

Course Descriptions

Key to Designators

AAD	- Academic Advancement	HSC	- School of Health Sciences
ACC	- Accounting	HSL	- Health Systems Leadership
AFL	- Air Force Leadership	HST	- History
ACT	- Actuarial Science	HUM	- Humanities
AMS	- American Studies	IET	- Industrial and Engineering Technology
ANT	- Anthropology	IND	- Interior Design
ARB	- Arabic	IPR	- Integrative Public Relations
ART	- Art	IPS	- International Program Studies
ASL	- American Sign Language	ITC	- Information Technology
AST	- Astronomy	JPN	- Japanese
ATR	- Athletic Training	JRN	- Journalism
AUD	- Audiology	LAR	- Liberal Arts
BCA	- Broadcast and Cinematic Arts	LAT	- Latin
BIO	- Biology	LDR	- Leadership Studies
BIS	- Business Information Systems	LIB	- Library
BLR	- Business Law and Regulation	MAR	- Marine Science
BUS	- Business	MBA	- Master of Business Administration
CDE	- Planned Experience	MDP	- Media, Design, and Production
CDO	- Communication Disorders	MED	- College of Medicine
CED	- Counselor Education and Personal Development	MET	- Meteorology
CGL	- Cultural and Global Studies	MHA	- Master of Health Administration
CHM	- Chemistry	MGT	- Management
CHN	- Chinese	MKT	- Marketing
CNE	- Credit, no equivalent	MLE	- Middle Level Education
COM	- Communication	MMD	- Multimedia Design
CPS	- Computer Science	MPH	- Master of Public Health
CRM	- Cultural Resource Management	MSA	- Master of Science in Administration
CSD	- Communication Sciences and Disorders	MSL	- Military Science and Leadership
DAN	- Dance	MST	- Museum Science
DBI	- DeafBlind Intervener	MTH	- Mathematics
DHA	- Degrees in Health Administration	MTR	- Music Theatre
DOL	- Doctor of Organizational Leadership	MUS	- Music
ECE	- Early Childhood Education	NSC	- Neuroscience
ECO	- Economics	OJB	- Ojibwe
EDL	- Educational Leadership	PAD	- Public and Nonprofit Administration
EDU	- Teacher Education	PED	- Sports Instructional Program (Activity)
EES	- Earth and Ecosystem Science	PES	- Physical Education and Professional Courses
EGR	- Engineering	PHA	- Physician Assistant
EHS	- Education and Human Services	PHL	- Philosophy
ELI	- English Language Institute	PHS	- Physical Science
ENG	- English Language and Literature	PHY	- Physics
ENS	- Environmental Science	POR	- Portuguese
ENT	- Entrepreneurship	PSC	- Political Science
ENV	- Environmental Studies	PSY	- Psychology
ESC	- Earth Science	PTH	- Physical Therapy
EUR	- European Studies	REL	- Religion
FIN	- Finance	RLA	- Recreation and Leisure Activities
FLN	- Foreign Language	RPL	- Recreation, Parks, and Leisure Services Administration
FMD	- Fashion Merchandising & Design	RUS	- Russian
FNS	- Foods & Nutrition	SAM	- Science of Advanced Materials
FRN	- French	SCI	- Sciences
FYE	- First Year Experience	SCJ	- Social and Criminal Justice
GEL	- Geology	SEP	- Sustainability and Environmental Policy
GEO	- Geography	SLP	- Speech-Language Pathology
GER	- German	SOC	- Sociology
GRK	- Greek	SPE	- Special Education
GRN	- Gerontology	SPN	- Spanish
HDF	- Human Development & Family Studies	SSC	- Social Sciences
HNS	- Environmental Health and Safety	STA	- Statistics
HOA	- Hotel Administration (AT UNLV)	SWK	- Social Work
HON	- Honors	TAI	- Theatre and Interpretation
HPS	- Health Professions	UNV	- Prior Learning
HSA	- Hospitality Services Administration	WGS	- Women and Gender Studies

Key to Course Descriptions

Course Numbers. The level of a course is indicated by the number. Usually it is expected that students will take courses appropriate to their classification. It is particularly important for freshmen to register for courses numbered below 200.

000-099	Credits in these courses do not apply to the minimum 124 hour requirement for graduation.
100-199	Primarily for Freshmen
200-299	Primarily for Sophomores
300-399	Primarily for Juniors
400-499	Primarily for Seniors
500-599	Advanced Undergraduate Courses

A student who has been formally admitted to the College of Graduate Studies and who takes courses numbered 500 or higher will receive graduate credit and, with the approval of the advisor, may apply it to a degree program.

600-699 Graduate Courses. Open only to students who have been admitted to the College of Graduate Studies. Undergraduate students should use the form available from the College of Graduate Studies website to apply to take a graduate course for undergraduate credit.

700-799 Graduate Courses. Open only to students who have been admitted to the College of Graduate Studies.

800-899 Graduate Courses. Open only to students who have been admitted to the College of Graduate Studies and who are in the third year of doctoral study or full time internship at the specialist level.

900-999 Graduate Courses. Open only to students who have been admitted to the College of Graduate Studies and who are in the fourth year of doctoral study.

Graduate courses which are subject to limitation under the policy on unspecified content or variable credit are listed in each department.

Cross-Listed Courses

Cross-listed courses are those courses identified in the course listing as "identical to" another course. Credit may not be earned in more than one of these courses.

Credit and Attendance Hours

Central Michigan University complies with the federal credit hour definition. "*one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester*" 34CFR 600.2 (11/1/2010). This credit policy applies to all courses regardless of the delivery format. Laboratory, internship, practica, studio, and similar non-lecture courses will require at least an equivalent amount of work.

The number of semester hours of credit in each course is indicated by the first number following the title of the course. Within the parentheses, the first number indicates the number of hours of lecture per week; the second number, the hours of laboratory per week. EXAMPLE: 4(3-2) means four hours of credit, three hours of lecture, 2 hours of laboratory.

Prerequisites

Some courses listed as prerequisites may have their own prerequisites. You may need to plan more than one semester in advance when deciding which semester to take a particular course. Students seeking to substitute prerequisite courses with equivalents or permission of instructor may do so only with departmental approval. Such substitutions are not automatic.

