. Textual analysis of sample writings representative of the most important literary movements. Instruction is in Italian. *Prerequisite: ITAL 300.*

ITAL 351. Italian-English Technical/Commercial Translation. 3 credits.
Offered fall or spring.

Italian-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: ITAL 300 or permission of the instructor.*

ITAL 375. Business and Society in Italy. 3 credits. *Offered fall.*
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. *Offered fall.*
This course will develop strategies both for writing well and for writing creatively. Another opportunity to practice speaking skills. *Prerequisite: ITAL 300.*

ITAL 400. Advanced Conversation. 3 credits. *Offered fall.*
Discussions deal with topics of current interest. *Prerequisite: ITAL 320.*

ITAL 410. Italian Through Media. 3 credits. *Offered fall or spring.*
This course is designed to improve fluency and accuracy in speaking, reading and understanding. *Prerequisite: ITAL 320 or permission of the instructor.*

ITAL 425. Modern Italian Literature. 3 credits. *Offered fall or spring.*
A study of the works of major Italian writers of the 20th century. Instruction is in Italian. *Prerequisite: Three years of college Italian or equivalent.*

ITAL/ENG 437. Studies in Italian Literature. 3 credits. *Offered fall or spring.*
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. *Offered fall or spring.*
Study of a particular topic in Italian literature. It may cover all or specific Italian literature genre. *Prerequisite: ITAL 300.*

ITAL 447. Special Topics in Italian Civilization and Culture. 3 credits.
Offered fall or spring.

Students will study a particular topic in the civilization and/or culture of Italy. Course may be repeated. *Prerequisite: ITAL 320.*

ITAL 448. Special Topics in Italian Linguistics. 3 credits. *Offered fall or spring.*

Students will study a particular topic of French linguistics. Topics could include an introduction to Italian sociolinguistics and psycholinguistics. Course may be repeated. *Prerequisite: ITAL 320.*

ITAL 465. Italian Cinema. 3 credits. *Offered fall or spring.*
A study of the evolution of Italian cinema. Emphasis given to the following directors: Rossellini, Visconti, De Sica, Fellini, Antonioni, Bertolucci, Wertmuller, Scola, Taviani, Salvatores. Instruction is in Italian. *Prerequisite: Three years of college Italian or the equivalent.*

Japanese

Department of Foreign Languages, Literatures and Cultures

JAPN 101-102. Elementary Japanese. 4 credits each semester. *Offered fall and spring.*

The fundamentals of Japanese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension. One hour of work each week in the language laboratory.

JAPN 231-232. Intermediate Japanese. 3 credits each semester.
Offered fall and spring.

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Japanese or equivalent.*

Justice Studies

Department of Justice Studies

JUST 100. Justice Studies Proseminar. 1 credit. *Offered fall and spring.*
This course is designed to introduce students to the justice studies major by focusing on academic and career advisement. Topics will include: how to select a meaningful program of study, defining and pursuing advanced research projects, identifying and arranging internships, finding and using literature in justice related academic fields, and anticipating a career in justice related fields. *Prerequisites: JUST 200 and admission to the justice studies major.*

JUST 200. Introduction to Justice Studies. 3 credits. *Offered fall and spring.*
This course offers students an introduction to the field of justice studies. It includes an examination of moral, philosophical and political definitions of justice and injustice and a history of their development; the distinctions and commonalities between various “kinds” of justice, e.g., criminal social, environmental; a discussion of classic and contemporary theorists and practitioners of justice and their impact on societal understanding of the concepts of justice and injustice. *Prerequisites: Declaration of justice-preparation.*

JUST 201. Justice Research Methods. 4 credits. *Offered fall and spring.*
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: JUST 200 and MATH 220.*

JUST 210. Crime and Criminal Justice. 3 credits. *Offered fall and spring.*
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. *Offered fall and spring.*

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. *Offered fall and spring.*
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.
Offered fall and spring.

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.*

GJUST 225. Justice and American Society. 4 credits. *Offered fall and spring.*
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.

JUST 235. Justice in the Global Community. 3 credits. *Offered fall and spring.*
A survey of different definitions of justice relating to the operation and development of a global community in international affairs. *Prerequisite: JUST 200 or permission of instructor.*

JUST/PSYC 255. Abnormal Psychology for Law Enforcement Personnel. 3 credits. *Offered fall and spring.*

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: GPSYC 101 and JUST 200.*

JUST 300. Perspectives on Comparative Justice. 3 credits. *Offered fall and spring.*

This course provides an overview of the various systems of justice existent in different cultures throughout the globe. The emphasis here is on legal systems and the ways in which they are used to promote – or not promote – justice. The course also includes a discussion of such topics as war, peace, terrorism, political and social oppression, and the ways in which these phenomena are either created by or ameliorated by justice systems. *Prerequisites: JUST 200 and admission to the major.*

JUST 301. Special Topics in Justice Studies. 3 credits. *Offered spring.*

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 admission to the major.*

JUST/PSYC 314. Police Psychology. 3 credits. *Offered once every other year.*

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: GPSYC 101 and JUST 200.*

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.

JUST/PSYC 316. Human Development and Crime. 3 credits. *Offered once a year.*

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: GPSYC 101.*

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.).

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.

JUST 322. Understanding Violence. 3 credits. *Offered once a year.*

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.

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.

JUST 324. Death Penalty. 3 credits. *Offered fall and spring.*

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.

JUST/SOCI 326. Victimology. 3 credits. *Offered every two years.*

This course provides an overview of various perspectives (social, psychology, legal, etc.) on the experience of victimization. Explanations of the phenomenon are discussed in the context of responses to various types of victimization.

JUST 327. Criminal Law. 3 credits.

Study of substantive criminal law including common law sources and elements of various criminal offenses, justifications and defenses.

JUST 329. Perspectives on Law. 3 credits. *Offered fall and spring.*

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.

JUST/SOCI/SOWK 330. Corrections. 3 credits. *Offered fall and spring.*

The history, philosophy, policies and problems of the treatment of violators by the police, courts and correctional institutions.

JUST/POSC 331. Human Rights in Theory and Practice. 3 credits.

Offered once a year.

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, the completion of JUST 200 is a prerequisite.*

JUST/SCOM 333. Negotiations. 3 credits. *Offered fall and spring.*

This course provides an overview of negotiation as a strategy for dealing with conflict.

JUST/WMST 341. Gender and Justice. 3 credits. *Offered fall.*

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.

JUST/POSC 372. Ethics and International Politics. 3 credits. *Offered fall.*

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, the completion of JUST 235 is a prerequisite.*

JUST 375. Genocide in the 20th Century. 3 credits. *Offered spring.*

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.

JUST/POSC 392. Peace Studies. 3 credits. *Offered spring.*

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.

JUST 400. Senior Seminar in Justice Studies. 3 credits. *Offered fall and spring.*

This is 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 201, admission to the major and senior standing.*

JUST 401. Internship in Justice Studies. 4 credits. *Offered fall and spring.*

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 201. Successful completion of four additional justice studies courses.*

JUST 402. Advanced Research in Justice Studies. 3 credits. *Offered fall and spring.*

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 201. Successful completion of four additional justice studies courses.*

JUST 499. Honors. 6 credits. *Year course.*

Year course. An independent research topic initiated and completed by qualified majors wishing to graduate with distinction.

Kinesiology

Department of Kinesiology

GVIN 100. Lifetime Fitness and Wellness (2, 2). 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.

KIN 101. Adapted Activities in Kinesiology (0, 2). 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 (0, 2). 1 credit. *Offered fall and spring.*
The following courses provide basic instruction in the activities listed: 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; 174, Water Safety Instructor; 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. Please refer to e-campus 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 e-campus.

KIN 201. Introduction to Kinesiology. 2 credits. *Offered fall and spring.*

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. *Prerequisite: KIN 201.*

KIN 203. Social/Psychological Foundations of Kinesiology. 3 credits.
Offered fall and spring.

The focus of this course is on exploring the socio/psychological perspectives of participation in activity through the lifespan. *Prerequisite: KIN 201.*

KIN 211-218. Coaching Techniques (0, 4). 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 241. Introduction to Sport and Recreation Management. 3 credits.

Offered spring.

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 & recreation management. For sport and recreation management majors, this course is a prerequisite for all upper level courses.

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 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 Learning and Performance. 3 credits. *Offered fall.*

A study of the learning processes underlying performance. Emphasis is given to the application of learning principles in teaching, coaching and rehabilitative 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 306. Human Biomechanics (2, 2). 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 credits. *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. To be taken concurrently with 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. *Prerequisites: 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 322. Fitness Programming & Leadership. 4 credits. *Offered fall.*

The course will focus on developing, promoting and leading health, fitness and wellness programs in a variety of settings. Students will apply their knowledge and skills by developing and leading a specific program of their choice. In addition, course content will include theories; principles and procedures involved with leading safe, effective individualized and group fitness activities. *Prerequisites: GKIN 100 or permission of the instructor, KIN 302 and KIN 302L. Corequisites: KIN 421 and KIN 421L.*

KIN/PSYC/SOCI 329. Psychological and Sociological Aspects of Sport. 3 credits. *Offered spring.*

A study of the psychological and sociological implications of sport and the effect of sport on the United States and other cultures.

KIN 333. Management in Sport, Recreation and Fitness Settings.

3 credits. *Offered fall and spring.*

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. *Prerequisites: KIN 241 or permission of the instructor.*

KIN 334. Ethical and Legal Issues in Sport, Recreation and Leisure.

3 credits. *Offered fall and spring.*

This course is designed to introduce the 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.

KIN 353. Maximizing Sport Performance. 3 credits. *Offered fall and spring.*

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 fall and spring.

The administration and interpretation of measurement and evaluation procedures in kinesiology and recreation.

KIN 420. Exercise Programming for Special Populations. 3 credits.

Offered 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. *Corequisites: KIN 302 and KIN 302L.*

KIN 421. Principles of Exercise Testing and Prescription (2, 2). 3 credits.

Offered fall.

This course will examine the principles of exercise testing and prescription as they apply to fitness, performance and health. The role-played by the health related components of fitness in performance and health of apparently healthy adults and special populations will be examined. This course must be taken concurrently with KIN 421L. *Prerequisites: KIN 302 and 302L. Corequisite: KIN 421L.*

KIN 421L. Principles of Exercise Testing and Prescriptions Laboratory.

1 credit. *Offered fall.*

This laboratory course is designed to complement and supplement the lecture course KIN 421. The course will focus on enhancing the student's exercise testing skills and knowledge with particular attention to preparing the student for the Health/Fitness Instructor certification examination sponsored by the American College of Sports Medicine. The laboratory (KIN 421L) and lecture (KIN 421) portions must be taken concurrently. *Prerequisites: KIN 302 and KIN 302L. Corequisite: KIN 421.*

KIN 424/NUTR 455. Theories and Practices of Weight

Management. 3 credits. *Offered 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. *Prerequisite: BIO 270, BIO 290, NUTR 280 or permission of the instructor.*

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: GKIN 100 and KIN 202.*

KIN 426. Physical Activity Behaviors. 3 credits. *Offered 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 427. Fitness Management. 3 credits. *Offered spring.*

This course will focus on the management of fitness and wellness facilities in commercial, corporate, community, clinical and college settings. Students will design a fitness management portfolio that represents recent trends, theories and best practices. *Prerequisites: KIN 302 and KIN 302L.*

KIN 428. Advanced Topics in Exercise Science and Leadership.

3 credits. *Offered 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 432. Introduction to Marketing in the Sport Industry. 3 credits.

Offered fall and spring.

This course will introduce students to the application of basic principles of marketing and consumer behavior to the managed sport industry (i.e., professional sport, intercollegiate athletics, commercial fitness, sporting goods, etc.). This class will provide a foundation for students to engage in advanced work in marketing, consumer behavior, and related fields. *Prerequisites: Kinesiology major, MKTG 380 and permission of instructor.*

KIN 435. Sport Sales and Promotion. 3 credits. *Offered fall and spring.*

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:* KIN 241, KIN 333 and SCOM 260.

KIN 436. Facilities Planning and Management in Sport and Recreation. 3 credits. *Offered fall and spring.*

A study of the skills necessary to be part of a facilities planning/management team.

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 (2, 2). 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 KIN 355.

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. Formerly KIN 401B. *Prerequisite or corequisite:* KIN 302.

KIN 472. Practicum in Sport and Recreation Management. 3 credits.

A sequence of selected practicum experiences which provides the student with supervised practicum experience in Sport and Recreation Management. *Prerequisites:* KIN 241 and KIN 333.

KIN 473. Practicum in Coaching. 3 credits.

A sequence of selected practicum experiences in coaching, which provides the student with supervised practicum experience. *Formerly KIN 401D.*

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. *Formerly KIN 401F.*

KIN 480. Student Teaching in Physical Education. 8 credits. *Offered spring.*

Enables students to apply skills and attitudes acquired in all teacher education components in a public school setting. Conducted under the guidance of an experienced teacher and university faculty in an elementary setting. *Prerequisite:* Acceptance to student teaching.

KIN 481. Internship in Exercise Science and Leadership. 8 credits.

A full-time professional experience in exercise and leadership, which affords the opportunity to apply theory and methodology under qualified supervision from the cooperating agency and the university. *Prerequisite:* Successful completion of all professional courses. *Formerly KIN 402B.*

KIN 482. Internship in Sport and Recreation Management. 12 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. *Prerequisite:* Successful completion of all professional courses. *Formerly KIN 402A.*

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. *Year course. Offered fall and spring.*

Korean

Department of Foreign Languages, Literatures and Cultures**KOR 101-102. Elementary Korean (4, 1).** 4 credits each semester.

Offered fall and spring.

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.

KOR 231-232. Intermediate Korean. 3 credits each semester. *Offered fall and spring.*

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite:* KOR 102 or permission of the instructor.

Latin

Department of Foreign Languages, Literatures and Cultures**LAT 101-102. Elementary Latin.** 4 credits each semester. *Offered fall and spring.*

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.

LAT 231-232. Intermediate Latin. 3 credits each semester. *Offered fall and spring.*

An introduction to Latin literature. The further study of Latin grammar and the elements of Latin prosody are also presented. *Prerequisite:* One year of college Latin or equivalent.

Liberal Studies

Division of Academic Affairs**LS 310. The British Foundations of Modern Science.** 3 credits.

Fundamental principles from the modern sciences are surveyed by directed exploration of the work of British scientists who were pioneers in their fields. Excursions to historical sites and museums are linked to reading assignments. *Prerequisite:* Six hours of laboratory natural science credits.

Management

College of Business**MGT 305. Management and Organizational Behavior.** 3 credits.

Offered fall and spring.

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 (56 hours) and a cumulative 2.0 grade point average in all courses taken at JMU. Open only to non-business majors.

MGT 340. International Management. 3 credits. *Offered fall and spring.*

A comparative analysis of management styles and organizational effectiveness across cultural boundaries and within other political, legal and economic environments. *Prerequisite:* COB 300.

MGT 365. Human Resource Management. 3 credits. *Offered fall and spring.*

A study of employer-employee relationships in business and industry including personnel policies and methods; selection, placement, training and promotion of employees; and recent trends in employment practices. *Prerequisite:* COB 300 or PPA major (or minor), having completed PUAD or PPA 265.

MGT/MS 370. Quality Management. 3 credits. *Offered every three years.*

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 372. Entrepreneurship. 3 credits. *Offered fall and spring.*

A survey of the field of entrepreneurship and entrepreneurs and their significance in the American free enterprise system. Emphasis will be on exploring the theoretical framework of the entrepreneurship process and the entrepreneurial personality. *Prerequisite:* COB 300.

MGT 375. Business Ethics and Social Responsibility. 3 credits.

Offered fall and spring.

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. *Prerequisite:* COB 300 or permission of the instructor.

MGT 390. Organizational Behavior. 3 credits. *Offered fall and spring.*

This course examines the determinants of work behavior in organizations. Topics to be covered include individual differences, work motivation, leadership, and work values and attitudes. Issues of measurement, survey use and managerial application will be emphasized. *Prerequisite:* COB 300.

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This course examines the determinants of work behavior in organizations. Topics to be covered include individual differences, work motivation, leadership, and work values and attitudes. Issues of measurement, survey use and managerial application will be emphasized. *Prerequisite:* COB 300.

MGT 420. Management of Technology and Innovation. 3 credits.

Offered fall and spring.

This course will focus on the management of technology and innovation through an examination of technology transfer across industries, the evolution of technology, technology strategy, the innovation process within an organization, and the management of research and development. The importance of product champions, lead-users and cross-functional teams is emphasized. *Prerequisites: COB 300 and senior standing (90 hours).*

MGT 425. Project Management. 3 credits. *Offered fall and spring.*

This course focuses on different techniques for managing many types of projects. The course addresses a variety of project management issues such as project prioritization, the use of management tools and techniques to plan and schedule projects, the role of the project manager, maximizing project team performance and management of complex projects. *Prerequisites: COB 300 and senior standing (90 hours).*

MGT 430. Team Management. 3 credits. *Offered every three years.*

This course focuses on the effective use of teams as vehicles for accomplishing organizational work (e.g., solving complex problems). The course addresses a variety of team management issues such as designing and structuring work teams and reward systems, diagnosing team functioning and process problems, resources utilization planning and interventions for improving team performance. *Prerequisite: Senior standing (90 hours).*

MGT 450. Creativity and Innovation. 3 credits. *Offered fall and spring.*

Students will become aware of and develop their own creative potential while addressing the problems associated with building creative organizations and managing creative employees. *Prerequisite: COB 300 and senior standing.*

MGT 460. Employment Law. 3 credits. *Offered once a year.*

Course provides student with an overview of federal regulations and court decisions, which affect employment, employee/management relations, compensation, benefits, safety and health. Explores impact of regulations on general business operations. *Prerequisite: MGT 365.*

MGT 462. Compensation and Benefits. 3 credits. *Offered once a year.*

Compensation and benefit theories, planning and legislation. Topics include job analysis, job evaluation, conducting wage surveys and administration of benefit plans. *Prerequisite: MGT 365.*

MGT 463. Labor Relations. 3 credits. *Offered once a year.*

An examination of the field of labor relations including the evolution of the labor movement, the structure of unions, public labor policy and the emergence of public sector bargaining. *Prerequisite: MGT 365.*

MGT 464. Industrial Psychology. 3 credits. *Offered every three years.*

Motivation of workers, leadership, work groups; measurement of job performance and job satisfaction. *Prerequisites: COB 300 and COB 191.*

MGT 465. Senior Seminar in Human Resource Management. 3 credits.

Offered every three years.

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, MGT 365 and at least nine hours from MGT 460, MGT 462, MGT 463, MGT 464, MGT 466, MGT 467 or MGT 468, or permission of the instructor.*

MGT 466. Employee Training and Development. 3 credits. *Offered once a year.*

A study of training and development of human resources in organizations. Topics include design, development and evaluation of programs; adult learners; adult development; and career development programs in organizations. *Prerequisite: MGT 365.*

MGT 467. Human Resource Strategy and Implementation. 3 credits.

Offered once a year.

