

**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. Formerly KIN 401A.

**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.*

**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 and 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 and 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.

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## 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.

## Materials Science

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### 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.*

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## 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.*

Sets, logic, numeration systems, number theory, measurement, geometry, probability and statistics are topics covered. These courses will fulfill the requirements for licensure of prospective early childhood, elementary and middle school teachers. *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 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, 156, 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. Mathematical Problem Solving.** 3 credits. *Offered fall and spring.*

A continuation of the study of the mathematical content of MATH 107-108 with special emphasis on problem solving strategies, deductive, inductive and inferential reasoning. Use of technology and other appropriate tools. *Prerequisite: MATH 108 or permission of the instructor.*

**\*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.*

**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; eigenvectors 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, 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 or permission of instructor.*

**MATH 305. Principles of Geometry.** 3 credits. *Offered fall.* Finite geometries, geometric transformations, constructions, geometry of inversion, projective geometry, non-Euclidean geometry. *Prerequisite: MATH 207 or permission of instructor.*

**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 or permission of instructor.*

**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 or permission of instructor.*

**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 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 every third semester as of fall 2006.*  
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 on demand.*  
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 467. Selected Topics in Mathematics.** 1-3 credits each semester. *Offered on demand.*  
Topics in advanced mathematics which are of special interest to the student but not covered in the regularly offered courses. Offered only with approval of the department head; may be repeated for credit when course content changes.

**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 483. Selected Topics in Applied Mathematics.** 3 credits. *Offered on demand.*  
Topics in applied mathematics not covered in the regularly offered courses. Offered only with the approval of the department head; may be repeated for credit when course content changes. *Prerequisites: Junior standing and consent of the instructor.*

**MATH 485. Selected Topics in Statistics.** 1-3 credits. *Offered on demand.*  
Topics in statistics which are of interest but not otherwise covered in the regular statistics offerings of the department. Offered only with approval of the department head; may be repeated for credit when course content changes. *Prerequisites: Junior standing and 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. Fundamental 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 Writing.** 3 credits. *Offered fall and spring.*

The study of the fundamentals of news writing, including news gathering techniques and modern news style. Emphasis on day-to-day coverage of meetings, events and breaking news stories. 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: Admission to the SMAD major or permission of the instructor.*

**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 and 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. Corporate Media Writing.** 3 credits. *Offered fall and spring.*

Study and practice of the forms and techniques used in corporate media writing. Emphasis on writing and editing skills necessary for print, broadcast and Web-based media. 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 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 231 or permission of the instructor.*

**SMAD 308. Interactive Design for the Web II.** 3 credits. *Offered fall and 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 310. Advanced News Writing.** 3 credits. *Offered periodically.*

Advanced study and practice of news writing and news gathering techniques. Emphasis on in-depth and investigative stories. *Prerequisite: SMAD 210, SMAD 241 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/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. *Prerequisite: SMAD majors: SMAD 202; GRPH majors: GRPH 208.*

**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. Newspaper Production.** 3 credits. *Offered fall.*

Advanced study in the knowledge and skills required to produce a newspaper. Areas of study include story generation, writing, editing, picture editing, page design, layout, on-screen pagination, production and management. Consideration given to the journalistic responsibilities and problems of serving a diverse audience. *Prerequisite: SMAD 210, SMAD 220, 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 standing or permission of the instructor.*

**SMAD 332. Print Communication Design.** 3 credits. *Offered fall and 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; for non-majors: ENG 381; or permission of the instructor.*

**SMAD 341. Web Communication.** 3 credits. *Offered fall and spring.*

Study of the design and development of the World Wide Web as a corporate communications tool. Emphasis on project planning and research, Web site design and management. Focus on the lexicon of the Web, the tools and techniques of e-commerce, and Web site promotion. Attention to research and Web communication management principles. *Prerequisites: Corporate concentrators: SMAD 202 and SMAD 241, or permission of the instructor. Print Journalism concentrators: SMAD 202 and SMAD 210, or permission of the instructor.*

**SMAD 356. Telecommunication Policy and Regulation.** 3 credits.

*Offered fall and 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 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 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 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 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 and 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 406. 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 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 308, 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 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 202 and junior 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 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 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.*

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## 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.*

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## 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 & ECUD 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 371 & ECUD 310; for middle education, MSSE 371. 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.

**MSED 480. Student Teaching in Middle Education.** 8 credits.

Enables students to apply in public school classrooms those understandings, skills and attitudes acquired in all components of teacher education. Under the guidance of university supervisors and cooperating teachers, students engage in full-time teaching responsibilities.

**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 240. Jazz Improvisation Laboratory I.** 2 credits. *Offered spring.*

Presents the fundamentals of improvisation in both jazz and popular music 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. This 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 fall.*  
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 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 fall and spring.*  
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 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. Chorus.** 1 credit. *Offered fall and spring.*

Acquaints students with a variety of choral music including music that is suitable for use with school groups and through this singing helps develop choral techniques and general musicianship. Students may participate in this ensemble without audition. However, the director reserves the right to determine its membership.

**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.

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**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.*