Definitions

- Prerequisite – Any course(s) and/or other requirement(s) that must be completed prior to enrolling in a particular course.
- Pre/Co-requisite(s) – Any course and/or other requirement(s) that students may take prior to, or concurrently, with the particular course.
- Co-requisite – Any course and/or other requirement(s) that students must take concurrently with a particular course.
- Recommended – Any course and/or other requirement(s) that might be useful for students to complete prior to enrolling in a particular course.

Syntax Guidelines

- Multiple Course Requirements are separated by a comma. Example: ART 105, 115.
- Compound requirements are separated by a semi-colon. Example: ART 105, 115; Admission to the Teacher Education Program.
- Alternative courses are separated by "or." Example: ART 105 or 115.
- Multiple alternative courses are preceded by the use of "One of:." Example: One of: ART 105, 115, 215.
- Default prerequisites. "or permission of instructor" and "or equivalent" are default prerequisites and therefore apply to any course. It is understood that students may contact a faculty member for permission to register for a class (with a bump card) or have previous coursework evaluated for equivalency (with a bump card). Thus, these phrases should not appear in course descriptions.
- "Or graduate standing" should appear only in 500 level classes to permit graduate students to register without CMU's undergraduate requirements.

Variable Credit Courses

Variable credit courses are indicated by a semester-hour designation such as 1-3(Spec). (Spec) means there are special arrangements regarding the number of hours spent in class. Maximum hours which a student may earn in a variable credit course to apply toward graduation are the highest number in the semester-hour designation for the course (i.e., three hours maximum in example listed above).

Distance Learning, Online, or Hybrid Courses

Distance learning courses include online courses, hybrid courses, and other courses that do not have the traditional face-to-face classroom format. Course approved for offering in a distance learning format are identified in each course description when the course is approved for distance learning, hybrid, or online.

Other Designation

- CR/NC Credit/No Credit, see index for more information.
- *Italic Type* Indicates the course is approved for the University Program
- Courses are listed in alphabetical order by designator.

AAD - Academic Advancement

Contact the Office of Academic Advising and Assistance for more information.

AAD 101 Academic Empowerment 2(2-0)

Provides the information, materials and practice necessary for empowering students to make wise academic and life choices. Prerequisites: Permission of instructor.

AAD 102 College Learning Strategies 2(2-0)

Provides information, materials and practice to assist students in developing the active learning and study strategies needed for success in college.

AAD 103 College Reading Strategies 3(3-0)

Provides instruction and practice to assist students in developing the active, flexible and critical reading strategies necessary to meet educational objectives across disciplines.

AAD 104 College Strategies for Nontraditional Students 2(2-0)

Provides information and strategies to strengthen the academic and personal skills needed for successful completion of college. Primarily for nontraditional students. This course is approved for offering in a distance learning format.

AAD 197 Special Topics in Learning Enhancement 1-3(Spec)

Selected topics of interest not otherwise available in a course regularly offered. Current topic(s) are listed in the semester Class Schedule. Repeatable up to 3 credits when content does not duplicate previous special topic studies. Prerequisites: See Course/Search and Registration, determined specific to the topic presented.

ACC - Accounting

See the School of Accounting for more information.

ACC 101 Introduction to Accounting 3(3-0)

Basic concepts and principles of accounting. Overview of accounting cycle from a building block approach. No credit if credit has been earned in ACC 201. Does not count on major or minor in College of Business Administration.

ACC 197 Special Topics in Accounting 3(3-0)

Introductory topics in accounting. Credit counts toward total hours for graduation, but not toward a major or minor in the College of Business Administration.

ACC 201 Concepts of Financial Accounting 3(3-0)

Students gain an understanding of the accounting system used to develop financial statements. The emphasis is on interpreting financial data used in business decision making. Recommended: completion of MTH 105. This course is approved for offering in a distance learning format.

ACC 202 Concepts of Managerial Accounting 3(3-0)

Students gain an understanding of how the information provided by an accounting information system is used for managerial decision making. This course is approved for offering in a distance learning format. Prerequisite: minimum grade of C- in ACC 201.

ACC 203 Essentials of Accounting for Business 3(3-0)

Basic concepts and principles of an accounting process used to develop financial reports and make management decisions for businesses and other entities. This course is approved for offering in a distance learning format. Prerequisite: MTH 105.

ACC 204 Accounting for Not-For-Profit Entities 1(1-0)

Students gain an understanding of accounting and financial reporting for not-for-profit entities. This course is approved for offering in a distance learning format. Prerequisite: ACC 203 with a minimum grade of C.

ACC 250 Introduction to Financial Accounting 3(3-0)

Overview of how a business functions through the generation and interpretation of accounting data. This course may be taught in an online format. Prerequisite: Tier 1 admission to Professional Business Studies. Recommended: MTH 107 or 132 or 217.

ACC 255 Managerial Accounting & Decision Making 3(3-0)

Managerial decision-making methods using accounting and financial information and includes application of concepts to integrated study of business problems. This course may be taught in an online format. Prerequisites: GPA of 2.50 or higher; ACC 250; BLR 235; ECO 204; one of MTH 132 or 217 or STA 282 or 382; Co-requisite: BIS 255. For signed Accounting Majors, BLR 235 and ECO 204 may be co-requisites.

ACC 301 Intermediate Accounting I 3(3-0)

Study of financial accounting processes, theory and principles. Includes analysis of financial statements and financial reporting issues. This course is approved for offering in a distance learning format. Pre/Co-Requisites: ACC 202 or ACC 255.

ACC 302 Intermediate Accounting II 3(3-0)

Continuation of ACC 301. Course includes in-depth study of special reporting issues related to financial accounting. Prerequisites: ACC 301; and admission to Professional Business Studies or listed on signed major or minor.

ACC 311 Federal Income Taxation I 3(3-0)

Basic concepts of federal income taxation, emphasizing individual taxpayers. Tax law covering taxable and excludable income, deductions, basis, tax-free exchanges, capital gains and losses, tax credits, deferral of tax, and depreciation. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Recommended: ACC 202 or 255.