Study of human resource management from a macro organizational perspective. Emphasizes the role of the human resource manager as a strategic partner in organizational planning. Topics include environmental analysis, forecast techniques, human resource strategies and implementation programs. *Prerequisite: MGT 365.*

MGT 468. Staffing. 3 credits. *Offered once a year.*

A study of the selection of human resources in organizations. Topics include internal and external recruitment, internal and external selection and testing. *Prerequisite: MGT 365.*

MGT 472. Venture Creation. 3 credits. *Offered once a year.*

The formulation, financing and operation of new ventures by individual entrepreneurs and entrepreneurial teams will be explored. The course will include a group term project designed to give the students clinical experience in the venture creation process. *Prerequisites: COB 300 and MGT 372 or permission of the instructor.*

MGT 480. Organization Theory and Design. 3 credits. *Offered fall and spring.*

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 senior standing (90 hours).*

MGT 481. Negotiation Behavior. 3 credits. *Offered every two years.*

An overview of negotiation as an effective conflict management device. The process of negotiation is examined in terms of how it affects disputants, the associated social structure and the encompassing system as a whole. *Prerequisite: Senior standing (90 hours).*

MGT 490. Special Studies in Management. 1-3 credits. *Offered fall and spring.*

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. *Offered fall, summer and spring.*

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), minimum cumulative GPA of 2.800, recommendation of the instructor and written permission of the program director prior to registration.*

MGT 495. Human Resources Internship. 3 credits. *Offered fall, summer and spring.*

Internship in the area of human resource management as a generalist or in a specific area. *Prerequisites: Management major, senior standing (90 hours); 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.

Offered according to course availability.

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. *Prerequisite: Permission of the instructor.*

MGT 499. Honors. 6 credits. *Offered fall and spring.*

Year course. See catalog sections entitled "Graduation with Distinction" and "Graduation with Honors."

Marketing

College of Business

MKTG 380. Principles of Marketing. 3 credits. *Offered fall and spring.*

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 (56 hours) and a cumulative 2.0 grade point average in all courses taken at JMU.*

MKTG 384. Integrated Marketing Communications. 3 credits. *Offered fall and spring.*

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 MKTG 380 and admission to the marketing major or minor.*

MKTG 385. Buyer Behavior. 3 credits. *Offered fall and spring.*

Deals with the behavioral science concepts of individual and group behavior of consumers and industrial buyers. Stresses the application of buyer behavior research to marketing management. *Prerequisite: MKTG 380 or COB 300.*

MKTG 386. Services Marketing. 3 credits. *Offered once a year.*

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. *Prerequisite: COB 300 or MKTG 380.*

MKTG 388. Retail Marketing. 3 credits. *Offered fall and spring.*

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. *Prerequisite: COB 300 or MKTG 380.*

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, MKTG 385 and MKTG 482.*

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. *Offered fall and spring.*

Provides an understanding of many aspects of professional selling including preparing for selling, selling techniques and the role of selling in our society. *Prerequisite: MKTG 380 or COB 300.*

MKTG 440. Retail Strategy and Buying. 3 credits. *Offered fall and spring.*

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. *Prerequisite: COB 300 or MKTG 380 and MKTG 388.*

MKTG 450. Business Marketing. 3 credits. *Offered fall and spring.*

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. *Prerequisite: COB 300 or MKTG 380.*

MKTG 460. Global Marketing. 3 credits. *Offered fall and spring.*

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. *Prerequisite: COB 300 or MKTG 380.*

MKTG 470. Strategic Internet Marketing. 3 credits. *Offered fall and spring.*

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, pricing structures and distribution channels over the Internet, and execute marketing strategy in computer mediated environments. *Prerequisite: COB 300 or MKTG 380 and MKTG 384 or permission of instructor.*

MKTG 480. Product Development and Management. 3 credits.

Offered fall and spring.

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. *Prerequisite: COB 300 or MKTG 380 and MKTG 450.*

MKTG 482. Database Marketing. 3 credits. *Offered fall and spring.*

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 MKTG 380 and admission to the marketing major or minor.*

MKTG 485. Marketing Management. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

Designed to give capable students in marketing an opportunity to complete independent study under faculty supervision. *Prerequisites: GPA of 2.80, recommendation of the instructor and approval by the director prior to registration.*

MKTG 494. Marketing Internship. 3-6 credits. *Offered fall and spring.*

A course providing an opportunity to work in and deal with industry to gain insight into the realities of modern business. *Prerequisites: COB 300 or MKTG 380, minimum cumulative GPA of 2.800, senior standing, recommendation of the internship coordinator and approval of the director prior to registration.*

MKTG 498. Special Topics in Marketing. 3 credits. *Offered fall and spring.*

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. *Prerequisite: Permission of the instructor.*

MKTG 499. Honors. 6 credits. *Offered fall and spring.*

Year course. See catalog sections entitled "Graduation with Distinction" and "Graduation with Honors."

Materials Science

Center for Materials Science**MATS/CHEM/PHYS 275. An Introduction to Materials Science.**

3 credits. *Offered fall.*

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, PHYS 250, ISAT 212 or permission of the instructor.*

MATS/PHYS 337. Solid State Physics. 3 credits. *Offered spring every other year.*

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/PHYS 381. Materials Characterization (Lecture/Lab Course).

3 credits. *Offered spring.*

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: MATS/PHYS 275, MATS/ISAT 431 or MATS/GEOL 395.*

MATS 382. Materials Microfabrication Laboratory. 3 credits. *Offered on demand.*

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 instructor.*

MATS/GEOL 395. Geologic Perspectives in Materials Science. 3 credits.

Offered on demand.

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 GISAT 141) and at least one additional advanced course in the major.*

MATS/GEOL 396. X-ray Characterization of Solid Materials.

3 credits. *Offered spring every other year.*

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 275 or ISAT 300.

MATS/ISAT 430. Materials Science in Manufacturing. 3 credits.

Offered fall.

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. *Offered spring.*

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.

Offered spring.

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.

Offered fall.

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. *Prerequisite:* 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. *Offered on demand.*

Research in a selected area of materials science arranged with and approved by a faculty research advisor. *Prerequisite:* Proposal for study must be approved by research adviser and by the Director of Center for Materials Science prior to registration.

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 125, 135, 145, 155, 205, 220 or 235.

MATH 156. College Algebra. 3 credits. *Offered fall and spring.*

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 125, 135, 145, 155, 205, 220 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 205. Introductory Calculus I.** 3 credits. *Offered fall and spring.*

Topics from differential calculus with applications to the social, behavioral or life sciences and business or management. *Prerequisite:* 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 235. Not recommended for chemistry majors.

***MATH 205E. Introductory Calculus I with Laboratory.** 4 credits.

Offered on demand.

Topics from differential calculus, including a laboratory component stressing data collection, data analysis, and applications to environmental issues. *Prerequisite:* 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 205, MATH 231 or MATH 235. Not recommended for chemistry majors.

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:* 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. *Prerequisite:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. Not open to majors in mathematics.

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 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.** 4 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. *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 232. Calculus with Functions II. 4 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. **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.

Mathematics

Department of Mathematics and Statistics

***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.

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. *Prerequisite for MATH 107:* MATH 155, MATH 156 or sufficient score on the Mathematics Placement Exam. *Prerequisite for MATH 108:* MATH 107.

MATH 135. Elementary Functions. 4 credits. *Offered on demand.*

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 125, 145, 155, 156, 205 or 235, except with the consent of the department head.

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. *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 numbered 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 280. SAS Programming and Data Management. 3 credits. *Offered fall.* Use of statistical software to manage, process and analyze data. Writing of statistical programs to perform simulation experiments. *Prerequisite: MATH 220 or MATH 318.*

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 instructor. Not open to students who have already earned credit in MATH 220 or MATH 318.*

MATH 300. Linear Algebra. 3 credits. *Offered on demand.* Vector spaces, linear transformations, matrices, determinants, systems of linear equations, and eigenvalues and eigenvectors. *Prerequisite or corequisite: MATH 237 or permission of the instructor.*

MATH 304. Principles of Algebra. 3 credits. *Offered spring.* Algebraic structures, number systems, matrices, groups, rings, factors and solutions to equations, graph theory. *Prerequisite: MATH 207.*

MATH 305. Principles of Geometry. 3 credits. *Offered fall.* Finite geometries, geometric transformations, constructions, geometry of inversion, projective geometry and non-Euclidean geometry. *Prerequisite: MATH 207.*

MATH 306. Principles of Analysis. 3 credits. *Offered fall.* Sequences, discrete calculus and difference equations, derivatives and integrals, concepts of differential equations and applications. *Prerequisite: MATH 207.*

MATH 307. Principles of Probability and Statistics. 3 credits. *Offered spring.* Descriptive statistics, measures of central tendency and dispersion, correlation, probability, probability distributions and statistical inference. *Prerequisite: MATH 207.*

MATH 310. Elementary Theory of Numbers. 3 credits. *Offered every third semester as of fall 2006.*

Properties of integers and prime numbers, divisibility, congruence, residues and selected topics. *Prerequisite or corequisite: MATH 245 or consent of the instructor.*

MATH 315. The Real Number System. 3 credits. *Offered every third semester as of fall 2007.*

A development of the real number system through a systematic approach to the natural numbers, integers, rationals and irrationals. *Prerequisite or corequisite: MATH 245 or consent of the instructor.*

MATH 318. Introduction to Probability and Statistics. 4 credits. *Offered fall and spring.*

Counting, probability axioms, discrete and continuous random variables, method of moments and maximum likelihood estimation, descriptive statistics, central limit theorem, single and two-sample inference, blocking and dependent sample inference, 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, MATH 318 or equivalent.*

MATH 322. Applied Linear Regression. 3 credits. *Offered spring.* Introduction to basic concepts and methods in regression analysis and the application of these models to real-life situations. *Prerequisite: MATH 220, 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, 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.*

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.*

MATH/FIN 328. Time Series Analysis. 3 credits. *Offered fall of even numbered 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 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 237.*

MATH 337. Methods of Applied Calculus. 4 credits. *Offered every third semester as of fall 2006.*

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.*

MATH 340. Mathematical Modeling I – Optimization. 3 credits. *Offered fall of even numbered 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 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 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 2007.* 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 360. Complex Variables with Applications. 3 credits. *Offered every third semester as of fall 2007.*

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/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. 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 spring of odd numbered years.* 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 or equivalent and MATH 318.

MATH 424. Statistical Decision Theory. 3 credits. *Offered spring even numbered years.*

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.* Probability spaces, random variables, discrete and continuous probability distributions, mathematical expectation, moment generating functions, moments of linear combinations of random variables and sampling distributions. *Prerequisite:* MATH 318.

MATH 427. Probability and Mathematical Statistics II. 3 credits. *Offered spring.*

Sampling theory and distributions, theory and applications of estimation and hypothesis testing, regression and correlation and analysis of variance. *Prerequisite:* MATH 426.

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. MATH 429 should be taken concurrently with one of the following statistics courses: MATH 321, 322, 324, 325 and 327. *Corequisite:* One of MATH 321, MATH 322, MATH 324, MATH 325 or MATH 327. *Prerequisite:* Six hours of statistics courses at the 300 or 400 level.

MATH 430-431. Abstract Algebra. 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 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; and MATH 245 or MATH 440 or consent of instructor.

MATH/CS 448. Numerical Analysis. 3 credits. *Offered every third semester as of spring 2007.* 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 and MATH 248. Formerly MATH 448.

MATH/CS 449. Numerical Analysis for Differential Equations. 3 credits. *Offered every third semester as of fall 2007.*

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/CS 448. Formerly MATH 449.

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 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. *Prerequisites: Consent of the instructor.*

MATH 497-498. Independent Study. 1-3 credits each semester. *Offered on demand.*

Independent study in mathematics under faculty supervision. Offered only with consent of the department head.

MATH 499. Honors. 6 credits. *Offered on demand.*

Year course.

Media Arts and Design

School of Media Arts and Design

SMAD 101. Introduction to Media Arts and Design. 3 credits. *Offered fall and spring.*

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 201. Fundamental Skills in Media Arts and Design I. 3 credits. *Offered fall and spring.*

Study of 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. Fundamentals Skills in Media Arts and Design II. 3 credits. *Offered fall and spring.*

Study of the aesthetic principles and practices of audio and video production for digital media. Focus on the technological requirements of producing audio and video for different delivery systems such as television, interactive CD/DVD and the Web. *Prerequisite: Admission to the SMAD major. Prerequisite or corequisite: SMAD 201.*

SMAD 210. News Reporting and Writing. 3 credits. *Offered fall and spring.*

The study and practice of the fundamentals of news writing, including news gathering techniques and news style. Emphasis on the 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 SMAD major or permission of the instructor.*

SMAD 220. News Editing. 3 credits. *Offered fall and spring.*

The study of editorial functions in the modern newsroom. Consideration of problems in news judgment, news style and the laws of libel. Emphasis upon layout and headline writing. *Prerequisite or corequisite: SMAD 210.*

SMAD 225. Photojournalism. 3 credits. *Offered fall and spring.*

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. *Prerequisite: Admission to the SMAD major and SMAD 201 or permission of the instructor.*

SMAD 231. Writing for New Media. 3 credits. *Offered fall or spring.*

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 241. Introduction to Corporate Communication. 3 credits.

Offered fall and spring.

Introduction to the study and practice of corporate communication. Students will explore the functions of a corporate communication department, the strategic planning process, and the various forms and techniques used in corporate media writing. Exercises in print, broadcast and interactive media writing will allow students to apply material in real and simulated situations and produce examples for portfolios. Fulfills the College of Arts and Letters' writing-intensive requirement. *Prerequisite: Admission to the SMAD major or permission of the instructor.*

SMAD 250. Scriptwriting. 3 credits. *Offered fall and spring.*

The study of the principles and practices of writing scripts for commercial, non-commercial and corporate media applications. Emphasis on preparing dramatic and informational forms for broadcast or recording. 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 251. Screenplay Writing. 3 credits. *Offered fall and spring.*

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. *Prerequisite: Admission to the SMAD major or permission of the instructor.*

SMAD 256. Principles of Advertising. 3 credits. *Offered fall and spring.*

Study of the principles and practices of advertising, including the process, planning, production and placement of commercial messages. Students will learn of the social impact, creative strategy, consumer use, message production and media placement strategies of advertising. Students get practical experience applying an integrated communication strategy. *Prerequisite: SMAD 202 or permission of the instructor.*

SMAD 295. Practicum in Media Arts and Design. 1 credit, repeatable to 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Prerequisite: SMAD 202 or permission of the instructor.*

SMAD 302. HD Video Production. 3 credits. *Offered fall and spring.*

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, non-broadcast and multimedia applications. *Prerequisite: SMAD 202 or permission of the instructor.*

SMAD 303. HD Post Production. 3 credits. *Offered fall and spring.*

Principles and practices of high definition video editing. Focus on the technical, aesthetics, and strategies of 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. *Offered periodically.*

Study of digital sound production and digital sound-for-picture production. Emphasis on advanced theories and applications. *Prerequisite: SMAD 202 or permission of the instructor.*

SMAD 305. Topics in Media Arts and Design. 3 credits, repeatable to 6 credits. *Offered periodically.*

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. HD Studio Production. 3 credits. *Offered fall or spring.*

The study of principles and practices of high definition television studio production. Focus on visual composition, audio, lighting and communication in a studio environment. Emphasis on technical and aesthetic demands of high definition video. *Prerequisites: SMAD 302 or permission of the instructor.*

SMAD 307. Interactive Design for the Web I. 3 credits. *Offered fall and spring.*

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. *Prerequisite: SMAD 202; prerequisite or corequisite: SMAD 210 or SMAD 231 or SMAD 241 or SMAD 250, or SMAD 251 or permission of the instructor.*

SMAD 308. Interactive Design for the Web II. 3 credits. *Offered fall or spring.*
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. *Offered fall or spring.*
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. *Prerequisite:* SMAD 210 or permission of the instructor.

SMAD 310. Advanced Reporting and Writing. 3 credits. *Offered fall and spring.*
Advanced study and practice of news and feature writing and information gathering techniques. Emphasis on in-depth and investigative stories. Consideration of writing for multiple platforms. *Prerequisite:* SMAD 210 or permission of the instructor.

SMAD 311. Feature Writing. 3 credits. *Offered fall and spring.*
The study and practice of advanced techniques in planning and writing feature stories. Emphasis on individual performance through criticism of student work in conference with the instructor. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite:* SMAD 210, SMAD 241 or permission of the instructor.

SMAD 321. Feature Magazine Production. 3 credits. *Offered spring.*
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 a magazine. *Prerequisite:* SMAD 311 or permission of the instructor.

SMAD 322. New Media Journalism. 3 credits. *Offered fall.*
Advanced study in the knowledge and skills required to produce new media journalism. Focus on new and emerging media forms including blogs, social media and journalism Web sites. Consideration of audiences, story generation, writing, editing, site design and management. *Prerequisite:* SMAD 220, and SMAD 210 or SMAD 241 or permission of the instructor.

SMAD 330. New Media Law. 3 credits. *Offered fall and spring.*
An in-depth 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:* Admission to the SMAD major and junior or senior standing or permission of the instructor.

SMAD 332. Print Communication Design. 3 credits. *Offered fall or spring.*
An introduction to the theories and methods of design for print communication. Students will learn various techniques needed to produce the design materials that go into print publications. *Prerequisite:* SMAD 201 or permission of the instructor.

SMAD 340. Advanced Screenplay Writing. 3 credits. *Offered fall or spring.*
Advanced study of the principles of screenplay writing for feature films and television movies. Emphasis is placed on the structure of the full-length narrative film. *Prerequisite:* SMAD 251 or permission of the instructor.

SMAD 341. Information and Communication Technologies. 3 credits.
Offered fall and spring.

Study of current communication and information technologies utilized in corporate communication. An emphasis on research and analysis of current technology trends and applications, as well as message design and implementation of new media technologies. Focus on effective and efficient use of new social media for information distribution to internal and external corporate constituent groups. *Prerequisites:* Converged concentrators: SMAD 202 and SMAD 231; Corporate concentrators: SMAD 202 and SMAD 241. Journalism concentrators: SMAD 202 and SMAD 210; or permission of the instructor.

SMAD 356. Telecommunication Policy and Regulation. 3 credits.

Offered fall or spring.

An overview of the regulatory issues encountered in the telecommunication industry. Emphasizes post 1982-FCC changes deregulating telephone, CATV and broadcast industries. Includes regulation of emerging services and technologies, First Amendment issues, ownership and distribution of new information forms, and limitations and uses of technology. *Prerequisite:* Junior or senior standing or permission of the instructor.

SMAD 370. Mass Communication Law. 3 credits. *Offered fall and spring.*
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:* Admission to the SMAD major and junior or senior standing, or permission of the instructor.

SMAD 371. Narrative Media Studies. 3 credits. *Offered spring.*
Study of media theories that focus on the functions 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 critical methods and research techniques underpinning these diverse explanations of media influence. *Prerequisite or corequisite:* SMAD 301 or permission of the instructor.

SMAD 372. Media History. 3 credits. *Offered spring.*
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. *Offered fall or spring.*
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 mass-mediated culture. *Prerequisite:* SMAD 301; for non-majors: admission to the interdisciplinary minor in creative writing; or permission of the instructor.