ACC 321 Managerial Cost Accounting 3(3-0)

Accumulation and use of cost accounting information for planning and controlling. Process, job order, and standard cost systems. Prerequisites: ACC 202 or 255; STA 282 or 382; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 370 Accounting Systems and Controls 3(3-0)

The use of internal accounting control theory to evaluate and improve accounting systems. Enterprise resource planning and electronic commerce topics are also addressed. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Pre/Co-Requisites: ACC 302 and 321.

ACC 489 Accounting Internship/Co-Op 1-3(Spec)

Full time, on-the-job work experience for one or more semesters in industry, government, or public accounting arranged through departmental internship/co-op supervisor. CR/NC only. Prerequisites: 6-12 hours of accounting depending upon the program entered; overall GPA of 3.0; accounting GPA of 3.2; acceptance by program supervisor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 491 Independent Studies 1-3(Spec)

Directed reading or research on an approved topic. Not more than 3 credits for ACC 491 may count toward accounting major. Prerequisites: permission of instructor; 86 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 492 Practicum in Small Business 3(Spec)

Provides the student an opportunity to analyze the accounting, finance, marketing, management, and production system of an ongoing small business. Identical to FIN/MGT/MKT/492. Credit may not be earned in more than one of these courses. Prerequisites: 56 semester hours completed; permission of instructor; admission to Professional Business Studies or listed on signed major or minor.

ACC 501 Advanced Accounting 3(3-0)

Incorporate investments and consolidated statements, purchases, and goodwill, segment reporting, interim reporting, partnerships, foreign operations, and fund accounting. Prerequisites: ACC 301, 302; 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor; or graduate status.

ACC 511 Federal Income Tax II 3(3-0)

Formation, operation, distributions, redemption, dissolution, and liquidation of corporations, partnerships, Subchapter S corporations and personal holding companies; accumulated earnings tax; tax shelter investments. Prerequisites: ACC 311; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 512 Tax Research and Administration 3(3-0)

A study of the sources of tax law, professional tax research techniques, IRS procedures used to administer the tax system, and professional tax practice standards. Prerequisites: ACC 311; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 517 Federal Estate and Gift Taxation 3(3-0)

Concentrated study of federal taxation of death transfers and gratuitous lifetime transfers including preparation of decedent's final income tax return. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 521 Managerial Cost Control Analysis 3(3-0)

Principles and techniques of accounting data analysis and profit planning, measurement, evaluation, and control for management. Prerequisites: ACC 321; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Recommended: MGT 340.

ACC 531 Auditing and Assurance Services 3(3-0)

A study of assurance services offered by professional services firms with major emphasis on the traditional auditing concepts and procedures. Prerequisites: signed major authorization in accounting; completion or concurrent enrollment in ACC 370; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 536 Forensic Accounting 3(3-0)

The study of financial fraud and the methods of fraud detection, investigation, and prevention. Prerequisites: 75 semester hours completed; admission to professional Business Studies or graduate status.

ACC 543 Fund Accounting 3(3-0)

Accounting principles and procedures for governmental units and various non-profit organizations. Prerequisites: ACC 302; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

ACC 551 Advanced Seminar for Public Accounting 3(Spec)

An advanced seminar course applying financial and assurance functions within a public accounting perspective. Prerequisite: Departmental approval.

ACC 570 Strategic Accounting System Development and Implementation 3(3-0)

The strategic design and implementation of accounting systems for competitive advantage. Topics include enterprise resource planning, business process re-engineering, change management and semantic object modeling. Prerequisites: ACC 301, ACC 302, ACC 321, ACC 370; 56 semester hours completed and admission to Professional Business Studies; or listed on signed major or minor; or graduate students, permission of the MBA Director.

ACC 597 Special Topics in Accounting 1-3(Spec)

Advanced topics in accounting. Not more than 3 credits for 597 count toward accounting major, minor, or concentration. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

ACC 605 Accounting Theory I 3(3-0)**ACC 689 Accounting Internship 3(Spec)****ACC 711 Tax Seminar 3(3-0)****ACC 721 Managerial Accounting Seminar 3(3-0)****ACC 730 Configuration, Control & Implementation of Global Accounting Systems using GRC 3(3-0)****ACC 731 Auditing Seminar 3(3-0)****ACC 741 Fund Accounting Seminar 3(3-0)****ACC 791 Independent Studies 1-3(Spec)****ACC 797 Special Topics in Accounting 1-3(Spec)****ACT - Actuarial Science**

See the Department of Mathematics for more information.

ACT 539 Probability Foundations of Actuarial Science 3(3-0)

Fundamental probability tools for quantitatively assessing risk, with emphasis on application of these tools to problems encountered in actuarial science. Prerequisite: STA 584.

ACT 540 Mathematical Theory of Interest 4(4-0)

Fundamental concepts of mathematical theory of interest and applications in calculating present and accumulated values for various streams of cash flows. Introduction to financial instruments. Prerequisite: MTH 133.

ACT 541 Actuarial Mathematics for Life Contingencies I 3(3-0)

Introduction to survival distributions and life tables, life annuities and life insurance, benefit premiums and benefit reserves. Prerequisites: ACT 539, 540.

ACT 542 Actuarial Mathematics for Life Contingencies II 3(3-0)

Introduction to multiple state models including multiple life models and multiple decrements models, pension mathematics, interest rate models, and cash flow analysis for insurance products. Prerequisites: ACT 541.

ACT 543 Mathematics of Financial Models 3(3-0)

Introduction to stochastic calculus for financial modeling, derivative securities with emphasis on option pricing using the Black-Scholes model, bond pricing using interest rate models. Prerequisites: ACT 540; STA 584; or Graduate Standing.

AFL - Air Force Leadership

See the Department of Military Science for more information.

AFL 111 Foundations of United States Air Force I 1(1-2)

Introduction to the U.S. Air Force today. Mission and organization; group leadership problems; introduction to communication skills. Leadership laboratory.

AFL 112 Foundations of United States Air Force II 1(1-2)

Introduction to the U.S. Air Force today. Mission and organization; group leadership problems; introduction to communication skills. Leadership laboratory.

AFL 211 The Evolution of USAF Air and Space Power I 1(1-2)

Air Force heritage. Evolution of air power concepts and doctrine; introduction to ethics and values; introduction to leadership; continuing application of communication skills. Leadership laboratory.

AFL 212 The Evolution of USAF Air and Space Power II 1(1-2)

Air Force heritage. Evolution of air power concepts and doctrine; introduction to ethics and values; introduction to leadership; continuing application of communication skills. Leadership laboratory.

AFL 321 Air Force Leadership Studies I 3-4(Spec)

Communication, management, and ethical skills for Air Force officers. Emphasizes standards and professionalism in the modern officer corps. Leadership laboratory required for AFROTC cadets.

AFL 322 Air Force Leadership Studies II 3-4(Spec)

Leadership theory, traditional Air Force management functions, and current practices. Emphasizes the application of leadership concepts by junior officers. Leadership laboratory required for AFROTC cadets. Recommended: AFL 321.

AFL 421 National Security Affairs 3-4(Spec)

Formation and implementation of defense policy and strategy. Bureaucratic interplay and impact of nuclear technology. Investigation of current defense issues. Leadership laboratory required for AROTC cadets. Recommended: AFL 322.

AFL 422 National Security Affairs and Preparation for Active Duty 3-4(Spec)

Role of the professional officer in a democratic society. Global security issues. Military justice and the laws of war. Leadership laboratory required for AFROTC cadets. Recommended: AFL 421.

ANT - Anthropology

See the Department of Sociology, Anthropology and Social Work for more information. **Note:** Prerequisites for any courses in anthropology may be waived by permission of the Department Chair and the instructor.

ANT 110 Meet Your Ancestors and Other Distant Relatives 3(3-0)

An introduction to human place in nature, including our relationship to non-human primates and the adaptations and behavior of Neanderthals and other early human groups. (University Program Group II-A: Descriptive Sciences)

ANT 120 Ancient Insights into Current Crises 3(3-0)

A survey of major archaeological discoveries around the world considered within the context of past and contemporary problems faced by human societies. (University Program Group III-B: Studies in Social Structures)

ANT 170 Cultural Anthropology 3(3-0)

Comparative study of contemporary cultures and impact of globalization on cultural diversity, including methods and theories employed. May be offered as Writing Intensive. (University Program Group III B: Studies in Social Structures)

ANT 171 Human Origins: Introduction to Physical Anthropology 3(3-0)

Introduction to human and primate evolution, and the origin of human hereditary variations. (University Program Group II-A: Descriptive Sciences)

ANT 173 Laboratory in Physical Anthropology 1(0-2)

Laboratory practicum surveying the techniques and procedures by which evidence is developed and analyzed in studying human variation and evolution. Satisfies University Program Group II laboratory requirement. Pre/Co-requisite: ANT 171 or 110. (University Program Group II-A: Descriptive Sciences)

ANT 174 Introduction to Prehistoric Archaeology: From Stone Age to Civilization 3(3-0)

The development of culture in Africa, Asia, and Europe to the rise of urban civilizations. How archaeological evidence is obtained, analyzed, dated, and interpreted.

ANT 175 Archaeology of the Americas 3(3-0)

Archaeology of the Americas from the earliest peopling of the Western Hemisphere to the rise of civilizations such as the Maya, Aztec, and Inca. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ANT 200 Education and Culture 3(3-0)

Processes of learning from infancy through adolescence across cultures and institutions, including family and school. Origins and spread of mass education. Educational disparities and inequality. (University Program Group III-B: Studies in Social Structures)

ANT 202 Anthropology of Gender 3(3-0)

Examination of gender and sexuality across cultures and through time through the lens of anthropology.

ANT 205 Social Justice in a Global Society 3(3-0)

Introduction to key concepts in global social justice, foundational human rights instruments and processes, contemporary manifestations of social injustice, and the role of social action. Identical to SOC 205; credit may not be earned in more than one of these courses. (University Program Group III-B: Studies in Social Structures)

ANT 250WI Water as Life, Death, and Power 3(2-2)

Problems of water access, water-borne pathogens, water treatment, and power relationships in global cultures from anthropology, biology, and chemistry perspectives, via lecture and seminar. Identical to BIO 250 and CHM 250. Credit may not be earned in more than one of these courses. May not be applied to any Biology major or the Biology minor. May not be applied to Chemistry or Biochemistry major or minor. Writing Intensive. Recommended: ANT 171 or 170; BIO 101 or 110 or 111; CHM 111 or 120 or 131. (University Program Group III-B: Studies in Social Structures)

ANT 265WI Medicine, Health and Illness: Why Culture Matters 3(3-0)

How culture shapes medicine, health and illness by defining patients, problems, treatments and the production and distribution of care. An introduction to medical anthropology. Writing Intensive. (University Program Group III-B: Studies in Social Structures)

ANT 276 Language and Culture 3(3-0)

Theory and methods of linguistic anthropology, the study of language use in cultural contexts. Recommended: ANT 170. May be offered as Writing Intensive.

ANT 320 North American Indian Cultures 3(3-0)

Diversity of North American Indian cultures, their experiences of colonization and culture change, and their contributions to American and global cultures. This course may be offered in an online or hybrid format. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

ANT 321 Cultures of Latin America 3(3-0)

Indigenous, European, and African origins and contemporary diversity of cultures of Latin America. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ANT 322 Cultures of Africa 3(3-0)

Cultures of Africa, their history and contemporary diversity. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ANT 324 Cultures of the South Pacific 3(3-0)

Culture and social change in Melanesia, Micronesia, and Polynesia. Human settlement, ecology, indigenous cosmologies, evolution of socio-political institutions. Colonial legacy in the region. Contemporary issues. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ANT 340 South American Archaeology 3(3-0)

Archaeology of South America. Emphasis on the Central Andean region. Introduction to documentation and interpretation of cultural developments from earliest human occupations to European conquest. Prerequisite: ANT 175.

ANT 342 Principles of Forensic Anthropology 3(3-0)

An introduction to the principles of forensic anthropology, including identification of human skeletal remains, search/recovery of human remains and estimation of time since death. Prerequisites: ANT 171 or BIO 101.