SMAD 390. Directed Projects in Media Arts and Design. 2 credits, repeatable to 4 credits. *Offered fall and spring.*
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. *Offered fall and spring.*
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.
Offered periodically.
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 301; For non-majors: Admission to the minor in film studies or, when taken abroad, the minor in *British Communication and Media*, or permission of instructor.

SMAD 400. Senior Assessment in Media Arts and Design. 0 credits.
Offered spring.

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 and senior standing or permission of the school director.

SMAD 402. HD Compositing and Special Effects. 3 credits. *Offered spring.*
Study of advanced post-production principles and practices used in broadcast production environments. Emphasis on the development and creation of motion elements integrating HD non-linear editing systems with HD switching and special effects components. Focus on the editor as a compositor of multi-layer video sound elements to create dynamic media used in live and live-on-disc programs. *Prerequisites:* SMAD 303 or permission of the instructor.

SMAD 404. Advanced Interactive Design. 3 credits. *Offered fall or spring.*
Study of advanced techniques in interactive media for online and fixed media delivery. Emphasis on emerging technologies and professional development strategies. Includes creation of an interactive portfolio.
Prerequisite: SMAD 308 or permission of the instructor.

SMAD 405. Directing Video and Cinema. 3 credits. *Offered fall or spring.*
Study of the principles and practices of directing programs for video and cinema. Emphasis on the director's contribution to the creative development and production. Consideration of the director's responsibilities, including directing talent, visualization and project management. Attention to similarities and differences in single camera and multi-camera production.
Prerequisites: SMAD 302 or permission of the instructor.

SMAD 407. Business and Management of Digital Media. 3 credits.
Offered fall and spring.

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. *Offered fall or spring.*
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. Additional attention to portfolio development. *Prerequisites:* SMAD 231 and SMAD 302 or SMAD 308 or SMAD 332 or SMAD 341; and senior standing and permission of instructor.

SMAD 409. Electronic News Gathering and Producing. 3 credits. *Offered fall.*
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 441. Corporate Communication Management. 3 credits. *Offered fall and spring.*
Study of principles and practices of managing corporate communication. Emphasis on evaluation and management of messages, channels, and appropriate media. Attention given to critical analysis and strategic planning. Focus on legal, ethical, financial, personnel issues and career development. Analysis of case studies and current issues. *Prerequisites:* Senior standing, SMAD 341 or permission of the instructor.

SMAD 460. Movies and Society. 3 credits. *Offered fall.*
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 301; for non-majors: admission to the interdisciplinary minor in film studies; or permission of the instructor.

SMAD 461. Movies as Art. 3 credits. *Offered spring.*
Advanced study of how movies tell their 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 301; for non-majors: ENG 381; or permission of the instructor.

SMAD 462. Documentary in Film and Television. 3 credits. *Offered spring.*
The study of content, style, technique and effect of representative samples of the documentary form. Consideration given to informational and persuasive elements. *Prerequisites:* SMAD 301; for non-majors: ENG 381; or permission of the instructor.

SMAD/ENG 463. Film Adaptations. 3 credits. *Offered fall or spring.*
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. *Prerequisite:* SMAD 301; for non-majors: ENG 381 or admission to the interdisciplinary minor in creative writing; or permission of the instructor.

SMAD 470. New Media and Society. 3 credits. *Offered fall or spring.*
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 or WRTC major, junior or senior standing, or permission of the instructor.

SMAD 471. Media Ethics. 3 credits. *Offered fall or spring.*
The study of ethical principles and how they apply in a variety of media situations, including entertainment programming news and advertising. Emphasis on case studies as examples of ethical decision-making. *Prerequisites:* Admission to the SMAD major and junior or senior standing or permission of the instructor.

SMAD/SCOM/POSC 472. Media and Politics. 3 credits. *Offered fall and spring.*
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.

SMAD 490. Special Studies in Media Arts and Design. 3 credits.
Offered fall and spring.

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. 2 credits,
repeatable to 4 credits. *Offered fall and spring.*

An off-campus program prepared and monitored on an individual student basis. Internships are designed to provide practical experience in journalism, electronic media, corporate media or visual communication. *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.
Offered occasionally.

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 or corequisites:* SMAD major and junior or senior standing.

SMAD 498. Senior Seminar in Media Arts and Design. 3 credits.
Offered fall and spring.

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 301 and senior standing or permission of the instructor.

SMAD 499. Honors in Media Arts and Design. 6 credits. *Offered fall and spring.*

Middle Education

College of 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.

Middle and Secondary Education

College of Education

MSSE 101. Orientation to the Profession. 2 credits.

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.

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 & EDUC 310; for middle education, MSSE 371. *Prerequisites:* Admission to teacher education and GPSYC 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 15 hours to clinical experiences grounded in adolescent instruction, including field work and on-campus lab activities. Satisfactory performance in this course is required for retention in teacher education. *Corequisite:* For secondary education: MSSE 370 & EDUC 310; for middle education, MSSE 370. *Prerequisites:* GPSYC 160 for secondary education students; EDUC 310, MIED 311 and READ 312 for middle education students.

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.

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.

Military Science

Department of Military Science

MSCI 100. Leadership Laboratory (0, 2). 1 credit, repeatable to 4 credits.

Offered fall and spring.

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.

MSCI 101. Introduction to Leadership and the Army. 1 credit. *Offered fall.*

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. 1 credit. *Offered spring.*

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 200. Intermediate Leadership Laboratory. 2 credits, repeatable to 4 credits. *Offered fall and spring.*

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 101, MSCI 102, and MSCI 100 lab). Department head approval required.

MSCI 201. Leadership Styles – Theory and Application. 2 credits.

Offered fall.

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. *Offered spring.*

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. *Offered fall and spring.*

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:* Completion of ROTC Basic Course (MSCI 101, MSCI 102, MSCI 201, MSCI 202 and MSCI 100 lab). Department head approval required.

MSCI 310. Leading Small Organizations. 3 credits. *Offered fall.*

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. *Offered spring.*
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 410. Seminar on Command Management – Leadership Challenges and Organizational Goal-Setting. 3 credits. *Offered fall.*
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. *Offered spring.*
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 the Civil War Battle of Antietam, along with a field trip to Antietam Battlefield. *Corequisite: MSCI 300.*

MSCI 490. Special Studies in Military Science. 1-3 credits. *Offering varies.*
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.*

Music

School of Music

MUS 100. Keyboard Skills I. 1 credit. *Offered fall.*

A beginning level keyboard skills class for music majors. Includes basic techniques, sight reading, elementary repertoire and functional theory-related keyboard skills.

MUS 101. Keyboard Skills II. 1 credit. *Offered fall and spring.*

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. *Prerequisite: MUS 100 or placement by audition/interview.*

MUS 120. Diction for Singers I. 1 credit. *Offered fall.*

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 instructor. *Prerequisite: Music major or permission of the instructor.*

MUS 121. Diction for Singers II. 1 credit. *Offered spring.*

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 each semester. *Offered fall.*

Covers basics of music theory, ear-training and sight-singing; designed for the non-music major.

MUS 141-142. Theory I: Writing and Analysis Techniques. 3 credits each semester. *MUS 141 offered fall; MUS 142 offered spring.*

Music scale construction, rhythm and interval work, melody writing and a study of triads, inversions, primary and secondary chords, embellishments, introduction to chromatic harmony. *Prerequisite: MUS 142 requires a grade of “C-” or higher in MUS 141. Corequisite: Should be taken concurrently with MUS 143-144.*

MUS 143-144. Theory I: Aural Perception and Analysis. 1 credit each semester. *MUS 143 offered fall; MUS 144 offered spring.*

A coordinated laboratory course with MUS 141-142 encompassing sight singing and ear training. The course involves music reading and aural perception in unison and parts, dictation, error detection and analytical listening. Computer assisted instruction supplements in-class drill. *Prerequisite: MUS 144 requires a grade of “C-” or higher in MUS 143. Corequisite: Should be taken concurrently with MUS 141-142.*

MUS 150. Introduction to Technological Applications in Music. 1 credit.

Offered fall and spring.

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 credit. *Offered fall and spring.*

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.

GMUS 200. Music in General Culture. 3 credits. *Offered fall and spring.*

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.

MUS 202. Keyboard Skills III. 1 credit. *Offered fall and spring.*

An intermediate level course in functional keyboard skills for music majors. Includes sight reading, transposition, harmonization, improvisation, playing by ear and accompanying techniques. *Prerequisite: MUS 100 or placement by audition/interview.*

GMUS 203. Music in America. 3 credits. *Offered fall and spring.*

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.

MUS 204. History of Rock. 3 credits. *Offered fall.*

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.

GMUS 206. Introduction to Global Music. 3 credits. *Offered fall and spring.*

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.

MUS 220.

MUS 240. Jazz Improvisation Laboratory I. 2 credits. *Offered spring.*

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 instructor.

MUS 241-242. Theory II: Writing and Analysis Techniques. 3 credits each semester. *MUS 241 offered fall; MUS 242 offered spring.*

Continuation of MUS 142. Chromatic harmony, modulation, musical form and analysis, introduction to 20th-century compositional techniques. *Prerequisite: MUS 241 requires a grade of “C-” or higher in MUS 142; MUS 242 requires a grade of “C-” or higher in MUS 241. Corequisite: Should be taken concurrently with MUS 243-244.*

MUS 243-244. Theory II: Aural Perception and Analysis. 1 credit each semester. *MUS 243 offered fall; MUS 244 offered spring.*

A coordinated laboratory course with MUS 241-242 encompassing sight singing and ear training and involving music reading and aural perception in unison and parts, dictation, error detection, and analytical listening. Computer assisted instruction supplements in-class drill. *Prerequisite: MUS 243 requires a grade of “C-” or higher in MUS 144; MUS 244 requires a grade of “C-” or higher in MUS 243. Corequisite: Should be taken concurrently with MUS 241-242.*

MUS 303. Keyboard Skills IV. 1 credit. *Offered fall and spring.*

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. *Prerequisite:*

MUS 202 or placement by audition/interview.

MUS 304. Advanced Keyboard Skills. 1 credit. *Offered fall and spring.*

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 317. Basic Conducting. 2 credits. *Offered fall.*

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. *Offered spring.*

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. *Offered spring.*

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 352. Music Composition. 2-3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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.

Offered once every other year.

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. *Offered fall, odd years.*

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. *Offered spring, even years.*

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. 2 credits. *Offered fall.*

A history of Western music from the early Christian era through 1600.

MUS 374. Music History. 2 credits. *Offered spring.*

A history of Western music from 1600 through 1827.

MUS 375. Music History. 2 credits. *Offered fall.*

A history of Western music from 1827 through 1945.

MUS 376. Music History: Music in Contemporary Culture. 2 credits.

Offered spring.

A history of Western music since 1945, including Western art music, music in Latin America and musical systems and literature from non-Western cultures including Islamic, Indian, Native American, Javanese and Chinese music.

MUS 395. Junior or Senior Half Recital. 0 credits. *Offered fall and spring.*

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. *Offered fall, even years.*

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 440. Jazz Improvisation Laboratory II. 2 credits. *Offered fall and spring.*

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. *Offered fall.*

Arranging for vocal ensembles. Included will be fundamental concepts of orchestration. *Prerequisites: MUS 242 and MUS 244.*

MUS 442. Instrumental Arranging. 3 credits. *Offered fall.*

Arranging for various instrumental ensembles, including fundamental concepts for orchestration. *Prerequisites: MUS 242 and MUS 244.*

MUS 443-444. Counterpoint. 2 credits each semester. *MUS 443 offered fall, even years; MUS 444 offered spring, even years.*

MUS 443: Compositional and analytical study of 16th-century sacred vocal polyphony with two-voice and three-voice assignments and projects.

MUS 444: Compositional and analytical study of 18th-century Bach-style polyphony with detailed study of invention, fugue and chorale prelude. (Courses may be taken in sequence or separately.) *Prerequisites: MUS 142 and MUS 144.*

MUS 445. Orchestration. 3 credits. *Offered spring, even years.*

Survey of modern orchestration techniques, including a thorough exploration of the characteristics of individual instruments; use of extended techniques' combinations of instruments and voices. Current practice will be studied through examples from contemporary orchestral literature. Students will complete several orchestration projects; readings will take place of as many as possible. *Prerequisites: MUS 242 and MUS 352 (at least one semester) or permission of instructor.*

MUS 449-450. Advanced Music Analysis. 2 credits each semester.

MUS 449 offered fall, odd years; MUS 450 offered spring, even years.

Analytical investigation of musical examples in a variety of styles with emphasis on musical form and harmony. **MUS 449:** Renaissance and Baroque period. **MUS 450:** 20th century, including Debussy, Bartok and Stravinsky. (Courses may be taken in sequence or separately.) *Prerequisites: MUS 242 and MUS 244.*

MUS 456. Choral Literature I. 3 credits. *Offered fall, odd years.*

A survey of choral literature from the pre-Renaissance through the Classical period, including a cappella and accompanied works. Attention will be given to parallel trends in keyboard and instrumental music where applicable. *Prerequisites: MUS 373, MUS 374, MUS 375 and MUS 376 or permission of the instructor.*

MUS 457. Choral Literature II. 3 credits. *Offered spring, even years.*

A survey of choral literature from the Romantic period through the present, including a cappella and accompanied works. Attention will be given to parallel trends in keyboard and instrumental music where applicable. *Prerequisites: MUS 373, MUS 374, MUS 375 and MUS 376 or permission of the instructor.*

MUS 460. Piano Literature I. 2 credits. *Offered fall, odd years.*

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. *Offered fall, even years.*

A historical survey of symphonic literature concentrating primarily on major composers and compositions from Baroque to present.

MUS 465. Opera History and Literature. 3 credits. *Offered spring, odd years.*

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 373, MUS 374, MUS 375 and MUS 376 or permission of the instructor.*

MUS 467. Solo Vocal Literature. 3 credits. *Offered spring, even years.*

A survey of vocal art-song literature in Western culture.

MUS 470. Piano Literature II. 2 credits. *Offered spring, even years.*

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. *Offered fall and spring.*

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. *Offered spring.*

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.

Offered spring and fall.

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, MUS 375 and MUS 376 or permission of instructor.

MUS 490. Special Studies in Music. 1-3 credits each semester. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

Courses in music or music education which are of a topical nature. May be repeated.

MUS 499. Honors. 6 credits. *Offered fall and spring.*

This is a year long course

Music Education

School of Music

MUED 206. Instrument Familiarization. 1 credit. *Offered fall.*

Provides non-instrumental music education majors a functional knowledge of tone production and basic characteristics of woodwind, brass, percussion and string instruments.

MUED 271. Introduction to Music Education. 2 credits. *Offered spring.*

Overview of music teaching careers in general, the music education curriculum and Virginia's Standards of Learning. Field trips to observe school music programs will be taken.

MUED 301-302. Woodwind Techniques. 1 credit each semester.

Offered fall and spring.

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. *Offered fall and spring.*

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.

Offered fall and spring.

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. *MUED 307 offered fall; MUED 308 offered spring.*

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. *Offered fall.*

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. *Offered fall.*

Methods and materials for beginning through intermediate instrumental music students. Administrative concerns are included. *Prerequisite:* MUED 271, full admission to teacher education and Level 3 in major applied area.

MUED 372. General Music Practices. 2 credits. *Offered fall.*

Focuses on broad preparation for teaching the general music courses now found at both middle and high school levels. *Prerequisite:* MUED 271, full admission to teacher education and Level 3 in major applied area.

MUED 373. Advanced Methods and Materials for Instrumental

Music. 2 credits. *Offered spring.*

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 271 and MUS 317, full admission to teacher education and Level 4 in major applied area.

MUED 376. Choral Music Materials and Techniques. 2 credits. *Offered spring.*

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 271, full admission to teacher education and Level 4 in major applied area.

MUED 380. Music in the Elementary School. 2 credits. *Offered fall.*

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 271, full admission to teacher education and Level 3 in major applied area.

MUED 470. Marching Band Procedures. 2 credits. *Offered spring.*

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 271 or permission of the instructor.

MUED 471. School Musical, Jazz and Show Choir Procedures. 2 credits. *Offered spring, odd years.*

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. *Offered as needed.*

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.

Offered spring.

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 482. Orff and Kodály: Literature, Principles and Practices. 1 credit. *Offered as needed.*

Students will study the repertoire employed in the Orff and Kodály 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.

Music Industry

School of Music

MUI 221. Survey of the Music Industry. 3 credits. *Offered fall and spring.*
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. *Offered fall and spring.*
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. *Prerequisite:* MUI 221, music major or permission of music industry coordinator.

MUI 250. Portfolio Review. 0 credits. *Offered fall and spring.*
Portfolio review required to enroll in 300- and 400-level music industry courses. May be repeated once. *Prerequisite:* MUI 221. *Corequisite:* MUI 231.

MUI 315. Songwriting. 3 credits. *Offered fall.*
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. *Offered fall and spring.*
Introduction to electronic devices utilized in the sound recording industry. *Prerequisite:* GSCI 121, MUI 250 or permission of instructor.

MUI 330. Music Publishing. 3 credits. *Offered summer.*
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 instructor.

MUI 392. Practicum in Music Industry. 1 credit, repeatable to 4 credits. *Offered fall and spring.*

Supervised co curricular music industry activities. Students may receive one credit hour per semester. *Prerequisites:* MUI 250 and Practicum Approval Form.

MUI 400. Multi-Track Recording Techniques I. 3 credits. *Offered fall.*
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. *Prerequisite:* MUI 250, MUI 324 or permission of instructor.

MUI 401. Multi-Track Recording Techniques II. 3 credits. *Offered spring.*
Advanced multi-track recording studio techniques. Students will examine signal processing, musical instrument digital interface, mix down and editing procedures. *Prerequisite:* MUI 250, MUI 400 or permission of instructor.

MUI 411. Music and Sound in the Entertainment and Broadcast Media. 3 credits. *Offered spring.*

An examination of music and sound used in the broadcast and entertainment media from artistic, cultural, technological and business viewpoints. The course will feature field trips to post-production studios, as well as post-production assignments to be completed in our on-campus studio for the following media applications: radio and television/film. *Prerequisites:* MUI 250 and MUS 324 or permission of the instructor.

MUI 415. Songwriting II. 3 credits. *Offered spring.*
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. *Prerequisites:* MUI 250 or permission of instructor.

MUI 422. Concert Production and Promotion. 3 credits. *Offered fall and spring.*
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. *Prerequisites:* MUI 250 or permission of instructor.

MUI 423. Sound Reinforcement. 3 credits. *Offered fall and spring.*
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 342.

MUI 430. Artist Management. 3 credits. *Offered fall.*
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. *Prerequisites:* MUI 250 or permission of instructor.

MUI 435. Marketing of Recorded Music. 3 credits. *Offered fall.*
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 instructor.

MUI 440. Entrepreneurship in the Music Industry. 3 credits. *Offered spring.*
The study of business aspects of the music industry including managing, marketing, finance and sales. Students develop a comprehensive music business plan. *Prerequisites:* MUI 250 or permission of instructor.

MUI 492. Internship in Music Industry. 3-6 credits. *Offered summer.*
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 instructor.

Music Instruction, Applied

School of Music

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. Permission to register must be obtained from the coordinator of the respective applied area:

Bassoon	Oboe	Trumpet
Clarinet	Percussion	Tuba
Euphonium	Piano	Viola
Flute	Piano Accompanying	Violin
Guitar	Saxophone	Violoncello
Horn	Double Bass	Voice
Trombone		

Small Group Lessons

MUAP 113. 1 credit. *Offered spring.*
Two hours per week. May be repeated.
MUAP 114. Group Voice for Musical Theatre Concentrators. 1 credit. *Offered fall.*

First level voice class for Musical Theatre concentrators in the School of Theatre and Dance. *Prerequisite:* Audition and admisso to the Musical Theatre concentration in the School of Theatre and Dance.

MUAP 115. Group Voice for Theatre/Dance Majors. 1 credit. *Offered fall and spring.*
May be repeated for up to four credits.

Applied Lessons

MUAP 200 level. 1 credit. *Offered fall and spring.*
One half-hour lesson per week. Five hours minimum practice per week. May be repeated.

MUAP 205. Small Group Voice for Keyboard Majors. 2 credits. *Offered fall.*
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. *Offered fall and spring.*
Private voice lessons for Musical Theatre concentrators in the School of Theatre and Dance. *Prerequisite:* Permission of instructor.

MUAP 300 level. (See below for credits.)
One hour lesson per week. Ten hours minimum practice per week for two credits; 14 hours for three credits. 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. *Offered fall.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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 331. Applied Harp Lessons. 2-3 credits.

Applied Harp Lessons for music majors. Weekly 1 hour lessons.

MUAP 344. Chamber Orchestra. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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 350. String Ensemble. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

The performance of guitar music from Renaissance to 20th century for duos, trios and quartets.

MUAP 354. Percussion Ensemble. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.*

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/Music Theatre Orchestra. 1 credit. *Offered fall and spring.*

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. *Offered fall and spring.*

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 instructor.*

MUAP 364. Camerata Strings. 1 credit. *Offered spring.*

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. *Offered fall.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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.

Piano

MUAP 357. Piano Accompanying and Piano Ensemble. 1 credit.

Offered fall and spring.

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.

Nonprofit Studies

Department of Social Work

NPS 300. Introduction to Nonprofits. 3 credits. *Offered fall and/or spring.*

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. *Offered fall and/or spring.*

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.

Offered on a rotating basis.

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 are examined with guest speakers providing current insights. Students research, write and complete a funding proposal.

NPS 400. Internship/Practicum in Nonprofit Studies. 4 credits. (225 hours in agency), 6 credits (400 hours in agency). *Offered fall, spring and summer.*

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, NPS 320 and the discipline specific elective.*

NPS 450. Nonprofit Studies Capstone Seminar. 3 credits. *Offered spring.*

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. *Offered when needed.*

Examination of selected topics in nonprofit studies that are of current importance in the nonprofit arena. Course may be repeated for credit. *Prerequisites: 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.*

Nursing

Department of Nursing

NSG 270. Nursing Practicum: Nursing Fundamentals. 3 credits.

Offered fall, spring and summer.

This first course in the nursing curriculum focuses on the foundation of nursing practice. Through didactic learning, students are introduced to basic nursing theory and knowledge that will be applied throughout the student's nursing education. In the laboratory, students learn the cognitive and affective processes and the psychomotor skills necessary for basic clinical practice. The clinical component of the course is a culmination of didactic and hands-on learning where students apply and practice what they have learned through the course.

NSG 310. Helping Persons in Pain. 2 credits. *Offered spring.*

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 placed on understanding how people experience pain and its effect on quality of life.

NSG 311. End of Life Care. 1 credit. *Offered spring.*

Classroom-based exploration of the care of people at the end of life from a multi-disciplinary, holistic perspective. Learning activities include guest speakers, critique of assigned readings, essay and case studies. Students from any related health care major, first year students through seniors are welcome.

NSG 312. Understanding Cancer. 1 credit.

This elective course, open to students from all majors, is a non-technical and practical examination for cancer and its causes, prevention, treatments and impact on people. Emphasis is placed on understanding how people

experience and survive cancer. This course is tailored to include cancer-related topics that are of interest to students.

NSG 313. Issues and Applications of Family Caregiving. 1-2 credits.

Offered fall, spring and summer.

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/HHS/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.

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 318. Prenatal care: Caring for Mom from Conception to Delivery. 1 credit.

This course is designed to develop an understanding of the need for prenatal care. Prenatal care helps reduce the incidence of the perinatal illness, disability and death by providing health advice and identifying and managing medical and psychosocial conditions and risk factors that can affect the health of the pregnant woman and her child. The course will focus on a healthy lifestyle for the pregnant woman and the knowledge base she will need to implement that healthy life style. Emphasis is placed on nutrition, exercise, diet and antenatal testing that is a part of prenatal care.

NSG 319. Infants, Children and Adolescents. 1 credit.

This elective course, open to students from all majors, explores select contemporary topics about infants, children and adolescents. This course is tailored to include topics which are of interest to the students and have a significant impact on the infant, child or adolescent. Topics will be studied from varied viewpoints and how the topic impacts the infant, child, and/or adolescent and their family.

NSG 320. Innovative Diabetes Health Education. 1 credit. *Offered once a year.*

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 321. Introduction to Client Education. 2 credits. *Offered once a year.*

The student will explore and apply learning theory and teaching strategies to improve health care education. Factors are analyzed to design and develop client education materials using available technologies to teach clients to maintain optimal health, prevent acute or chronic disease and disability. Student-developed materials will assist clients to increase independence and improve their quality of life. Students will explore evaluation strategies to measure teaching effectiveness.

NSG 330. The Professional Nurse. 2 credits.

This course provides an overview of the concepts, definitions and character of professional nursing practice within the context of ethical and legal realities of the current healthcare delivery system and of professional nursing practice. The course explores the historical development of nursing as a profession. It promotes self-analysis and socialization as a professional nurse and an understanding of the role and processes for professional nursing practice. It also begins to prepare the student in the nursing program and NCLEX testing. The beginning phases of career management are examined.

NSG 331. Adult Health I. 6 credits.

This course focuses on the integration of pathophysiologic and pharmacologic concepts and principles of nursing process, health promotion, risk reduction, clinical decision making and collaborative management of care for adults across the life span experiencing moderate to severe health alterations. *Prerequisite: NSG 270.*

NSG 332. Psychiatric Mental Health Nursing. 3 credits.

This course examines the pathophysiology and psychosocial manifestations and the psychopharmacological and psychiatric health nursing treatment of selected mental illness. 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.

NSG 333. Health Assessment. 3 credits.

The health assessment 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.

NSG 340. The Nurse Researcher. 3 credits.

This course explores the research process and utilization of research and theory in evidence-based professional practice. It also explores the dissemination and utilization of research in nursing practice. Students learn to critique the nurse and healthcare literature in order to answer a research question that would impact nursing practice.

NSG 341. Nursing Care of Children and Their Families. 3 credits.

This course applies the nursing process to the care of well, acutely and chronically ill, and special needs children and their families within the context of their environment. Emphasis is on anatomical, physiological and developmental differences among neonates, infants, children and adolescents that influence care. Theory, research, evidenced-based practice and critical thinking are foundations.

NSG 370. NSG Practicum: Gerontology. 1 credit.

Through interactions with older adults, students develop health and developmental assessment skills, and the nursing intervention skills of teaching and therapeutic communication. Emphasis is on holistic developmental assessment of individuals in a family and community context.

NSG 380. Advanced Skills Lab. 2 credits.

In this laboratory course, students learn additional psychomotor, cognitive and affective skills that are foundational to nursing practice. Focuses of the course include acute care skills, strategies to manage stress, alternative health techniques and therapeutic group processes.

NSG 381. NSG Practicum: Acute Adult Health I. 3 credits.

Students apply concepts, principles, theories and skills in the nursing care of adults experiencing moderate to severe challenges to health. In hospital settings, students are exposed to a wide variety of clinical skills gaining beginning practice in planning and facilitating nursing care for clients and their families.

NSG 382. NSG Practicum: Nursing Care of Children and Their Families. 2 credits.

Students apply concepts, principles, theories and skills in the nursing care of children experiencing moderate to severe challenges to health. In hospital settings, students are exposed to a wide variety of clinical skills gaining beginning practice in planning and facilitating nursing care for children and their families.

NSG 383. NSG Practicum: Psychiatric Mental Health Nursing. 1 credit. In this practicum students apply knowledge of pathophysiology and psychosocial manifestations, and the psychopharmacological and psychiatric mental health nursing treatment of selected mental illnesses through psychosocial nursing care of persons diagnosed with psychiatric disorders in the clinical treatment setting. 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.

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 430. The Nurse Leader. 2 credits.

This course examines leadership in the context of professional nursing practice including leadership theory, interdisciplinary collaboration, conflict management, change theory, and delegation of client care. Areas of focus

include the US healthcare system, healthcare delivery, health policy and political advocacy, ethics in nursing practice, and career development.

NSG 431. Adult Health II. 6 credits.

This course is a continuation of Adult Health I and focuses on the integration of pathophysiologic and pharmacologic concepts and principles of nursing process, health promotion, risk reduction, clinical decision making and collaborative management of care for adults across the life span experiencing moderate to severe and complex health alterations.

NSG 432. Women's Health. 3 credits.

This course focuses on synthesis of concepts and principles utilized in health promotion, risk reduction, clinical decision-making, and management of women's health care. Focuses include women's health issues, perinatal care of mothers and infants and gynecological health.

NSG 433. Community Health: Health Assessment of Vulnerable Populations in the Community. 2 credits.

In Part I of this course, students develop the knowledge, skills and ability to conduct and interpret systematic assessments of vulnerable aggregates in community settings. The impact of increasing societal changes and cultural diversity of vulnerability across the life span will be emphasized. Theoretical concepts of health promotion and disease prevention of vulnerable populations will be presented emphasizing Health People 2010 objectives. Part II of the course will develop the knowledge and skills necessary to gather, organize and present relevant data on target populations and entire community assessments. The influence of political, socio-economic and ecological issues on the health of populations is examined.

NSG 440. Transition to Practice. 3 credits.

This course explores current factors that impact the transition from student to the licensed professional nurse. Content includes NCLEX preparation, simulation, career planning, and trends/opportunities in healthcare. Theories related to organizational management, risk management, nursing care delivery and quality and safety are examined.

NSG/HHS 460. Healthcare Informatics. 2 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.*

NSG 461. Pathophysiology and Pharmacology. 4 credits.

This course, offered for RN-BSN program students, provides an examination of complex physiologic responses and clinical sequel 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 course, offered for RN-BSN program students, 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. A seminar format will be used emphasizing professional presentation of issues. *Prerequisite: Admission to RN-BSN program.*

NSG 463. Professional Role Transition. 3 credits.

This course, offered for RN-BSN program students, expands the students' current knowledge of concepts related to nursing theory, nursing image and professional role development at the BSN level. Emphasis will be placed upon leadership and management skill development at the personal level. Seminar format will be used. *Prerequisite: Admission to RN-BSN program.*

NSG 464. Introduction to Nursing Research. 3 credits.

This course, designed for RN-BSN students, 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 RN-BSN program.*

NSG 465. Specialty Clinical Practicum. 1-5 variable credits.

This course facilitates the RN-BSN student's transition into a professional nursing role through a BSN/faculty mentored practicum experience in a student-selected clinical specialty area. The student will articulate individual objectives. An individual plan to meet the course and student's objectives will be developed by the student and approved by the faculty. Open to SNAPP scholars as well. *Prerequisites: Completion of NSG 333 and NSG 463.*

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 RN-BSN program.*

NSG 467. School Nursing Practice: Addressing the Health Needs of Vulnerable Populations within the Context of Schools. 3 credits.

This course focuses on school health services for students with low-incidence disabilities. Content emphasizes the guiding principles of collaborative, comprehensive, coordinated, culturally competent, developmentally appropriate, family-centered and inclusive health and educational service provision. This is a Blackboard course that will be available for students enrolled in the SNAPP program.

NSG 468. Collaborative Teaming: Working Together to Improve Outcomes for Students with Low-Incidence Disabilities. 4 credits.

This course focuses on collaborative teaming as an approach to delivering inclusive services to students with low-incidence disabilities. Information on models of teamwork, group decision making, team process, leadership and effective communication will be included. Discussion will focus on the roles of various disciplines and parents and team members. This course is part of the SNAPP Scholars program. *Prerequisite: NSG 467.*

NSG 469. Caring for the Public's Health: Community Health Nursing. 3 credits.

This course provides RN to BSN 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 RN-BSN program.*

NSG 470. NSG Practicum: Community as Client. 2 credits.

This practicum provides a framework for identifying, analyzing and planning for health care needs of vulnerable populations based on the objectives of Health People 2010. The concepts of community as client and population-focused practice are presented with an emphasis on understanding the relationship between individual, family and community needs. Students will use the nursing process to perform community-focused assessment and service learning interventions while applying concepts of health promotion, disease prevention and health education to the care of vulnerable groups.

NSG 471. Leadership and Management in Health Care. 3 credits.

This course, offered for the RN to BSN program, focuses on healthcare organizations, leadership theories and management style, organizational change, quality management, fiscal and economic issues, personnel management, and accreditation standards. *Prerequisite: NSG 463.*

NSG 480. NSG Practicum: Capstone. 6 credits.

An in-depth focused practicum experience for JMU senior nursing students. The purpose of the capstone experience is to help students gain confidence in time management, critical thinking, diagnostic reasoning, documentation and psychomotor skills under the direct supervision of clinical preceptors.

NSG 481. NSG Practicum: The Nurse Leader. 1 credit.

This course provides the student with the opportunity to apply leadership and management principles in acute and chronic healthcare settings with a focus on safe and efficient, quality patient care. A team-based approach will be used by students to oversee the care coordination of a group of patients and provide direct patient care as a member of an interdisciplinary healthcare team.

NSG 482. NSG Practicum: Home Health Case Management. 1 credit.

In this setting, students are provided an opportunity to learn and apply case management concepts. Students provide nursing care in the home for persons and families experiencing chronic illness. Using a case management theoretical framework, students coordinate and deliver services through visits with agency nurse case managers with direct care giving responsibilities. Issues of chronic illness, coping and extended care are explored.

NSG 483. NSG Practicum: Women's Health. 1 credit.

Working in teams, students coordinate and provide nursing care for women and their families experiencing childbirth or gynecological treatment. Students observe and experience a variety of nursing roles, engage in peer performance appraisal, and promote staff and peer professional development. The application of research findings to practice is emphasized.

Nutrition

Department of Health Sciences**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 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 and spring.*

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: CHEM 131 or equivalent.*

NUTR 360. Management in Dietetics. 3 credits. *Offered fall.*

Application of management concepts, theories and principles to dietetics with a focus on the work environments (clinical and foodservice) in which registered dietitians must effectively practice. *Prerequisites: Dietetics majors only. NUTR 280, NUTR 295 or permission of instructor.*

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: NUTR 280 or equivalent.*

NUTR 363. Quantity Food Production (1, 6). 3 credits. *Offered fall and spring.*

The principles of quantity food production and service are studied. *Prerequisites: NUTR 280, NUTR 340 and prior arrangement with the instructor.*

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: NUTR 280, NUTR 340 and NUTR 395.*

NUTR 385. Nutrition Throughout the Life Cycle. 3 credits. *Offered fall.*

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: NUTR 280.*

NUTR 386. Community Nutrition. 3 credits. *Offered spring.*

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: NUTR 280.*

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. *Prerequisite: Must be dietetics major, NUTR 280.*

NUTR 446. Experimental Foods (1, 4). 3 credits. *Offered fall.*

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: NUTR 340, organic chemistry and statistics.*

NUTR 455/ KIN 424. Theories and Practices of Weight**Management.** 3 credits. *Offered 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. *Prerequisite:* 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:* NUTR 280, physiology, biochemistry, statistics, and previous or concurrent anatomy.

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:* NUTR 384 and NUTR 482.

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:* 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. Cumulative GPA of 2.0 required.

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.

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.

Philosophy

Department of Philosophy and Religion**GPHIL 101. Introduction to Philosophy.** 3 credits. *Offered fall and spring.*

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.

GPHIL 120. Critical Thinking. 3 credits. *Offered fall and spring.*

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.

PHIL 210. Philosophy Through Film. 3 credits. *Offered summer.*

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. *Offered spring.*

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 250. Introduction to Symbolic Logic. 3 credits. *Offered fall and spring.*

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 270. Introduction to Ethics. 3 credits.

An introductory study of the basic ethical theories past and present with some application to moral problems.

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:* GPHIL 101 or permission of the instructor.

PHIL/ART 305. Seminar in Aesthetics. 3 credits. *Offered fall and spring.*

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:* GART 200, GARTH 205, GARTH 206 or GPHIL 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 consent 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, mind and body, identity over time, free will causality, time and God. *Prerequisite:* At least one other philosophy course or approval of the instructor.

PHIL/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. *Prerequisite:* IA 261 or permission of instructor.

PHIL/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 261 or permission of instructor.

PHIL 314. Rational Decision Theory. 3 credits.

Explores the fundamental principles of making reasonable choices. The course considers both the conceptual, epistemological and logical insights of these principles, as well as applies them to numerous real-world cases faced by recent decision-makers in areas such as intelligence, information analysis, business or politics. *Prerequisite:* GPHIL 120 or instructor consent.

PHIL 315. Logic and Legal Reasoning. 3 credits.

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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 325. Crime, Punishment and Justice. 3 credits.

Theories of criminal punishment are examined in the context of philosophical theories of justice and in conjunction with material from the social sciences on crime, criminal offenders and the effects of penal sanctions.

PHIL 330. Moral Theory. 3 credits. *Offered fall and spring.*

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.

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Theories of criminal punishment are examined in the context of philosophical theories of justice and in conjunction with material from the social sciences on crime, criminal offenders and the effects of penal sanctions.

PHIL 330. Moral Theory. 3 credits. *Offered fall and spring.*

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. *Offered fall.*
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:* *GPHIL 101 or approval of the instructor.*

PHIL 340. Ancient Greek Philosophy. 3 credits. *Offered fall and spring.*
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:* *GPHIL 101 and junior standing or permission of the instructor.*

PHIL 341. Modern Philosophy. 3 credits. *Offered fall and spring.*
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 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 approval 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:* *GPHIL 101 or permission of the instructor.*

PHIL/WMST 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 270, 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:* *GPHIL 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/REL 377. Hermeneutics. 3 credits. *Offered every two years.*
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, linguisticality and textuality of experience. Readings may address Gadamer, Ricoeur, Schleiermacher, and Dilthey. *Prerequisite:* *GPHIL 101 or permission of the instructor.*

PHIL/REL 385. Buddhist Thought. 3 credits.
Buddhist thought from its origins to the contemporary world in South Asia and East Asia. Emphasis on the understanding of the human condition; analysis of the mind and of the nature of the cosmos; and the expression of Buddhist thought in the fine arts and social activism.