ANT 344 Michigan Archaeology 3(3-0)

Michigan archaeology from the first peopling of the area to historic times. Changing adaptive patterns examined in the context of the Great Lakes region and North America generally. Recommended: ANT 174 or 175.

ANT 345 Cultural Resource Management in Archaeology 3(3-0)

Introduction to the laws and practice of Cultural Resource Management (CRM) and applied archaeology within public, private, and governmental settings. Recommended: ANT 174 or 175.

ANT 347 Human Evolution 3(3-0)

Fossil evidence of human evolution and its analysis within a theoretical framework of ongoing evolutionary forces and basic phylogenetic principles. Prerequisite: ANT 171.

ANT 348 Stone-Age Europe: Peoples and Cultures of the Distant Past 3(3-0)

Ancient peoples and cultures of Europe from the perspective of anthropological archaeology, beginning perhaps 800,000 years ago and developing through Paleolithic, Mesolithic, and Neolithic periods.

ANT 351 Human Variation, Race, and the Mistakes We Make 3(3-0)

An examination of human biological and genetic variation, and analysis of the misconceptions we develop when viewing human biological variation through a racial lens. Recommended: ANT 110 or ANT 171 or BIO 101 or BIO 105QR or BIO 111 or BIO 151.

ANT 353 Contested Boundaries: The US-Mexico Border 3(3-0)

An examination of the historical development and contemporary cultural, economic and political issues concerning the US-Mexico border and US Southwest. Identical to CGL 353. Credit may not be earned in more than one of these courses. (University Program Group III-B: Studies in Social Structures)

ANT 356 Primate Behavior 3(3-0)

Applying principles of evolution to primate behavior with emphasis on effects of ecology on social relations and group organizations. Recommended: ANT 171 or BIO 101.

ANT 358 Diseases and Human Evolution 3(3-0)

Etiological and ecological approaches to human diseases; how diseases affect past and contemporary humans; explorations of interactions between human biology, biological/cultural adaptation, and disease. Prerequisite: ANT 171 or ANT 250 or BIO 101 or BIO 110 or BIO 250 or CHM 250.

ANT 365 Current American Indian Issues 3(3-0)

Current social, economic, political, and cultural issues affecting American Indians; social movements of resistance and change. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

ANT 370 Global Environmental Issues 3(3-0)

Social and cultural dimensions of global population issues, food and energy policies, destruction of indigenous lifeways, roles of multinational organizations, environmental racism, and environmental movements. Identical to SOC 370; credit may not be earned in more than one of these courses.

ANT 380 Culture through Art 3(3-0)

Theories and methods from anthropology and the arts, addressing historical and at-hand research questions. Includes archaeological and ethnographic perspectives. Recommended: ANT 170.

ANT 426 Archaeological Theory 3(3-0)

Nature of archaeological evidence, methods of analysis, theories and problems in interpretation and explanation of the human past. Offered in alternate years in rotation with ANT 451. Prerequisite: ANT 175.

ANT 430 Applied Anthropology 3(3-0)

The application of basic research and methods in the subfields of anthropology to address contemporary socio-cultural problems related to human diversity across ethnicity, "race," class and gender. Prerequisites: ANT 170, 171, and 175.

ANT 450 Ethnographic Methods and Research Design 3(3-0)

Ethnographic methods, ethics, and research design in cultural anthropology. Identical to SOC 450. Credit may not be earned in more than one of these courses. Prerequisite: ANT 170.

ANT 451 History of Anthropological Thought 3(3-0)

Development of anthropological theory. Key persons, concepts, and schools of thought. This course given in alternate years in rotation with ANT 426. Prerequisite: ANT 170.

ANT 457 Globalization and Society 3(3-0)

Effects of the global economy on the division of labor, transnational migration, social inequality, ethnic identities, gender relations, and other aspects of social organization. Identical to SOC 457; credit may not be earned in more than one of these courses. Prerequisites: SOC 100 or 201 or 221 or ANT 170.

ANT 459 Anthropology of Religion 3(3-0)

Anthropological approaches to religions in global and local contexts. May be offered as Writing Intensive. Recommended: ANT 170.

ANT 461 Race, Racism and Human Evolution 3(3-0)

This course examines the relationship between science and social policies that impact "race" historically and in the present day. Prerequisites: ANT 351, or a signed major or minor in Anthropology and junior or senior status.

ANT 465 Capstone Experience in Anthropology 3(3-0)

A current topic of broad anthropological interest, as approached from the various perspectives of the sub-disciplines. Prerequisites: Authorized major or minor in Anthropology, and junior or senior standing, and ANT 170, 171, either ANT 174 or 175.

ANT 498 Independent Studies In Anthropology 1-12(Spec)

Directed reading or research on an approved topic. Not open to students on academic probation. Prerequisites: 9 hours of Anthropology at the 200-level or higher; permission of instructor.

ANT 500 Field School in Archaeology 3-6(Spec)

Intensive practical experience in field survey, excavation, and laboratory analysis of resulting materials. Prerequisite: ANT 174 or 175 or 240; and permission of instructor.

ANT 506 Comparative Cultural Systems 3(3-0)

Explores theories of cultural development, with particular emphasis on urban and post-industrial cultures. Students investigate cultures different from their own. Identical to SOC 506. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format. Prerequisite: One anthropology or sociology course.

ANT 520 Medical Anthropology 3(3-0)

Transcultural variations in conceptions of health, illness, disease, sickness and healing; cultural practices and social, political, economic and global forces that impact these conditions. Prerequisites: Six credits of cultural anthropology and/or sociology.

ANT 521 North American Indian Ethnohistory 3(3-0)

The history of Native American peoples in North America since 1492, impact of colonization and U.S. policy upon Native Americans, and ethno-historical theory and methodology. Identical to CRM 521. Credit may not be earned in more than one of these courses. Prerequisite: Senior standing and ANT 320 or 365 or HST 323; or graduate standing.

ANT 531 Capstone Experience in Global Justice 3(3-0)

Capstone course synthesizes course work on the issues of global social justice/injustice. Explores roots, consequences, types, policy approaches, and strategies for pursuing global justice. Identical to SOC 531. Credit may not be earned in more than one of these courses. Prerequisites: SOC/ANT 101; 15 hours in the Global Justice Minor; Completion of the Service Learning component of the Global Justice Minor; and Approval of the Global Justice Advisor. May be taken by SOC or ANT Majors with the approval of the Global Justice Advisor. Or, graduate standing.

ANT 532 Global Aging: Cross-Cultural Aging in a Globalized World 3(3-0)

Comparative study of cultural shapings, expressions and experiences of contemporary aging. Social and cultural responses to perceived problems of aging. Transformations of aging under globalization. Cross listed with SOC 532. Credit may only be earned for one of these courses. Prerequisite: Six credits of cultural anthropology, gerontology and/or sociology.

ANT 540 Archaeological Field and Laboratory Techniques 3(3-0)

Practical instruction in archaeological methods including field survey and excavation; description, classification, data analysis, and documentation of cultural materials in the laboratory. Identical to CRM 540. Credit may not be earned in more than one of these courses. Prerequisites: ANT 175 and one of the following: ANT 340, 344, 348; or Graduate standing.

ANT 542 Methods in Forensic Anthropology: Osteology and Skeletal Analysis 4(3-2)

Lectures and laboratory training in forensic identification and analysis of human skeletal remains for utilization by criminal justice authorities, missing persons bureaus, archaeologists and paleoanthropologists. Identical to CRM 542. Credit may not be earned in more than one of these courses. Prerequisites: ANT 173, 342, or 347; or graduate standing.

ANT 544 Great Lakes Archaeology 3(3-0)

Examination of prehistoric cultural trends and societies in the Great Lakes region within the context of broader trends in eastern North America and impact of historic Euroamerican settlement. Identical to CRM 544. Credit may not be earned in more than one of these courses. Prerequisites: ANT 175; or Graduate standing.

ANT 588 Special Topics in Anthropology 1-10(Spec)

Consideration of subject matter not included in courses currently listed in catalog. Prerequisite: 15 credit hours in Anthropology or Graduate Standing.

ANT 590 Gender, Culture & Society 3(3-0)

Analysis of gender roles in various cultures; theoretical approaches to explaining gender role variation. Identical to SOC 590 and WGS 590. Credit may not be earned in more than one of these courses. (Not open to students who have completed ANT 490 or WGS 490.) Prerequisites: 6 hours of anthropology and/or sociology and/or women's studies.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- ANT 600 Advanced Field Methods in Archaeology 1-6(Spec)**
ANT 626 Theory and Research in Archaeology 3(3-0)
ANT 645 Cultural Resource Management in Archaeology 3(3-0)
ANT 698 Independent Studies in Anthropology 1-12(Spec)
ANT 700 Directed Student Research in Archaeology 1-6(Spec)
ANT 798 Thesis 3-6(Spec)

ARB - Arabic

See the Department of World Languages and Cultures for more information.

- ARB 101 Elementary Arabic I 4(4-0)**
 Basic Arabic language skills and culture. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)
ARB 102 Elementary Arabic II 4(4-0)
 Basic Arabic language skills and culture. Continuation of ARB 101. Recommended: ARB 101. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ART - Art

See the Department of Art and Design for more information.