PHIL 390. Special Topics in Philosophy. 3 credits. *Offered fall and spring.*
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:* *GPHIL 101 or instructor consent.*

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:* *GPHIL 101 or approval of the instructor.*

PHIL 394. Self and Identity. 3 credits. *Offered once every two years.*
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. *Prerequisites:* *GPHIL 101 or permission of instructor.*

PHIL 395. Philosophy and Scientific Inquiry. 3 credits.
An analysis of philosophical problems in science, such as the nature of scientific explanation, theory formation and confirmation of scientific hypotheses. Issues discussed include the role of models in theory formation, the relationships between experience and reasoning in theory construction and confirmation and the roles of paradigms in scientific thought. *Prerequisite:* *GPHIL 101 or permission of the instructor.*

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. *Prerequisite:* *GPHIL 101 or GPHIL 120 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:* *GPHIL 101, GPHIL 250 or permission of the instructor.*

PHIL 440. Advanced Moral Philosophy. 3 credits.
Class will closely examine recent or historical work in (largely normative) moral philosophy, including at least two of the following: teleology (e.g., virtue theory), deontology, (e.g., Kantianism) and consequentialism (e.g., utilitarianism). *Prerequisite:* *GPHIL 101, PHIL 330 or approval 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:* *GPHIL 101, PHIL 335 or approval of the instructor.*

PHIL 460. Topics in Classical Philosophy. 3 credits.
An advanced study of major issues in or 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 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 instructor. May be repeated for credit when topics vary.*

PHIL 466. Kant. 3 credits. *Offered every two years.*
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 341, PHIL/REL 375 or permission of the instructor.*

PHIL 468. Phenomenology. 3 credits. *Offered once every two years.*
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. *Prerequisites:* *PHIL 341 or PHIL 344 or PHIL 466 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 341, PHIL/REL 375 or permission of the instructor.*

PHIL 475. Philosophy Seminar. 3 credits. *Offered fall and spring.*
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 instructor. May be repeated for credit.*

PHIL 476. Advanced Seminar in Critical Reasoning. 3 credits.
Offers intensive investigation of a more specialized or newer topic in critical thinking. Studies might provide an extended consideration of a

particularly significant real-life example, apply analytic reasoning tools to a new problem not typically considered or further develop those tools themselves. *Prerequisite: GPHIL 120 or instructor consent.*

PHIL 490. Special Studies in Philosophy. 3 credits. *Offered fall and spring.* Designed to give capable students an opportunity to complete independent study in philosophy under faculty supervision.

PHIL 491. Special Studies in Critical Reasoning. 3 credits. Provides students with an opportunity to individually initiate and undertake, under faculty supervision and direction, an advanced research project in the application or theory of critical reasoning. *Prerequisite: Instructor consent required for all students.*

PHIL 495. Philosophy Course Assistantship. 1-6 credits. *Offered fall and spring.* 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 6 maximum total credit hours for both courses combined. Only three credit hours can apply to the major or minor.*

PHIL 499. Honors. 6 credits. *Offered fall and spring.*
Year course.

Physics

Department of Physics and Astronomy

PHYS 105. Foundations of Physics. 1 credit. *Offered once a year.*

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 125. Principles of Physics With Biological Applications I (3, 2). 4 credits. *Offered once a year.*

A study of fundamental physical principles covering areas of mechanics, thermal energy and fluids, emphasizing topics pertinent to life processes. Realistic biological examples are used to illustrate the relationship between physics and the life sciences. Laboratory exercises explore the application of physics to living systems. *Prerequisite: MATH 135 or equivalent.*

PHYS 126. Principles of Physics With Biological Applications II (3, 2). 4 credits. *Offered once a year.*

The second semester is a study of physical principles. Topics include elasticity, wave motion, sound, electricity and magnetism, geometrical and physical optics, and electromagnetic radiation and radioactivity. *Prerequisite: PHYS 125.*

***PHYS 140. College Physics I.** 3 credits. *Offered once a year.*

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.

PHYS 150. College Physics II. 3 credits. *Offered once a year.*

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.*

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. *Prerequisite or corequisite for PHYS 140L: PHYS 140 or PHYS 240. Prerequisite for PHYS 150L: PHYS 140L or 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. *Offered once a year.*

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. *Prerequisites: One college course in science and one in mathematics.*

***PHYS 240. University Physics I.** 3 credits. *Offered once a year.*

Kinematics, dynamics, energy and momentum conservation, oscillatory motion, fluid mechanics and waves. *Corequisite: MATH 232 or MATH 235.*

PHYS 247. Data Acquisition and Analysis Techniques in Physics. 2 credits.

This laboratory supplements the PHYS 240/250 lecture courses. Topics covered include: conception, design and performance of experiments in physics, as well as the analysis of data and handling of experimental uncertainties. *Corequisite: PHYS 250.*

PHYS 250. University Physics II. 3 credits. *Offered once a year.*

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. Corequisite: MATH 236.*

PHYS 260. University Physics III. 4 credits. *Offered once a year.*

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. *Offered once a year.*

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. *Offered once a year.*

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 consent of instructor.*

PHYS/CHEM/MATS 275. An Introduction to Materials Science. 3 credits. *Offered once a year.*

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, PHYS 250, ISAT 212 or permission of the instructor.*

PHYS 295. Laboratory Apparatus Design and Construction. 1 credit. *Offered on demand.*

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. *Offered on demand.* 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 335. Modern Physics II. 4 credits. *Offered on demand.*

A continuation of PHYS 270, with applications to molecules, the physics of condensed matter and nuclear physics. *Prerequisite: PHYS 270.*

PHYS/MATS 337. Solid State Physics. 3 credits. *Offered once a year.*

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 instructor.*

PHYS 338. Nuclear Physics. 3 credits. *Offered fall.*

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 340. Mechanics. 3 credits. *Offered once a year.*

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. *Offered spring.* 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 and MATH 248.*

PHYS 342. Mechanics II. 3 credits. *Offered on demand.*

A continuation of PHYS 340 including Lagrangian dynamics, rigid body motion and the theory of small oscillations. *Prerequisite: PHYS 340.*

PHYS 347. Advanced Physics Laboratory (0, 6). 3 credits. *Offered once a year.*

An advanced laboratory 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 270.*

PHYS 350. Electricity and Magnetism. 3 credits. *Offered once a year.*

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. *Offered once a year.*

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. *Offered once a year.*

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. *Offered once a year.*

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 consent of instructor.*

PHYS 371. Introductory Digital Electronics (2, 4). 2 credits. *Offered once a year.*

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 instructor.*

PHYS 372. Microcontrollers and Their Applications (2, 4). 2 credits. *Offered once a year.*

Microcontrollers, their instructions, architecture and applications. *Prerequisite: PHYS 371 or consent of instructor.*

PHYS 373. Interfacing Microcomputers (2, 4). 2 credits. *Offered once a year.*

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 380. Thermodynamics and Statistical Mechanics. 3 credits. *Offered once a year.*

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 course). 3 credits. *Offered once a year.*

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 275, ISAT/MATS 431 or GEOL/MATS 395.*

PHYS 390. Computer Applications in Physics. 3 credits. *Offered once a year.*

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. *Offered once a 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. *Offered on demand.*

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. *Offered on demand.*

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 398 and ASTR 398.

PHYS 420. Modern Optics. 3 credits. *Offered on demand.*

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. *Offered on demand.*

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. *Offered once a year.*

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. *Offered once a year.*

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 491-492. Physics Assessment and Seminar. 1 credit per year. *Offered once a 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. *Offered on demand.*

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. *Offered on demand.*

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. *Offered on demand.*

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 498R and ASTR 498R. *Prerequisite: Proposal for study must be approved prior to registration.*

PHYS 499. Honors. 6 credits. (Year course, 3 credits each semester.) *Offered on demand.*

Participation in this course must be approved during the second semester of the junior year. For details, see catalog section entitled "Graduation with Distinction."

Political Science

Department of Political Science

GPOSC 200. Global Politics. 3 credits. *Offered fall and spring.*

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.

POSC 201. Introduction to Western Political Theory. 3 credits. *Offered fall and spring.*

A general survey of Western political theory from Plato to Marx, order and freedom.

GPOSC 225. U.S. Government. 4 credits. *Offered fall and spring.*

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.

POSC 230. International Relations. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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 300. Politics and Film. 3 credits. *Offered summer.*

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.

Offered fall and spring.

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. *Offered fall and spring.*

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. *Offered fall and spring.*

A study of the development and significance of political ideas that have influenced American society and government.

POSC/JUST 331. Human Rights in Theory and Practice. 3 credits.

Offered once a year.

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, completion of JUST 200 is a prerequisite.

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 e-campus.

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 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. *Prerequisites:* *GPOSC 225* or *permission of instructor*.

POSC 360. Urban Politics. 3 credits.

A study of the functions and role of local government in urban America with emphasis on the social, economic and governmental problems of cities and metropolitan areas.

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 e-campus.

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. *Prerequisites:* *GPOSC 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:* *GPOSC 225*.

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:* *GPOSC 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. *Prerequisites:* *GPOSC 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 e-campus.

POSC/JUST 372. Ethics and International Politics. 3 credits. *Offered fall.*

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, the completion of JUST 235 is a prerequisite.*

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:* *GPOSC 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 e-campus.

POSC 383. Women and Politics. 3 credits.

A study of the role and impact of women in United States politics and society, with emphasis on political movements, electoral politics and public policy.

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:* *GPOSC 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 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 e-campus.

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 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 in the Post-Cold War World. 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. Seminar in International Terrorism. 3 credits.

Systematic study of political terrorism with emphasis upon the destabilizing effect that it has upon the international community.

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, CSPAN, political ads, editorial cartoons, TV debates, convention coverage and radio talk show commentary.

POSC 490. Senior Tutorial in Political Science. 4 credits each semester.

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. *Offered fall and spring.*

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 495.* Internship in Political Science. 4 credits. *Offered fall and spring.* 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. *Offered fall and spring.*

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 G.P.A. of 2.5 or greater.

POSC 499. Honors. 6 credits. *Offered fall and spring.*
Year course.

*No more than four credit hours can be counted toward the political science major.

Psychology

Department of 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. *Prerequisite:* Limited to students selected as resident advisers.

GPSYC 101. General Psychology. 3 credits. *Offered fall and spring.*

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.

GPSYC 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.

GPSYC 160. Life Span Human Development. 3 credits. *Offered fall and spring.*

An introduction to human development. Emphasis is on life span processes within physical, emotional, cognitive, psychosexual, social, personality and moral development.

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. This course cannot be taken by students who have already completed either PSYC 390 or PSYC 480.

PSYC 200. Topics in Psychology. 3 credits.

Exploration of an important psychological topic. The topics for each semester will be announced on e-campus and the departmental Web site. *Prerequisite:* GPSYC 101.

PSYC 210. Psychological Measurement and Statistics. 4 credits.

Offered fall and spring.

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:* GPSYC 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. *Offered fall and spring.*

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:* GPSYC 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. *Prerequisite for PSYC 212:* GPSYC 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. *Prerequisite:* GPSYC 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. *Offered fall and spring.*

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:* GPSYC 101 or GPSYC 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:* GPSYC 101 and JUST 200.

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:* GPSYC 101.

PSYC 290. Directed Studies in Psychology. 1-3 credits. *Offered fall and spring.*

Designed to give capable students an opportunity to complete directed study in an area of psychology under faculty guidance. Not to be used for psychology major credit. *Prerequisites:* GPSYC 101 and a written plan for the directed study must be submitted to the department head for approval one week prior to registration.

PSYC 301. Peer Advising Training I. 2 credits. *Offered fall.*

Introductory training in academic advising, career development and counseling techniques. Not to be used for psychology major credit. *Prerequisites:* GPSYC 101, junior-level status, and approval from adviser and course coordinator one month prior to registration.

PSYC 302. Peer Advising Training II. 2 credits. *Offered spring.*

Continued training and supervised experiences in academic advising, career development and counseling techniques. Not to be used for psychology major credit. *Prerequisites:* PSYC 301, PSYC 211 or PSYC 213, 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: GPSYC 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. *Prerequisites: GPSYC 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. *Prerequisites: GPSYC 101 and junior status.*

PSYC 312. Forensic Psychology. 3 credits.

The application of psychological principles and techniques to the law, the criminal justice system, law enforcement and criminal behavior. *Prerequisite: GPSYC 101 or GPSYC 160.*

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: GPSYC 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: GPSYC 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. *Prerequisites: GPSYC 101 and junior status.*

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: GPSYC 101 and junior standing.*

PSYC/SOC/KIN 329. Psychological and Sociological Aspects of Sport. 3 credits.

A study of the psychological and sociological implications of sport and the effect of sport on the United States and other cultures.

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

Psychological aspects of growth, development and behavior from birth through adolescence. *Prerequisite: PSYC 211 or PSYC 213.*

PSYC 375. Sensation and Perception. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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 385. Biopsychology. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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 e-campus and on the departmental Web site. *Prerequisites: At least one SS content course and one NS content course.*

PSYC 401. Peer Advising. 2 credits. *Offered fall and spring.*

Supervised practicum in academic and career development and peer counseling. May be taken twice for up to four credit hours toward the psychology major. *Prerequisites: PSYC 302, at least one SS content course and one NS content course, and permission of the course coordinator.*

PSYC 402. Independent Study in Psychology. 1-4 credits. *Offered fall and spring.*

An opportunity to apply classroom learning to practical problems and to expand the scope of knowledge in psychology to areas not emphasized in the course work we offer. May include research, 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 410. Industrial/Organizational Psychology. 3 credits.

This course is a survey of the applications of psychological principles in business and industry. Emphasis is on topics such as research and methods, personnel decisions and training, satisfaction, motivation, leadership, communication and organizational influences on behavior. Other topics of current interest will also be covered. *Prerequisites: At least one SS content course and one NS content course.*

PSYC 412. Psychology of Motivation. 3 credits.

This course is an advanced study of the motives that underlie behavior. Students explore pertinent theories representative of the biological, behavioral, cognitive and social perspectives on motivation. Includes an examination of historical context as well as a study of applied motivational approaches. *Prerequisites: At least one SS content course and one NS content course.*

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. *Offered fall.*

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. *Offered spring.*

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 440. Counseling Psychology. 3 credits. *Offered fall and spring.*

A basic counseling skills course designed for students interested in human service and mental health fields and for students from related disciplines who want to acquire counseling skills. *Prerequisites:* At least one SS content course and one NS content course.

PSYC 442. Introduction to Small Group Process. 3 credits.

This course is designed to acquaint students with the theories, ethics, skills and processes of small groups. A major requirement will be participation in a group experience. *Prerequisites:* At least one SS content course and one NS content course.

PSYC 450. Psychology of Child Abuse and Neglect. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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, oppression, terrorism, population growth and diversity. Consideration is given to developmental and societal determinants of prejudice, discrimination and inequity. *Prerequisites:* At least one SS content course and one NS content course.

PSYC 465. Black/African Psychology. 3 credits.

This course will help students view psychology and psychological research from a different viewpoint. Students will study Afrocentric theories of development and pathology as well as methodologies emerging from these theories and philosophies. This course will facilitate student understanding of the psychology of Americans of African descent. *Prerequisites:* At least one SS content course and one NS content course.

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. *Prerequisite:* 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. The course meets the requirement as a capstone course or as a psychology elective. 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.

PSYC 495. Field Placement in Psychology. 4 credits. *Offered fall and spring.*

Supervised practicum in a counseling, industrial or human service agency. Orientation to agency's service, policies, personnel and professional ethics is provided. The course meets the requirement as a capstone course or as a psychology elective. *Prerequisites:* At least two SS content courses and two NS content courses. Guidelines available in the department office.

PSYC 497. Senior Seminar in Psychology. 3 credits. *Offered fall and spring.*

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. May be taken as a capstone course or psychology elective. Up to six credit hours can be used in the psychology major. Topics for each semester are announced on e-campus and on the departmental Web site. *Prerequisites:* At least two SS content courses and two NS content courses.

PSYC 499. Honors. 6 credits. *Offered fall and spring.*

See catalog sections entitled "Graduation with Distinction" and "Graduation with Honors." *Prerequisites:* At least two SS content courses and two NS content courses.

Public Policy and Administration

*Department of Political Science***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.

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:* GPOSC 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.

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.

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. *Prerequisite:* Junior standing.

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. *Prerequisite:* Junior standing.

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.

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. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite:* Junior standing.

PPA 483. Emerging Issues in Public Policy and Administration. 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. *Prerequisite: Permission of the instructor.*

PPA 490. Special Studies in Public Policy and Administration. 3 credits.
Designed to give capable students in public administration an opportunity to complete independent study under faculty supervision. *Prerequisites: Permission of the instructor and department head.*

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 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.*

* No more than four semester hours (in any combination of internships) can be counted toward the major.

Reading Education

College of 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. *Prerequisite: CSD 300. Corequisite: SPED 410.*

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. *Prerequisite: Plan for the study must be approved by the faculty adviser and the coordinator of the program in which the student is enrolled.*

Religion

Department of Philosophy and Religion

GREL 101. Religions of the World. 3 credits. *Offered fall and spring.*

An investigation of the world's major religions which will give attention to their origin, history, mythology and doctrines.

REL/HEBR 131-132. Elementary Biblical Hebrew. 4 credits each semester.

An introductory course for students who intend to acquire the ability to read the Massoretic text of the Bible. Systematic study of the fundamentals of grammar with emphasis on reading, pronunciation and translation.

REL/HEBR 231-232. Intermediate Biblical Hebrew. 3 credits each semester.

An intensive reading course. Selections from the Massoretic text of the Bible. An introduction to the critical apparatus used within the Massoretic text as well as the variant reading apparatus printed in the Biblia Hebraica Stuttgartensia. *Prerequisite: One year of college biblical Hebrew or equivalent.*

REL 200. Exploring Religion. 3 credits.

An examination of the various components in the study of religion including myths, rituals, mystical experiences, theologies, 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.

Offered fall and spring.

A study of selected texts from the books of Genesis-Malachi that will examine their literary, historical and theological dimensions from the perspective of their ancient Israelite and Judahite contexts.

REL 202. Introduction to the New Testament. 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/PHIL 218. Philosophy of Religion. 3 credits. *Offered fall 2006.*

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/HEBR 231-232. Intermediate Biblical Hebrew. 3 credits each semester.

An intensive reading course. Selections from the Massoretic text of the Bible. An introduction to the critical apparatus used within the Massoretic text as well as the variant reading apparatus printed in the Biblia Hebraica Stuttgartensia. *Prerequisite: One year of college biblical Hebrew or equivalent.*

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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. *Prerequisite: CSD 300. Corequisite: SPED 410.*

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. *Prerequisite: Plan for the study must be approved by the faculty adviser and the coordinator of the program in which the student is enrolled.*

Religion

Department of Philosophy and Religion

GREL 101. Religions of the World. 3 credits. *Offered fall and spring.*

An investigation of the world's major religions which will give attention to their origin, history, mythology and doctrines.

REL/HEBR 131-132. Elementary Biblical Hebrew. 4 credits each semester.