- ART 096 Art Event Attendance 0(0-0)**
 Attendance at lectures, exhibition openings or workshops as approved by the Department of Art and Design. Students are required to register for and complete ART 096 for every semester they have a signed BFA in Studio Art, Graphic Design, BA in Art History or a BAA in Studio Art. CR/NC only. Prerequisite: Signed BFA in Studio Art or Graphic Art, or signed BA in Art History, or signed BAA in Studio Art.
- ART 106 Introduction to Drawing 3(0-6)**
 Introduction to drawing media and techniques with a focus on drawing from observation and to formal principles of composition and conceptual inventiveness.
- ART 114 Understanding Digital Photography 3(3-0)**
 Introduction to the basic compositional skills and conceptual applications of digital photography. This course cannot be applied to any Art Major or Minor. This course is approved for offering in a distance learning format.
- ART 115 2-D Design 3(0-6)**
 Introduction to form and its relation to the 2-dimensional surface. Focus on the elements and principles of design, creative problem solving and visual literacy.
- ART 117 Introduction to Contemporary Issues in Art 3(3-0)**
 Introduction to the aesthetic theory and visual language of Modernism, Post-Modernism, and Post-Postmodernism.
- ART 118 3-D Design 3(0-6)**
 Introduction to elements and principles of design, creative problem solving, and visual literacy as it applies to 3-dimensional form, space, and time.
- ART 119 Design Foundations 3(0-6)**
 Introduction to elements and principles of design and their application, including creative problem solving and visual literacy, as it applies to two and three-dimensional form.
- ART 125 Digital Design 3(0-6)**
 Introduction to elements and principles of design, creative problem solving and visual literacy as it applies to digital media.
- ART 126 Introduction to the Visual Arts 3(3-0)**
 To develop an aesthetic awareness, appreciation, and understanding of the visual arts through an introduction to media, formal analysis, and interpretation. This course may be offered in an online format. May be offered as Writing Intensive. (University Program Group I-B: The Arts)
- ART 130 Painting I 3(0-6)**
 An introduction to painting with the exploration of media, techniques, and the concepts of space, form, and color.
- ART 150 Printmaking I 3(0-6)**
 An introduction to intaglio and lithography printmaking techniques as a fine art. Prerequisite: ART 106.
- ART 175 Fiber Structures and Weaving 3(0-6)**
 Introduction to concepts and techniques of weaving and off-loom structures such as basketry, felting, fabric collage and dyeing.
- ART 202 Introduction to Digital Fabrication 3(0-6)**
 Introduction to digital fabrication, such as 3D modeling and printing, used in the creation of a final product or as component in the creative process.
- ART 205 Drawing II 3(0-6)**
 A concentration in experimental media, techniques, spatial relationships, and conceptual processes of drawing. Prerequisites: ART 106, ART 115.
- ART 207 Introduction to Animation: Traditional Media 3(0-6)**
 Basic film animation with no previous animation experience required. This course covers basic traditional animation techniques in a variety of 2-D and 3-D materials. Prerequisite: ART 106 or 125 or BCA 223.
- ART 214 Introduction to Ceramics 3(2-3)**
 An introduction to hand-building and wheel-throwing processes with an emphasis on technical, formal, historical, and conceptual development.
- ART 217 Introduction to Figure Drawing 3(0-6)**
 Introduction to the study of the human figure in drawing with emphasis on three-dimensional representation, proportions, and anatomical structure. Prerequisite: ART 106.
- ART 230 Painting II 3(0-6)**
 Continuation of the aims of ART 130 (Painting I), with emphasis on problems concerning conceptual and perceptual approaches to dealing with color and composition. Prerequisite: ART 130.
- ART 231 Introduction to Graphic Design 3(0-6)**
 An introduction to the theory and practice of communication design. An emphasis is placed on technical and aesthetic fundamentals.
- ART 233 Introduction to Painting 3(0-6)**
 An introduction to painting media and techniques with a focus on painting from observation in order to express light, space, form through the use of color.
- ART 235 Logo and Identity Design 3(0-6)**
 A continuation of ART 135, with emphasis on development of conceptualization and visualization skills. The course focuses on printed materials that apply to identity systems. Prerequisites: ART 135.
- ART 240 Photography II: Digital Montage & Studio Lighting 3(0-6)**
 Digital photography assignments emphasizing digital compositing and artificial lighting techniques. Prerequisite: ART 241.
- ART 241 Introduction to Photography 3(0-6)**
 Introduction to the basic technical and conceptual skills of digital photography as a fine art.
- ART 250 Printmaking II 3(0-6)**
 A continuation of Printmaking I with additional emphasis on conceptual development and more advanced printing methods within fine art printmaking. Prerequisites: ART 150.
- ART 251 Introduction to Printmaking 3(0-6)**
 An introduction to fine art printmaking. This course explores a variety of print techniques including relief, intaglio, lithography and/or silkscreen. Recommended: ART 106.
- ART 258 Everyday Web Design 3(0-6)**
 Web design as it relates to personal development and options for an on-line presence. This course does not count toward the Graphic Design Concentration.
- ART 260 Making Multiples: Sculpture 3(0-6)**
 A continuation and expansion of the skills developed in ART 261. This course focuses on the development and the creation of sculptural multiples. Prerequisite: ART 261.
- ART 261 Introduction to Sculpture 3(0-6)**
 An introduction to the basic tools, techniques, processes, materials, history and concepts of traditional and contemporary sculpture.
- ART 274 Introduction to Fibers 3(0-6)**
 Introduction to concepts, materials, and techniques of fiber arts such as weaving, felting, dyeing, basketry, and papermaking.
- ART 275 Papermaking/Book Arts I 3(0-6)**
 An introduction to techniques and aesthetics for making handmade paper for 2-D and 3-D forms including basic bookbinding. Prerequisites: ART 115 or 175.
- ART 283 Introduction to Western Art, Part I 3(3-0)**
 History of Western art from prehistoric through medieval periods. Roots of western cultures seen in differing artistic styles and attitudes. (University Program Group I-A: Human Events and Ideas)
- ART 285 Introduction to Western Art, Part II 3(3-0)**
 History of Western art from the Renaissance to the twentieth century. Relations of form and content to cultural attitudes. Unique contributions of major artists. (University Program Group I-A: Human Events and Ideas)
- ART 287 Introduction to Non-Western Art 3(3-0)**
 An introduction to the visual arts of non-European cultures: Africa, Oceania, Asia and the Americas. Explores relations between arts, philosophies, and ways of life.
- ART 297 Special Studies 1-6(Spec)**
 A general introduction to specialized topics, techniques, materials. Studio and/or scholarly areas.
- ART 301 Visiting Artist Studio Experience 3-9(Spec)**
 A studio course taught by the visiting Artist-In-Residence. Repeatable up to nine hours when course content previously studied is not duplicated. Prerequisite: ART 106 or 115.
- ART 305 Drawing III 3(0-6)**
 Advanced work building on Drawing I and II with emphasis on contemporary trends in drawing and a more mature conceptual expression. Prerequisite: ART 205.
- ART 307 2D Digital Animation I 3(0-6)**
 2D digital animation techniques from simple graphics and FX to visual storytelling. Tools needed for basic motion design and compositing will be covered. Prerequisite: ART 207.
- ART 308 Storyboarding for Animation 3(0-6)**
 A creative exploration into visual storytelling for short film. Students will explore camera, staging and pacing to develop stories with potential for producing original content. Prerequisite: ART 207. Recommended: ART 106.

ART 312 Special Studies in Art History 3-9(3-0)

Study of an art historical topic outside of the scope of regular departmental offerings, as selected by instructor. This course is repeatable when content is not duplicated. Prerequisite: Completion of 26 credit hours.

ART 313 Ceramics: Hand-building 3(0-6)

A continuation of the hand-building skills acquired in ART 214 covering vessel and sculpture making with an emphasis on technical, formal, and conceptual development. Prerequisite: ART 214.

ART 314 Ceramics Studio: Wheel-throwing 3(0-6)

A continuation of the wheel-throwing skills acquired in ART 214 focusing on vessel making with an emphasis on technical, formal, and conceptual development. Prerequisite: ART 214.

ART 316 Intermediate Figure Drawing 3(0-6)

Continuation of figure drawing at the intermediate level. Study of proportions and anatomy leading to competency in defining three-dimensional and spatial aspects of the figure. Prerequisite: ART 217.

ART 317 Digital Art History and Archaeology 3(2-3)

Contemporary digital techniques and processes used in art history and archaeology. Prerequisite: Completion of 26 credit hours.

ART 319 The Methods of Art History 3(3-0)

Learn how to think like an art historian. Explore the ways art historians interpret art. Develop research skills on art historical topics. Prerequisite: Completion of 36 credit hours, including 6 credit hours in art history.

ART 330 Painting III 3(0-6)

Emphasis on individual development and refinement of personal expression in various approaches to painting. Prerequisite: ART 230.

ART 334 Watercolor Painting 3(0-6)

Exploration of transparent watercolor techniques including dry-brush and mixed-media, and development of an understanding of paper surfaces and pigment compositions. Prerequisites: ART 106, ART 115, ART 130.