An introductory course for students who intend to acquire the ability to read the Massoretic text of the Bible. Systematic study of the fundamentals of grammar with emphasis on reading, pronunciation and translation.

REL/HEBR 231-232. Intermediate Biblical Hebrew. 3 credits each semester.

An intensive reading course. Selections from the Massoretic text of the Bible. An introduction to the critical apparatus used within the Massoretic text as well as the variant reading apparatus printed in the Biblia Hebraica Stuttgartensia. *Prerequisite: One year of college biblical Hebrew or equivalent.*

REL 200. Exploring Religion. 3 credits.

An examination of the various components in the study of religion including myths, rituals, mystical experiences, theologies, 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.

Offered fall and spring.

A study of selected texts from the books of Genesis-Malachi that will examine their literary, historical and theological dimensions from the perspective of their ancient Israelite and Judahite contexts.

REL 202. Introduction to the New Testament. 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/PHIL 218. Philosophy of Religion. 3 credits. *Offered fall 2006.*

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/HEBR 231-232. Intermediate Biblical Hebrew. 3 credits each semester.

An intensive reading course. Selections from the Massoretic text of the Bible. An introduction to the critical apparatus used within the Massoretic text as well as the variant reading apparatus printed in the Biblia Hebraica Stuttgartensia. *Prerequisite: One year of college biblical Hebrew or equivalent.*

REL 240. Jesus and the Moral Life. 3 credits.

This is 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. *Not offered 2006-2007.*

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. *Offered once every three years.*

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 300. Selected Topics in Religion. 3 credits.

Selected topics in religion are studied in depth. See e-campus for current topic. Course may be repeated for credit when content changes.

REL 305. Islamic Religious Traditions. 3 credits. *Offered fall 2006.*

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 310. Hindu Traditions. 3 credits. *Offered fall 2006.*

This course examines the notions of world, community and self as experienced and interpreted by Hindus; the basic assumptions underlying their world view; how these assumptions interrelate with the various dimensions of Hindu physical, psychological and cultural experience; how they are expressed in myth, ritual and social structures; and the tensions we find between the ideal and the real.

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. Hindu Ethics. 3 credits. *Offered once every three years.*

This course is an introduction to Hindu modes of moral reasoning. It gives special attention to the concept of moral order and its relationship to the pursuit of pleasure and of wealth, on the one hand, and the quest for liberation, on the other hand. Attention is paid to common moral obligations as well as to specified, and sometimes gendered, vocational duties incumbent upon Hindus.

REL 314. Gandhi, Nonviolence and Global Transformation. 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. *Offered once every three years.*

Study of selected topics in Hinduism. May be repeated for credit when course content changes.

REL 317. Exploring Gandhian Philosophy of Nonviolence. 3 or 6 credits.

Offered alternate summers.

The JMU in India Summer program is a travel-study course. The program provides an interdisciplinary study to the history and contemporary application of the Gandhian philosophy of nonviolence through course work, field studies and direct experience.

REL 318. Exploring Contemporary India. 3 or 6 credits. *Offered alternate summers.*

The JMU in India Summer program is a travel-study course. The program provides an interdisciplinary introduction to contemporary India from the

point of view of religion, mythology, literature, music, art and architecture through course work, field studies and direct experience.

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 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. African and African-American Religion. 3 credits.

An examination of the character and nature of religious traditions and liturgical practices of African and African-American communities through history.

REL 342. The Historical Jesus and the Roman Imperial World. 3 credits.

A study of the historical Jesus and the Jesus-movement as a response to Roman power, domination and violence. Includes discussion of historiographical problems raised in past and present scholarly "quests" for the historical Jesus.

REL 344. Christianity in the Roman Empire. 3 credits.

This course examines the rise of Christianity in the social and religious context of the pagan Roman Empire. It focuses on crucial struggles and conflicts in the volatile period from Jesus to the fourth century A.D.

REL 346. Religions in Greece and Rome. 3 credits.

This course explores the religious traditions of ancient Greece and Rome. Through study of the diverse gods and goddesses and the divine honors paid to them, the course covers central aspects of Greco-Roman culture and society. Attention is also given to new religious traditions, in particular the Mystery religions, that gained prominence in the world of the Roman Empire.

REL 360. History of Western Religious Thought. 3 credits.

A survey of the development of Western religious thought from the classical period through the modern period. The primary emphasis will be on the person, ideas, beliefs and critical turning points in the development of Christianity and Judaism with some reference to Islam and to contemporary religious developments.

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 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/PHIL 385. Buddhist Thought. 3 credits.

Buddhist thought from its origins to the contemporary world in South Asia and East Asia. Emphasis on the understanding of the human condition; analysis of the mind and nature of the cosmos; and the expression of Buddhist thought in the fine arts and in social activism.

REL 420. Cross-Cultural Philosophy of Religion. 3 credits.

Philosophy of religion questions examined from the perspectives of multiple religious world views using a philosophical approach. Readings draw upon multiple conceptions of the divine; faith, knowledge and religious experience; justice and karma; exclusivity and religious pluralism. Does not repeat REL/PHIL 218. *Prerequisites: GREL 101 and junior standing or permission of instructor.*

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 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 dialog and then engage in dialog. 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/PHIL 377. Hermeneutics. 3 credits. *Offered every two years.*

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, linguisticality and textuality of experience. Readings may address Gadamer, Ricoeur, Schleiermacher, and Dilthey. *Prerequisite: GPHIL 101 or permission of the instructor.*

REL 490. Special Studies in Religion. 3 credits. *Offered fall and spring.*

Designed to give capable students an opportunity to complete independent study in religion under faculty supervision. *Prerequisite: Permission of the department head.*

REL 499. Honors. 6 credits. *Offered fall and spring.*
Year course.

Russian

Department of Foreign Languages, Literatures and Cultures

RUS 101-102. Elementary Russian (4, 1). 4 credits each semester.

Offered fall and spring.

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.

RUS 111-112. Intensive Russian (6, 1). 6 credits each semester. *Offered May and summer.*

The fundamentals of Russian through listening, speaking, reading and writing. The first semester is the equivalent of RUS 101-102 and the second of RUS 231-232.

RUS 231-232. Intermediate Russian. 3 credits each semester. *Offered fall and spring.*

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Russian or equivalent.*

RUS 265-266. Russian Literature in Translation. 3 credits each semester. *Offered fall and spring.*

First semester: Russian literature to 1880; second semester: 1880 to the present. All lectures and readings are in English.

RUS 300. Russian Grammar and Communication. 3 credits. *Offered fall and spring.*

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. *Prerequisite: RUS 232 or equivalent.*

RUS 308. Introduction to Russian Civilization. 3 credits. *Offered fall and spring.*

A study of Russian life and culture and the outstanding contributions of Russian-speaking peoples. Instruction is in Russian. *Prerequisite: RUS 300.*

RUS 320. Russian Oral and Written Communication. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

Readings and analyses of poetry, prose and drama by such writers as Pushkin, Lermontov, Gogol, Turgenyev, Tolstoy, Dostoevsky and Chekhov. Instruction is in Russian. *Prerequisite: Three years of college Russian or equivalent.*

RUS 406. Russian Literature of the 20th Century. 3 credits. *Offered fall or spring.*

A study of the works of major Russian writers of the 20th century. Instruction is in Russian. *Prerequisite: Three years of college Russian or equivalent.*

RUS/ENG 438. Studies in Russian Literature. 3 credits. *Offered fall and spring.*

A study of selected works of Russian literature. Instruction is in English. May be repeated for credit when course content changes.

Social Work

Department of Social Work

SOWK 287. Introduction to Social Work. 3 credits. *Offered fall and spring.*

An overview of the development of social work as a profession with emphasis upon various settings in which social work is practiced. The focus is on practical experiences designed to enable the student to gain familiarity with the dynamics of the profession. *Corequisite: 20 hours community service learning.*

SOWK 288. Social Welfare. 3 credits. *Offered fall and spring.*

The analysis of basic human needs, problems and resources in society (America and other selected countries). The study of the development of social welfare as an institution in society. The examination of current issues in social welfare services.

SOWK 301. Workshops in Social Work. 0-3 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. *Offered fall and spring.*

Study of qualitative and quantitative methods in social work. Explanation of logic of scientific procedure. Formulation and design of social work research, including observation, questionnaires, interviews, use of existing sources, experiments, indirect techniques, evaluation research, analysis and interpretation of data. Publication and dissemination of results of social work research. *Prerequisite: MATH 220 or SOCI 331.*

SOWK/HTH/HHS/NSG 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.

SOWK 317. Skills for Generalist Social Work. 3 credits. *Offered fall and spring.*

Self-awareness, analysis of worker and client value systems, and an understanding of intervention are applied practically to aid students in developing skills in communication and interviewing within a strengths-based generalist framework with individuals, families, groups and communities.

SOWK 320. Human Behavior in the Social Environment. 3 credits.

Offered fall and spring.

Integration and expansion of prerequisite knowledge foundation in the biological, psychological and socio-cultural sciences as they apply to individuals, groups, families, organizations and communities. Particular attention is paid to minorities of color, women, sexual orientation and cultural diversity in a pluralistic society. *Prerequisites: SOCI 101/GSOCI 110, SOCI 214/PSYC 250, GPSYC 101, GPSYC 160, and GANTH 195/SOCI 336/SOCI 354.*

SOWK/JUST/SOCI 330. Corrections. 3 credits. *Offered on a rotating basis.*

The history, philosophy, policies and problems of the treatment of violators by the police, courts and correctional institutions.

SOWK 332. Community Mental Health Practice. 3 credits. *Offered on a rotating basis.*

Provides a basis for understanding mental health policy and services. Focus is on the needs of the deinstitutionalized mentally ill patient including

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Integration and expansion of prerequisite knowledge foundation in the biological, psychological and socio-cultural sciences as they apply to individuals, groups, families, organizations and communities. Particular attention is paid to minorities of color, women, sexual orientation and cultural diversity in a pluralistic society. *Prerequisites: SOCI 101/GSOCI 110, SOCI 214/PSYC 250, GPSYC 101, GPSYC 160, and GANTH 195/SOCI 336/SOCI 354.*

SOWK/JUST/SOCI 330. Corrections. 3 credits. *Offered on a rotating basis.*

The history, philosophy, policies and problems of the treatment of violators by the police, courts and correctional institutions.

SOWK 332. Community Mental Health Practice. 3 credits. *Offered on a rotating basis.*

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. *Offered fall and spring.*

Study of the formulation and consequences of social policy in the context of contemporary social, political and economic conditions. Skill development in policy analysis, critique and change. *Prerequisites:* SOWK 288 and GPOSC 225 or POSC 302.

SOWK 338. Issues and Policies in Family Services. 3 credits. *Offered fall.*

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. *Offered on a rotating basis.*

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. *Offered on a rotating basis.*

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.

Offered once a year.

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. *Offered summer on a rotating basis.*

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 372. Social Work Practice with the Aged. 3 credits. *Offered fall.*

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.

Offered on a rotating basis.

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 are examined with guest speakers providing current insights. Students research, write and complete a funding proposal.

SOWK/FAM 386. Youth Empowerment Strategies (YES). 3 credits.

Offered on a rotating basis.

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. *Offered on a rotating basis.*

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. *Offered on a rotating basis.*

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.

Offered fall and spring.

Application of social work values, knowledge and methods with families and 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. *Offered fall and spring.*

Application of social work values, knowledge and methods with individuals within the family context 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.

Offered fall and spring.

Social work skill development and practice in the application of knowledge, skills and methods to the macro systems of professional practice including neighborhoods, communities and organizations. *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.

Offered fall and spring.

Offers students an opportunity to gain a broad knowledge of the basic functions, services and roles of the agency as related to actual social work practice, as well as a specific knowledge of practical intervention skills necessary to effective social work practice. The field experience is the application of 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.

Offered fall and spring.

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. *Offered on a rotating basis.*

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. *Offered fall and spring.*

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. Senior Seminar in Social Work. 3 credits. *Offered fall and spring.*

The integration of the classroom and field practicum experience that the student has had during the undergraduate years into a synthesis, which will provide a firm foundation upon which to begin professional social work practice. Senior outcome assessment is integral to this course. *Prerequisite:* Social work majors only. *Corequisite:* Field practicum.

SOWK 499. Honors. 6 credits. Year course. *Offered fall and spring.*

Independent research topic initiated and completed by qualified second semester junior social work majors.

Sociology

Department of Sociology and Anthropology

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.

GSOCI 110. Social Issues in a Global Context. 3 credits. *Offered fall and spring.*
An examination of current social issues, such as inequality and the changing workplace. Addresses questions of definition, nature, history, patterns and trends of various issues. Examines applicable theories and available research, social controls and social policy.

GSOCI 140. Microsociology: Individual in Society. 3 credits. *Offered fall and spring.*
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?

SOCI 200. Development of Sociological Thought and Methods. 3 credits. *Offered fall and spring.*

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, GSOCI 110, GSOCI 140 or other sociology elective, or permission of instructor.*

SOCI 214. Social Deviance. 3 credits. *Offered once a year.*
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 231. Social Statistics. 3 credits. *Offered once a year.*
Introduction to the techniques for collecting, describing, analyzing and presenting sociological data.

SOCI 260. 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 265. 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 276. Sociology of Families. 3 credits. *Offered fall.*
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/GERN 280. Social Gerontology. 3 credits. *Offered fall and/or spring.*
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.

SOCI 300. Sociological Inquiry. 3 credits. *Offered fall and spring.*
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: Full admission to the major, SOCI 200 and SOCI 231 or equivalent.*

SOCI 303. Sociology of Death and Dying. 3 credits. *Offered once a year.*
Investigation of current American orientations toward death and dying with emphasis also given to the social organization of death and dying.

SOCI 311. Sociology of the Environment. 3 credits. *Offered once a year.*
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/ANTH 313. Processes of Social and Cultural Change. 3 credits. *Offered spring.*

Investigates the procedures through which a society operates and the manner in which it introduces and incorporates changes. Issues considered include belief, innovation, directed change, coercive change, revitalization and revolution.

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 316. Global, Spatial and Temporal Analysis. 3 credits. *Offered once an academic year.*

This course is designed to introduce students to the spatial and temporal elements of the social. It introduces modern techniques of spatial analysis as applied to social science inquiry. Its focus is on presenting essential theoretical concepts in the field, visualizing data and using GIS and geo-statistical software in explanatory and confirmatory hypothesis. *Prerequisite: SOCI 231 or equivalent.*

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. *Offered fall.*
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.

SOCI 327. Juvenile Delinquency. 3 credits. *Offered spring.*
Study of youth gangs, deviation and youth culture standards as well as the treatment used. Recent research reports will be emphasized.

SOCI/PSYC/KIN 329. Psychological and Sociological Aspects of Sport. 3 credits. *Offered spring.*
Study of the psychological and sociological implications of sport and the effect of sport on the United States and other cultures.

SOCI/JUST/SOWK 330. Corrections. 3 credits. *Offered spring.*
The history, philosophy, policies and problems of the treatment of violators by the police, courts and correctional institutions.

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 336. Race and Ethnicity. 3 credits. *Offered once a year.*
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 337. Sociology of Gender. 3 credits. *Offered spring.*
Examination of theories of sex role development, the roles of men and women in society and gender as a social construction.

SOCI 339. Sociology of Women. 3 credits. *Offered spring.*
Analysis of the structural position of women in society with emphasis on institutional frameworks such as economy, family, health, religion, sexuality, crime, etc.

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. *Prerequisite: SOCI 101 or permission of instructor.*

SOCI 342. Muslim Movements in Middle East. 3 credits. *Offered every spring.*
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 345. Sociology of Occupations and Professions. 3 credits.

This course examines the nature and structure of work roles in historical and contemporary perspectives. It includes analysis of the organization of task structures, occupational and professional organizations, the processes of professionalization and deprofessionalization, and the ways in which work roles constitute and are constituted by society.

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.

Offered once a year.

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.

Offered once a year.

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 and Cultural Stratification. 3 credits. *Offered fall.*

Course covers the systems of stratification 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 358. Sociology of Consumption. 3 credits. *Offered fall or spring.*

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 and Organizations. 3 credits. *Offered once a year.*

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 362. Hip Hop Culture and Critical Social Analysis. 3 credits.

Offered summer.

This course engages in a critical examination of modernity and other social issues of relevance to critical social theory through the prism of the hip-hop cultural system. The course examines the historical roots of this African-American/Puerto-Rican cultural matrix, distinguishing it from global corporate "rap" industry and discusses the sense in which the latter undermines the traditional narratives of the matrix.

SOCI 366. Sociology of Knowledge. 3 credits. *Offered once a year.*

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. *Offered spring or summer.*

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 375. Medical Sociology. 3 credits. *Offered fall and spring.*

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 378. Introduction to Africa-Centered Critical Theory and Cultural Studies. 3 credits. *Offered fall.*

This course introduces students to an alternative scientific world view based upon classical African philosophy and gives them the opportunity to discuss and consider the implications of this alternative vision of science on the conduct of research and on human affairs. *Prerequisite: Junior or senior standing required. Sophomores admitted with instructor's permission.*

SOCI 379. Africentric Social Thought. 3 credits. *Offered spring.*

This course is a survey of African social philosophy and thought from individuals throughout various historical periods and locations including the collective community of Diasporic Africans and those of African descent. Sociological data using traditional African philosophical perspectives on being, knowing, understanding and ethics will be examined. *Prerequisite: Sophomore standing or higher.*

SOCI 380. Critical Analysis. 3 credits.

An examination of the historical context and current status of the critical paradigm within sociology, including issues involved in critical understanding of and participation in modern society. *Prerequisite: SOCI 200.*

SOCI 382. Interpretive Analysis. 3 credits.

A systematic introduction to the interpretive paradigm in sociology, including symbolic interactionism, ethnomethodology, phenomenology, existentialism and action theory. *Prerequisite: SOCI 200.*

SOCI 384. Naturalistic Analysis. 3 credits.

Study of social life through the traditional paradigm of naturalistic science, including exploration of the role of values in science, the logic of scientific procedure and ethical questions surrounding scientific inquiry. *Prerequisites: SOCI 200 and SOCI 231.*

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. *Offered fall and spring.*

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. *Prerequisites: Permission of department head*

SOCI 395. Special Topics in Sociology. 3 credits. *Offered fall and spring.*

Examination of selected topics which are of current importance in sociology. May be repeated for credit when course content changes.

SOCI 478. Africa Centered Worldview. 3 credits.

This course introduces students to alternative scientific worldviews based upon classical African thought and philosophy and gives them the opportunity to discuss and consider the implications of these alternative visions of knowledge on the conduct of research and on human affairs. *Prerequisites:* Africana studies minors: GAFST 200, junior or senior standing and completion of a minor area paper required. Sociology majors: To apply this course for SOCI 480, students must complete a research paper.

SOCI 480. Senior Seminar in Sociology. 3 credits. *Offered fall and spring.*

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. *Prerequisites: SOCI 300.*

SOCI 485. Internship in Sociology. 1-6 credits.

Students participate in internships or as course assistants in anthropology and sociology. *Prerequisite: Students seeking credit for internships must secure the approvals of their adviser and department head prior to registration. Students receiving credit as course assistants must have junior/senior standing and can register by faculty invitation only. While a maximum of six credits can be taken under this option, only three credits can be applied toward the major.*

SOCI 490. Special Studies in Sociology. 1-3 credits. *Offered fall and spring.*

Designed to give capable students in sociology an opportunity to complete independent study under supervision. *Prerequisites: Recommendation of the instructor and permission of the department head.*

SOCI 492. Sociology Field Practicum. 1-3 credits. *Offered fall and spring.*

Provides the student with practical experience in employing and refining sociological skills in a public or private agency under faculty supervision.

SOCI 499. Honors. 6 credits. *Offered fall and spring.*

Year course.

Spanish

Department of Foreign Languages, Literatures and Cultures

SPAN 101-102. Elementary Spanish (4, 1). 4 credits each semester.

Offered fall and spring.

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.

SPAN 109. Accelerated Review of Elementary Spanish (3, 1). 3 credits.

Offered fall and spring.

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 or qualify through the placement exam. *Prerequisite: Permission of the department head.*

SPAN 111-212. Intensive Spanish (6, 1). 6 credits each term. *Offered*

May and summer.

This intensive course covers two years of Spanish in one. The first semester is the equivalent to SPAN 101-102 and the second is the equivalent to SPAN 231-232.

SPAN 231-232. Intermediate Spanish. 3 credits each semester. *Offered fall and spring.*

A thorough review of grammar, vocabulary building, conversation, composition and reading. *Prerequisite: One year of college Spanish or equivalent.*

SPAN 300. Grammar and Communication. 3 credits. *Offered fall and spring.*

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 232.*

SPAN 307. Spanish Civilization. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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/TR 311. Contrastive Linguistics. 3 credits. *Offered fall or spring.*

In this course students analyze the main grammatical differences between Spanish and English with the focus on producing accurate and idiomatic translations into both languages. *Prerequisite: SPAN 300.*

SPAN 315. Spanish Phonetics. 3 credits. *Offered fall or spring.*

Intensive drill in Spanish sounds and intonation patterns. Instruction is in Spanish. *Prerequisite: SPAN 232 or equivalent.*

SPAN 320. Oral and Written Communication. 3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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 Spanish. *Prerequisite: SPAN 300.*

SPAN 335. Introduction to Spanish Literature. 3 credits. *Offered fall and spring.*

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. Law Enforcement Spanish. 3 credits. *Offered fall and spring.*

A study of Spanish legal terminology, jargon and cultural issues important for law enforcement personnel. The course emphasizes practical application of the Spanish language in routine and high-risk law enforcement situations. *Prerequisite: SPAN 232.*

SPAN 365. Medical Spanish. 3 credits. *Offered fall and spring.*

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.*

SPAN 370. Legal Spanish. 3 credits. *Offered fall.*

This course focuses on the concepts, terminology, and linguistic use of Spanish in the applied field of law for future practical application in the professional and volunteered contexts. Students will learn the cultural differences between the legal system in the U.S. and the Hispanic countries. *Prerequisite: SPAN 300.*

SPAN 385. Latin American Drama and Short Stories. 3 credits.

Offered fall or spring.

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. *Offered fall or spring.*

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.

Offered fall or spring.

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. *Offered fall and spring.*

Discussions deal with topics of current interest. Instruction is in Spanish. *Prerequisite: SPAN 300 or equivalent.*

SPAN 401. Cinema for Spanish Conversation. 3 credits. *Offered fall or spring.*

The 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 300.*

SPAN 405. Spanish Novels of the 19th and 20th Centuries. 3 credits.*Offered fall or spring.*

The development of the Spanish novel from the “costumbristas” through the realism of Galdos 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.*Offered fall or spring.*

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. *Offered fall or spring.*

Studies in Spanish art and culture. Studies in the social development that has taken place in Spain after Franco. The course will also cover the influence of Spain in Europe as well as in Latin America. Instruction is in Spanish. *Prerequisite:* SPAN 300.

SPAN 408. Aspects of Latin American Civilization. 3 credits. *Offered fall or spring.*

The development of countries like Argentina, Colombia, Perú, 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. *Offered fall or spring.*

Reading and analysis of representative works of Spanish-American novelists of the 19th and 20th centuries. Instruction is in Spanish. *Prerequisite:* SPAN 335.

SPAN 425. Prose of the Golden Age. 3 credits. *Offered fall or spring.*

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. *Offered fall or spring.*

A study of the “comedia” of the Golden Age including works of Lope de Vega, Calderon de la Barca, Tirso de Molina and Ruiz de Alarcon. Instruction is in Spanish. *Prerequisite:* SPAN 335.

SPAN 427. Poetry of the Golden Age. 3 credits. *Offered fall or spring.*

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 Leon and San Juan da la Cruz. Instruction is in Spanish. *Prerequisite:* SPAN 335.

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/TR 435. Translation Strategies. 3 credits. *Offered fall and spring.*

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.

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 446. Special Topics in Spanish Literature. 3 credits. *Offered fall or spring.*

Study of a particular topic in Spanish literature. It may cover all or specific Spanish literature genre. *Prerequisite:* SPAN 335.

SPAN 447. Special Topics in Spanish Civilization and Culture. 3 credits.*Offered fall or spring.*

Students will study a particular topic in the civilization and/or culture of Hispanic countries. Course may be repeated. *Prerequisite:* SPAN 320.

SPAN 448. Special Topics in Spanish Linguistics. 3 credits. *Offered fall or spring.*

Students will study a particular topic of Spanish linguistics. Topics could include an introduction to French sociolinguistics and psycholinguistics. Course may be repeated. *Prerequisite:* SPAN 320.

SPAN 460. Post War Literature in Spain. 3 credits. *Offered fall and spring.*

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 465. Cinema and Literature. 3 credits. *Offered fall and spring.*

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 is in Spanish. *Prerequisite:* SPAN 335.

SPAN 475. Advanced Medical Spanish. 3 credits. *Offered fall and spring.*

This course provides future medical professionals with further practice in Spanish. Students will learn advanced medical and anatomical vocabulary; develop reading comprehension skills in several medical contexts; and gain oral fluency both in the classroom by simulating real-life medical situations and outside the classroom by interacting with members of the Hispanic community at health-related events. Instruction is in Spanish. *Prerequisite:* SPAN 365.

SPAN 476. Culture and Medicine in Spain and Latin America. 3 credits.*Offered fall and spring.*

Explores differences between the health systems of the United States and the health systems of Spain and Latin America. Covers historical and contemporary medical discoveries in Spain and Latin America. Alternative and indigenous medicine and popular and religious beliefs applied to medicine in Spain and Latin America. Instruction is in Spanish. *Prerequisite:* SPAN 365.

SPAN 492. Practical Spanish. 3 credits. *Offered fall and spring.*

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 300 or SPAN 320.

Studies Abroad Course, Regularly Scheduled

Semester in Antwerp**COB 300A. Integrated Functional Systems: 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), a cumulative 2.8 grade point average in all courses taken at JMU, and formal admission to the College of Business.

COB 300B. Integrated Functional Systems: 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), a cumulative 2.8 grade point average in all courses taken at JMU, and formal admission to the College of Business.

COB 300C. Integrated Functional Systems: 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), a cumulative 2.8 grade point average in all courses taken at JMU, and formal admission to the College of Business.

COB 300D. Integrated Functional Systems: 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), a cumulative 2.8 grade point average in all courses taken at JMU, 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. *Prerequisites:* COB 241, COB 242, ECON 201 and acceptance to the semester in Antwerp program.

Semester in Beijing (summer)

CHIN 101. Elementary Chinese. 4 credits.

The fundamentals of Mandarin Chinese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension.

CHIN 102. Elementary Chinese. 4 credits.

The fundamentals of Mandarin Chinese through listening, speaking, reading and writing. Practice in pronunciation and development of comprehension.

CHIN 231. Intermediate Chinese. 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading.

CHIN 232. Intermediate Chinese. 3 credits.

A thorough review of grammar, vocabulary building, conversation, composition and reading.

CHIN 490. Advanced Conversation and Composition. 3 credits.

Intensive training in the use of modern, everyday Chinese with emphasis on conversation and composition.

HIST 341. An Introduction to Chinese Civilization: From 2200 B.C. to Present. 3 credits.

A brief introduction to Chinese civilization for the foreign student who wants to achieve a general knowledge about Chinese history from its very beginning to present day. Students will become acquainted with the dynasties, the main historic periods, important political-social events, and material and cultural achievements. They will gain a deep understanding of Chinese civilization from a comparative point of view between East and West within a global perspective.

IBUS 298-I. Business Environment in China and Southeast Asia. 3 credits.

This course will study China's political and economic development during the last ten years including the historical events leading up to those changes, political pressures involved in the process of change and economic issues facing the trading in China. Students will work to understand the cultural, historical, legal and political realities of doing business in China today. Special attention will be given to the present political and economic development in China.

IBUS 298-II. International Business Operations. 3 credits.

This course will study China's political and economic development in the last twenty years including historical events leading up to those changes, political pressures involved in the process of changes, economic issues facing the trading in China. Students will learn about the cultural, historical, legal and political realities of doing business in China today.

POSC 371. Politics of China. 3 credits.

This course introduces students to the politics of the People's Republic of China with emphasis on the events in the period since the Chinese Communist Party established its regime in 1949. It will begin with a brief review of China's political history before 1949 in order to establish the necessary foundation for understanding the significance of subsequent events. We will then analyze the ways in which the communist Party set out to organize China after the revolution, the consequences of these efforts, both achievements and failures, and the debates provoked within the elite and among the general population.

Semester in Florence

***ARTH 313. 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.

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. Taught in English.

ARTH 394/HIST 494. 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. Taught in English.

ECON 373F. Economics of European Integration. 3 credits.

This course is a survey of economic processes in the European Union (EU). It examines the free movement of goods, services, people and capital. It analyzes the theoretical and practical aspects of various EU policy initiatives, including Economic Monetary Union, competition policy, the Common Agricultural Policy and regional policy. Taught in English. The course is offered only in Florence.

***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.

HIST 382F. 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 given to political, social, economic, and cultural developments. Taught in English.

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/HTM 298. 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.

ITAL 490F/HTM 298. 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.

POSC 332F/JUST 332F. Human Rights in European Perspective.

3 credits. Offered spring.

This course is a survey of the philosophical, legal, and institutional foundations of human rights in Europe. It traces the origins and development of "human rights" as a concept, surveys the legal documents that enshrine human rights in Europe, and introduces students to the players involved in safeguarding human rights in Europe. Taught in English.

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.

POSC 371F/ITAL 490F. European Culture and Identity. 3 credits.

Offered fall.

This course probes the extent to which a European identity exists and examines dueling accounts of the cultural and political contents of European identity. It analyzes the formation, development, and expression of European culture, paying special attention to the ways that globalization, immigration, and European integration drive debates about what it means to be "European." 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.

***GHUM 200L/THEA 449/ENG 412N. 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.

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.

POSC/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/SMAD/WRTC 360L/GHUM 251. 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.

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. *Prerequisites: GCOM 121, GCOM 122 or GCOM 123.*

SMAD 301L/SCOM/WRTC 351. 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.

WRTC 320L/SCOM 395. Writing in the Public Sphere. 3 credits.

Students will conduct a rhetorical examination of written texts that influenced and brought about change in the public sphere in Great Britain. Course offered during semester in London for the communication and media program. Counts as an elective in the writing and rhetoric minor. *With permission, SCOM majors and minors may substitute SCOM 395 for this class.

Semester in Salamanca***ARTH 314/Spanish 490T. 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. Since it is taught in Spanish, Spanish credit may also be given. *Prerequisite: SPAN 300 or equivalent.*

IBUS 298. Special Topics in International Business. 3 credits.

Study of European Economic Community with focus on economic integration, historical aspects of the community in Europe, the United Market, the community budget, common commercial politics, common agrarian politics, common transportation politics, regional development politics, other fields of community action and economic and monetary union. Taught in Spanish, Spanish credit may also be given. *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. *Prerequisite: SPAN 300 or equivalent.*

SPAN 315S. Phonetics. 3 credits.

Intensive drill in Spanish sounds and intonation patterns. Continued emphasis on conversation. Instruction is in Spanish. *Prerequisite: SPAN 232 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 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. *Corequisite or prerequisite: SPAN 335.*

SPAN 400S. Advanced Conversation. 3 credits.

Discussions deal with topics of current interest. Instruction is in Spanish. *Prerequisite: SPAN 300 or equivalent.*

***SPAN 465S. Cinema and Literature.** 3 credits.

Comparative studies between cinema and literature. *Corequisite or prerequisite: SPAN 335.*

SPAN 490S. Special Studies in Spain. 3 credits.

Only students who will have successfully completed both SPAN 320 and SPAN 400 prior to studying in Salamanca may enroll in this course.

Teaching English as a Second Language

College of Education

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. *Prerequisites: EDUC 310, ELED 310, SCOM 248 or permission of instructor.*

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; ESL minors only.*

TESL 470. Methods in 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. *Prerequisite: For ESL minors who are enrolled in a teacher licensure program.*

Technical Translation

Department of Foreign Languages, Literatures and Cultures

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 311. Spanish-English Technical/Commercial Translation. 3 credits.

In this course students analyze the main grammatical differences between Spanish and English with the focus on producing accurate and idiomatic translations into both languages. *Prerequisites: SPAN 330.*

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 351. Italian-English Technical/Commercial Translation. 3 credits.

Italian-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 ITAL 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. Web Site and Software Localization. 3 credits.

This course addresses the business, technical, cultural and linguistic issues involved in the complex process of localizing Web sites 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 instructor.*

TR 408. Project/Workflow Management. 3 credits.

Management, business, technical, and computer-related issues involved in localizing Web sites and software for foreign markets. Budgeting, negotiations and relationships with translators and clients will be simulated. *Prerequisites: TR 300 or permission of instructor.*

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. *Offered fall and spring.*

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 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 496. Freelance Translation, Interpreting or Terminology. 3 credits.

Real experience with clients needing translation services, terminology management or other linguistic consulting services. Students are supervised by their JMU adviser. The freelance activity leads to a report, which is evaluated by a panel. *Prerequisites: TR 300 and at least one specialized translation class and permission of the instructor.*

Theatre

School of Theatre and Dance

THEA/DANC 171. Performance Production. 3 credits. *Offered fall and spring.*

An introduction to the methods of the production of scenery, properties, costumes, lighting, sound and performance management for theatre and dance performances. 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.

THEA 190. Topics in Theatre. 1-3 credits, repeatable to 6 credits.

Offered summer.

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. *Offered fall, spring and summer.*

Students who participate in co-curricular theatre activities may receive one hour credit per semester. May be repeated during junior and senior years. No student may enroll in more than one practicum per semester. Majors may apply a maximum of four hours practicum credit toward meeting major requirements.

GTHEA 210. Introduction to Theatre. 3 credits. *Offered fall and spring.*

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.

THEA 211. Performance Analysis. 3 credits. *Offered fall and spring.*

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 251. Acting I: Basic Acting. 3 credits. *Offered fall and spring.*

A study of basic acting as a performance experience. Emphasis on fundamentals of performance including concentration, transitions, interaction and the structuring of action.

THEA 261. Voice for the Stage. 3 credits. *Offered once a year.*

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. *Offered once every other year.*

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. Visual Aspects of Theatre. 3 credits. *Offered fall and spring.*

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 300. Theatre Practicum. 1 credit. *Offered fall and spring.*

Students who participate in co-curricular theatre activities may receive one credit per semester. May be repeated during junior and senior years. No student may enroll in more than one practicum per semester. Majors may apply a maximum of four hours practicum credit 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 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. *Offered fall.*

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.

THEA 316. The European Theatre Tradition from 1800. 3 credits.

Offered spring.

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.

THEA 320. History of Performance in Motion Pictures. 3 credits.

A survey of motion pictures as records of the forms, techniques and social impact of dramatic performance. Emphasis on the shaping of performance style within changing cultural contexts. Consideration of particular films and performers as exemplars of important periods.

THEA 331. Technical Costuming. 3 credits. *Offered once a year.*

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.

THEA 332. Survey of Costume Fashion and Manners. 3 credits.

Offered once a year.

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 in relation to architecture, sculpture, painting and other art forms.

THEA 333. Costume Design. 3 credits. *Offered once a year.*

The study of basic design and construction techniques of stage costumes. Emphasis on costuming in terms of the total production concept including directorial approach, setting and lighting design. Consideration of the process of costuming a theatrical production from first production meetings to opening night.

THEA 336. History, Theory and Practice of Stage Makeup. 3 credits.

Offered fall and spring.

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

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 consent of the instructor. Audition may be required.*

THEA 355. Directing for the Theatre. 3 credits. *Offered fall.*

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 GTHEA 210 or THEA 211.*

THEA/MUS 357. Music Theatre History and Analysis. 3 credits.

Offered once every other year.

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 374. Stage Lighting. 3 credits. *Offered fall.*

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 376. Scene Design. 3 credits. *Offered spring.*

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. *Offered once every other year.*

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. 3 credits, repeatable to 6 credits. *Offered fall and spring.*

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 440. Seminar in Theatre. 3 credits.

Studies of topics in theatre. Emphasis on research methods unique to theatre studies. Consideration of topics in both theoretical and practical aspects of theatre.

THEA 441. Senior Seminar in Theatre. 3 credits. *Offered fall.*

In this capstone course, students will spend the semester developing a research project. Students will produce a piece of original scholarship related to their study in the major. Career planning, dramatic criticism and other topics of interest will be included. *Prerequisites: Senior standing and admission to the major.*

THEA/ENG 447. Advanced Playwriting. 3 credits. *Offered once a year.*

An advanced workshop with emphasis on developing full-length dramatic material. *Prerequisite: THEA/ENG 347.*

THEA 449. London Theatre. 3 credits. *Offered fall and spring.*

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 452. Acting III: Contemporary Scene Study. 3 credits. *Offered fall.*

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. *Prerequisite: THEA 351 and permission of the instructor.*

THEA 453. Acting IV: Approaches to Heightened Language. 3 credits. *Offered spring.*

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 scanion, imagery work and the translation of text into active physical choices. *Prerequisite: THEA 452 and permission of the instructor.*

THEA 454. Advanced Music Theatre Performance. 2 credits. *Offered spring.*

Continuation of THEA 353 emphasizing more complex problems in music theatre performance including duets, trios, musical scenes and professional audition technique. *Prerequisite: THEA 353. Audition may be required.*

THEA 460. Auditioning and Professional Issues. 3 credits. *Offered fall.*

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. *Prerequisite: THEA 453 or 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. *Prerequisite: THEA 452 or 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 481. Theory and Performance Studies. 3 credits. *Offered spring.*

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. *Offered spring.*

Study of avant-garde theatre. Emphasis on motivating and guiding advanced students to a higher degree of aesthetic appreciation of the theatre. Consideration of the relationship of experimental theatre to the traditional theatre.

THEA 490. Special Studies in Theatre. 1-3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

Vocational Education

College of 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 School of Education director. Course may be repeated for credit when the content included changes.

Women's Studies

Cross Disciplinary Studies

WMST 200. Introduction to Women's Studies. 3 credits.

Cross disciplinary introduction to theories and scholarship in Women's 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 Studies minor.

THEA 376. Scene Design. 3 credits. *Offered spring.*

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. *Offered once every other year.*

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. 3 credits, repeatable to 6 credits. *Offered fall and spring.*

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 440. Seminar in Theatre. 3 credits.

Studies of topics in theatre. Emphasis on research methods unique to theatre studies. Consideration of topics in both theoretical and practical aspects of theatre.

THEA 441. Senior Seminar in Theatre. 3 credits. *Offered fall.*

In this capstone course, students will spend the semester developing a research project. Students will produce a piece of original scholarship related to their study in the major. Career planning, dramatic criticism and other topics of interest will be included. *Prerequisites: Senior standing and admission to the major.*

THEA/ENG 447. Advanced Playwriting. 3 credits. *Offered once a year.*

An advanced workshop with emphasis on developing full-length dramatic material. *Prerequisite: THEA/ENG 347.*

THEA 449. London Theatre. 3 credits. *Offered fall and spring.*

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 452. Acting III: Contemporary Scene Study. 3 credits. *Offered fall.*

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. *Prerequisite: THEA 351 and permission of the instructor.*

THEA 453. Acting IV: Approaches to Heightened Language. 3 credits. *Offered spring.*

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 scanion, imagery work and the translation of text into active physical choices. *Prerequisite: THEA 452 and permission of the instructor.*

THEA 454. Advanced Music Theatre Performance. 2 credits. *Offered spring.*

Continuation of THEA 353 emphasizing more complex problems in music theatre performance including duets, trios, musical scenes and professional audition technique. *Prerequisite: THEA 353. Audition may be required.*

THEA 460. Auditioning and Professional Issues. 3 credits. *Offered fall.*

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. *Prerequisite: THEA 453 or 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. *Prerequisite: THEA 452 or 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 481. Theory and Performance Studies. 3 credits. *Offered spring.*

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. *Offered spring.*

Study of avant-garde theatre. Emphasis on motivating and guiding advanced students to a higher degree of aesthetic appreciation of the theatre. Consideration of the relationship of experimental theatre to the traditional theatre.

THEA 490. Special Studies in Theatre. 1-3 credits. *Offered fall and spring.*

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. *Offered fall and spring.*

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. *Offered fall and spring.*

Vocational Education

College of 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 School of Education director. Course may be repeated for credit when the content included changes.

Women's Studies

Cross Disciplinary Studies

WMST 200. Introduction to Women's Studies. 3 credits.

Cross disciplinary introduction to theories and scholarship in Women's 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 Studies minor.

WMST 300. Special Topics in Women's Studies. 3 credits. *Offered fall and spring.*

Examination of selected topics of importance to the field of women's studies.

WMST/JUST 341. Gender and Justice. 3 credits. *Offered fall.*

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.

SCOM/WMST 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 GCOM course or permission of the instructor.

WMST/PHIL 350. The Philosophy of Feminism. 3 credits.

An intermediate-level examination of philosophical problems in feminist theory and feminist contributions to philosophy.

WMST/ENG 367. Women's Poetry. 3 credits.

A study of poetry by women.

WMST/ENG 368. Women's Fiction. 3 credits.

A study of novels and short stories by women.

WMST/ENG 370. Exploring Gay and Lesbian 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. Texts studied may include fiction, poetry, drama, essays and memoirs written primarily, but not exclusively, in the 20th century.

WMST 400. Issues and Research in Women's Studies. 3 credits.

The capstone seminar for the Women's Studies minor. Focuses on readings in feminist philosophy, history and literature. Students will engage in research in critical issues affecting women's lives. *Prerequisites:* WMST 200 and nine hours in the Women's Studies minor.

WMST/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.

WMST/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.

WMST 490. Independent Studies in Women's Studies. 3 credits.

Designed to give capable students in women's studies an opportunity to complete independent study under faculty supervision. *Prerequisite:* Admission by recommendation of the instructor and permission of the program coordinator.

WMST 492. Internship in Women's Studies. 1-3 credits.

Provides the student with practical experience in employing and refining women's studies concepts in a public or private agency, under faculty supervision. *Prerequisite:* Nine hours of women's studies courses, including WMST 200.

WMST 495. Special Topics in Women's Studies. 3 credits.

In-depth examination of selected topics of current importance to the field of women's 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:* WMST 200 or consent of instructor.

Writing, Rhetoric and Technical Communication

School of Writing, Rhetoric and Technical Communication

WRTC 100. Reading and Writing Workshop. 3 credits. *Offered fall.*

An introduction to writing process and structure in a workshop setting. This is an elective course for students who want to select an introductory-level college writing course before taking GWRTC 103.

GWRTC 103. Critical Reading and Writing. 3 credits. *Offered fall and spring.*

The course emphasizes the process of constructing a focused, logical, coherent, well-supported thesis or point of view. The students will employ research and formal documentation to produce writing stylistically appropriate to its audience, purpose and occasion. The course also places emphasis on editing for clarity and control of conventions. Instruction in writing and research includes critical analysis of primary and secondary sources through a series of reading and writing assignments. Students are prepared to use reading and writing in their personal, academic and civic lives. GWRTC 103, or its equivalent, fulfills the General Education Cluster One writing requirement and is a prerequisite for all WRTC courses numbered 200 or above. Formerly GWRIT 103.

WRTC 200. Introduction to Studies in Writing, Rhetoric and

Technical Communication. 3 credits. *Offered fall and spring.*

WRTC 200 introduces students to the field of writing, rhetoric, and technical communication. Emphasis is placed on the history of writing as a technology. Primary topics include the role of rhetoric in academic, professional, and public writing contexts; writing for digital environments; and writing for and designing print and online publications. *Prerequisite:* GWRTC 103 or equivalent or permission of instructor.

WRTC 210. Introduction to Technical and Scientific

Communication. 3 credits. *Offered fall and spring.*

Introduction to the central components of technical and scientific communication, including technical summaries, definitions, descriptions, instructions, reports, correspondence and proposals. Examines the process of planning, researching, producing and revising technical and scientific communications attuned to specific audiences and directed by clearly defined purposes.

WRTC 211. Written Argumentation. 3 credits. *Offered fall and spring.*

An advanced course in the development and analysis of argumentative strategies across a range of academic, professional and popular writing contexts. Emphasis will be given to classical and contemporary rhetorical theory as applied to the cultural, historical, disciplinary and professional bases for written communication. *Prerequisite:* GWRTC 102, GWRTC 103 or equivalent.

WRTC 220. Rhetorical Traditions. 3 credits. *Offered fall and spring.*

An introduction to historical rhetoric and its relationship to reading, writing, and speaking in modern contexts. Emphasis will be placed on defining rhetoric – its traditions, terms, and enduring realms of influence. *Prerequisite:* GWRTC 102, GWRTC 103 or equivalent.

WRTC 230. Research in Technical and Scientific Communication.

3 credits. *Offered fall and spring.*

Introduction to research methodologies used in technical and scientific communication, covering techniques for collecting information or data through primary and secondary sources. Includes evaluation of information from print and online sources for accuracy, usefulness and credibility, as well as the skillful integration of source material into reports. Fulfills the College of Arts and Letters writing-intensive requirement for the major. *Prerequisite or corequisite:* WRTC 210 or WRTC 211 or permission of instructor.

WRTC 240. Professional and Technical Editing. 3 credits. *Offered fall and spring.*

Introduction to the central responsibilities of editors when guiding a document through the editorial process, including establishing the need, purpose and scope of a document; developing levels of edit; copyediting; conducting substantive edits; determining document design; editing graphic aids; collaborating with authors; and proofreading. *Prerequisite or corequisite:* WRTC 210 or WRTC 211 or permission of instructor.

WRTC 250. Ethical and Legal Issues in Technical and Scientific Communication. 3 credits.

Study of the ethical and legal issues confronted by technical communicators in a range of fields. Examines the role of ethics in the field, the nexus of ethics and the law, ethical theories and critical thinking in moral reasoning, falsification of information or data, ownership of information, confidentiality, copyright and trademark laws, conflicts of interest, and causes of unethical behavior. *Prerequisite:* WRTC 210 or WRTC 211 or permission of the instructor.

WRTC/ENG 290. Intermediate Composition. 3 credits. *Offered fall and spring.*

This course stresses the argumentative and persuasive essay as well as grammar and usage. *Prerequisite:* GWRTC 102, GWRTC 103 or equivalent, or permission of instructor.

WRTC 310. Studies in Literacy. 3 credits. *Offered fall and spring.*

An advanced research and writing course designed to explore the important role that literacy plays in society. Students will examine the concept of literacy through historical, political, sociological, educational and cross-cultural lenses. *Prerequisite: GWRTC 102, GWRTC 103 or equivalent.*

WRTC 311. Rhetorical Analysis. 3 credits.

Study of how writers and editors in technical and scientific communication structure the semantics and syntax of language to achieve rhetorical objectives. Examines methods for applying principles of effective rhetoric to the design and writing of documents in the field. Emphasizes extensive textual analysis of rhetorical models and work-world documents. *Prerequisites: WRTC 210 or WRTC 211 and WRTC 240, or permission of the instructor.*

WRTC 320. Writing in the Public Sphere. 3 credits. *Offered fall and spring.*

Students will conduct a rhetorical examination of written texts that influenced and brought about change in the public sphere. *Prerequisite: GWRTC 102, GWRTC 103 or equivalent or permission of instructor.*

WRTC 322. Making a Difference: Service Learning Writing. 3 credits.

Offered fall.

Using readings and community service, this course explores political and social activism through writing and rhetoric. Combines theory and writing with hands-on projects in the community. *Prerequisite: GWRTC 102, GWRTC 103, or equivalent.*

WRTC 330. Intercultural Technical and Scientific Communication. 3 credits.

Introduction to effects of culture on technical and scientific communication, both in print and online, including a consideration of audience, context, language, page or screen design, graphics and use of color. Examines basic models of culture used in intercultural communication including management considerations, teamwork and translation issues. *Prerequisites: WRTC 210 or WRTC 211 and WRTC 240 or permission of instructor.*

WRTC 331. Technology and Writing. 3 credits. *Offered once a year.*

An advanced research and writing course that explores the interrelationships of technology, literacy and society. Students will examine the influences of past, present and future technological innovations on our practices as readers and writers. Students may have the opportunity to compose in hypertext and multi-media environments. This course is writing-intensive. *Prerequisites: GWRTC 102, GWRTC 103, or equivalent.*

WRTC 340. Teaching Writing. 3 credits. *Offered fall and spring.*

The course 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: GWRTC 102, GWRTC 103 or equivalent or permission of instructor.*

WRTC 341. Composing Processes. 3 credits. *Offered fall or spring.*

Students will learn current composing theories through reading and responding to the major theorists in the field. Students will study the foundational principles of writing processes as applicable to pedagogical, academic, and professional contexts. *Prerequisites: GWRTC 103 or equivalent; WRTC 200 or permission of the instructor.*

WRTC/SCOM 343. Contemporary Rhetorical Theory and Practice.

3 credits. *Offered once a year.*

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: GWRTC 103 or equivalent; WRTC 200; WRTC 210 or WRTC 211; and WRTC 220.*

WRTC 345. Tutoring Writing. 3 credits. *Offered fall and spring.*

This writing-intensive course integrates the theory and practice of tutoring writing in academic settings and is suited for preparing tutors and teachers who will use writing across the disciplines. The course includes an internship in a campus writing center and provides students opportunities to develop as writers, scholars and professionals. Students will be eligible for, but not guaranteed, employment in a university writing center. *Prerequisites: GWRTC 102, GWRTC 103 or equivalent; WRTC 210 or WRTC 211; or permission of instructor.*

WRTC 350. Science and Technology in Literature. 3 credits.

Exploration of the ongoing dialogue between science, technology and literature through the reading of literary responses to the effects of such technologies and resulting social phenomena as machine production, urbanization, quantum mechanics, computerization, genetic engineering and the alienation of the worker. *Prerequisites: WRTC 210 or WRTC 211 and WRTC 240, or permission of the instructor.*

WRTC/SCOM 351. Visual Rhetoric. 3 credits. *Offered fall and spring.*

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: GWRTC 103 and any 100-level communication studies course or permission of the instructor.*

WRTC 355. Digital Rhetoric. 3 credits.

A research and writing intensive course devoted to the theory and practice of rhetoric in digital environments. Students will examine current philosophies and approaches to digital and multimedia composing and develop multimedia, multi-genre, and interactive works. *Prerequisites: GWRTC 103, WRTC 200, WRTC 210 or WRTC 211, and WRTC 240, or permission of the instructor.*

WRTC 360. Instructional Design and Training. 3 credits.

Introduction to principles of instructional design, especially as they are applied to technical and scientific training programs in the public and private sector. Emphasizes audience analysis, client relations, oral presentation skills, training tools, integration of visual aids and evaluation techniques. Includes both online and in-person approaches to training. *Prerequisites: WRTC 210 or WRTC 211 and WRTC 240.*

WRTC 395. Practicum. 1 credit repeatable up to 3 credits. *Offered fall and spring.*

Students will engage in practical experience opportunities in the field of Writing, Rhetoric, and Technical Communication. Students may apply no more than 3 practicum credit hours toward completion of WRTC major or minor requirements. *Prerequisites: GWRTC 103 or equivalent and permission of instructor.*

WRTC/ENG 396. Advanced Composition. 3 credits. *Offered fall and spring.*

Extensive exercises in expository writing, with emphasis on rhetorical types of composition, designed to develop sophistication of style in the student's writing. *Prerequisite: GWRTC 102, GWRTC 103 or permission of instructor.*

WRTC 400. Special Topics Seminar in Rhetoric and Writing. 3 credits.

Offered fall and spring.

A focused, in-depth study of specific areas or subjects in rhetoric and composition. Topics may pertain to issues relevant to the discipline, to the study of particular rhetorical 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 210 or WRTC 211, and WRTC 220, or permission of instructor.*

WRTC 410. Government Writing. 3 credits.

Study of writing genres from a variety of fields within government. Examines the purposes, audiences and formats unique to government publications. Directs students in writing original and editing existing government documents. *Prerequisites: WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.*

WRTC 411. Legal Writing. 3 credits.

Study of central components of legal writing, such as the use of legal search tools; representation of facts and evidence; statutory and secondary authority; legal periodicals; citation form; and drafting letters, memoranda, and case briefs. Addresses such key rhetorical elements of legal documents as clarity and conciseness of style, coherent and unified organization, level of diction, jargon, passive voice and errors in person. *Prerequisites: WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.*

WRTC 412. Medical Writing. 3 credits.

Study of the theory and practice of writing about technical and scientific information in medical and health science fields. Examines the role of the medical writer in medical and health care professions, the ethical issues involved in medical writing, and writing clear and concise documentation. Emphasizes writing about medical practices for non technical audiences such as patients and their families. *Prerequisites: WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.*

WRTC 413. Proposal Writing. 3 credits.

Study of the planning and writing of proposals with emphasis on informal (i.e., business) proposals. Covers proposal strategies that address central components of a successful proposal. Students work on real and client-based proposals. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC/SCOM/WMST 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.

WRTC 421. Studies in Cultural Rhetorics. 3 credits. *Offered fall and spring.*

The course will investigate the ways in which definitions of our identity (including class, gender, race and ethnicity, sexuality, nature, and religion, among others) acquire cultural significance through written and symbolic expression. Students will examine a variety of different "texts" from a range of theoretical perspectives. *Prerequisites:* WRTC 210 or WRTC 211 and WRTC 220, or permission of instructor.

WRTC 430. Style and Stylistics. 3 credits.

An advanced writing intensive study of stylistic history, theory and practice. The course acquaints students with the origins and history of different writing styles, current stylistic theory and practice, and gives them the opportunity to write in different styles, including experimental ones. Students will analyze the relationship between rhetoric and writing style and analyze and produce stylistically diverse pieces of academic, public, and personal writing. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 450. User Documentation. 3 credits.

Study of theory and practice on computer documentation for end users. Emphasizes documentation design and production, online documentation, usability testing, and writing of users' guides. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 451. Publications Management. 3 credits.

Addresses the management, preparation and editorial policy of professional publications. Students collaborate to examine managerial and editorial responsibilities such as defining editorial policy and management roles, and creating document publication schedules. Page preparation in Adobe InDesign will be covered. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 452. Student Publications. 3 credits.

Addresses the management, preparation and editorial policy of professional publications, with an emphasis on participation in the creation of significant technical communication work. Students collaborate on editorial policy and management roles, create publication schedules, review and edit submissions for publication, and collaborate with authors. Students will use Microsoft Project. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 455. Managerial and Entrepreneurial Communication. 3 credits.

Advanced study of the function of technical communication in management. Students learn to conduct research about business cultures and to select communication channels for technical and scientific messages. Students develop communications for supervising, managing, and representing technical or scientific communication units within various types of industrial and knowledge development organizations. They learn to measure and communicate the value added to an organization through technical communication. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 460. Beginning Topics in Online Publication. 3 credits.

Beginning study and creation of online publications, including Web sites. Introduces graphics programs used by Web designers. Emphasizes principles in designing and coding. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 461. Intermediate Topics in Online Publication. 3 credits.

Intermediate study of online publications, building upon the skills and knowledge gained in WRTC 460. Emphasizes the tools for creating, assessing and maintaining electronic data. *Prerequisite:* WRTC 460 or approval of the instructor.

WRTC 462. Advanced Topics in Online Publication. 3 credits.

Advanced study of online publications. Emphasizes advanced design and coding techniques using current materials and skills. *Prerequisite:* WRTC 461 or approval of the instructor.

WRTC 480. Special Topics in Technical and Scientific Communication. 1-3 credits.

Advanced course work focusing on a topic in technical and scientific communication not covered in sufficient detail in normal course offerings. Courses can include practical, theoretical, literary or pedagogical topics in technical and scientific communication. May be repeated when course content changes. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor. Approval of the director required.

WRTC 481. Beginning Web Theory and Design. 3 credits.

Beginning study of Web theory and design, such as audience, purpose, structure, accessibility, content and its components, design and its components, and usability. Emphasizes design principles for online technical publications. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 482. Advanced Web Theory and Design. 3 credits.

Advanced study of Web theory and design. Focuses on the business of Web design. Emphasizes theories of evaluating, revising and maintaining Web sites; searching for the Web developer job; negotiating client contracts; creating the Web team; managing the Web project; and learning the advantages and disadvantages of various technological tools technical communicators use on the job. *Prerequisite:* WRTC 481 or approval of the instructor.

WRTC 490. Advanced 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 directors discretion. May be repeated with the director's approval when course content changes. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, or permission of the instructor.

WRTC 495. Internship in Technical and Scientific Communication. 3 credits.

Work-world experience within industry, government or the university in technical or scientific communication. Designed to allow 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. *Prerequisites:* WRTC 220 or WRTC 230, and WRTC 240, and permission of the instructor. Should be taken in senior year and cannot be repeated.

WRTC 499. Honors. 6 credits. *Offered fall and spring.*

Year course.