ART 335 Design Bureau 3(0-6)

Investigations into the conception and production of communication graphic solutions for real-world clients in a group or "bureau" pre-professional studio setting. Prerequisite: signed BFA with a concentration in Graphic Design.

ART 336 Illustration 3(0-6)

Basic methods of black and white and color digital illustration with a specific focus for the graphic designer. Prerequisites: ART 106, 115.

ART 341 History of Photography 3(3-0)

The history of photography from the advent of the camera obscura to the present, emphasizing the contributions of major photographers.

ART 342 Alternative Photographic Processes 3-6(Spec)

Creative work using experimental lens-based image capture and alternative printing methods. Prerequisite: ART 241.

ART 343 Art in the Elementary School Grades K-4 3(3-0)

An art methods class for the art education major covering developmentally appropriate curricula and content for the elementary school student. Prerequisites: ART 106, ART 115, ART 118, and Tier Two - Admission of Candidacy to Teacher Education.

ART 344 Art in the Middle School Grades 5-8 3(3-0)

An art methods class for the art education major covering developmentally appropriate curricula and content for the middle school student. Prerequisites: ART 106, 115, 118, 343, and admission to the Teacher Education program.

ART 345 Art in the Elementary School 2(1-2)

This course investigates the essential role of art in adolescent learning. Requisite knowledge, skills, and pedagogies are acquired through readings, lecture, studio, and clinical practice. Prerequisite: Tier One - Pre-Admission of Candidacy to Teacher Education.

ART 346 Secondary School Art and Mid-Tier Observation 3(2-2)

Similar to ART 345, but applicable to the secondary grades. Students enrolled are required to put in a maximum of 2 hours per week in Mid-tier observation. Prerequisite: Tier Two - Admission of Candidacy to Teacher Education.

ART 349 Typography 3(0-6)

An intensive survey of the history and application of letterform. Prerequisite: ART 231.

ART 350 Printmaking III 3(0-6)

A continuation of Printmaking II with additional emphasis on conceptual development and more advanced printing methods within fine art printmaking. Prerequisite: ART 250.

ART 351 Screen Printing 3(0-6)

Printmaking studio course focusing on the various methods and technique relating to the silkscreen process. Conceptual, formal and technical development will be emphasized. Recommended: Art 106.

ART 358 Web Design I 3(0-6)

Web design as it relates to graphic design. Prerequisites: ART 349; signed BFA with a concentration in graphic design.

ART 360 Figurative Sculpture 3(0-6)

A continuation and expansion of the skills developed in ART 261. This course focuses on the development and the creation of figurative sculpture. Prerequisite: ART 261.

ART 362 Metal Sculpture 3(0-6)

A continuation and expansion of the basic skills of metal sculpture. This course focuses on the development and the creation of sculpture utilizing metals. Prerequisites: ART 260 or 360.

ART 363 History of Design: 1750-2010 3(3-0)

Survey of the development of the applied arts in material culture from the beginning of the Industrial Revolution into the twenty-first century. Recommended: Sophomore standing or above. (University Program Group I-A: Human Events and Ideas)

ART 366 Contemporary Design Issues 3(3-0)

A survey of the ethical, conceptual, and stylistic trends driving contemporary design theory and practice. Prerequisites: Sophomore standing or above.

ART 375 Surface Design on Fabric 3(0-6)

The application of patterning and color with dyes and pigments through silkscreen, batik, resist tie-dye, and painting on fabric. Prerequisites: ART 115 or 175.

ART 380 Greek Art and Architecture 3(3-0)

The art and architecture of ancient Greece from the Bronze Age to Hellenistic periods. May be offered as Writing Intensive. Prerequisites: Completion of 26 credit hours.

ART 381 Early Christian and Byzantine Art 3(3-0)

Art of the early church. Byzantine Art from the reign of Theodosius I to the fall of Constantinople in the fifteenth century. May be offered as Writing Intensive. Prerequisite: Completion of 26 credit hours.

ART 382 Gender and Art 3(3-0)

Examines how gender identity has played a role in art. Examines artists, patrons, viewers, and subjects of representations as gendered and historically specific entities. Identical to WGS 382. Credit cannot be earned in more than one of these courses. Prerequisite: Completion of 26 credit hours.

ART 383 Modern Architecture 3(3-0)

The history of building styles, technologies, and architectural theory in Europe and the United States from the late 19th century to the present. Prerequisite: ART 285.

ART 385 European Art from 1890-1940 3(3-0)

A history and analysis of European art from 1890 to 1940. Prerequisite: ART 285.

ART 386 American Art 3(3-0)

History of American art from the colonial period to World War II. Prerequisite: ART 285.

ART 387 Baroque Art 3(3-0)

An examination of the art and architecture of the Baroque period in Europe in the context of social, political and religious developments. Prerequisite: Completion of 26 hours of coursework.

ART 388 Eighteenth-Century Art 3(3-0)

An examination of eighteenth-century painting, prints, sculpture, architecture, and decorative arts of Europe and America in the context of social, political and intellectual developments. Prerequisite: Completion of 26 hours of coursework.

ART 389 Art of the Ancient Near East and Egypt 3(3-0)

The art and architecture of Mesopotamia, Egypt, and the Levant from the origins of civilization through the Persian Empire. Prerequisite: Completion of 26 credit hours.

ART 391 African Art 3(3-0)

Study of the art of sub-Saharan Africa, with an emphasis on art's role in the daily lives, social customs, and religions of particular African societies. Prerequisite: Completion of 26 credit hours.

ART 397 Special Studies 1-6(Spec)

In-depth consideration of specialized topics, techniques, and material in studio, scholarly areas.

ART 405 Advanced Drawing 3(0-6)

Exploring more advanced concepts in drawing techniques, spatial relationships, and personal expression. Prerequisites: ART 217, 305.

ART 406 Drawing Studio 3-9(Spec)

An upper level course in drawing with emphasis on spatial relationships, experimentation with media, and conceptual processes of drawing as avenues toward personal expression. Prerequisite: ART 106.

ART 414 Ceramics Studio 3-9(Spec)

Students work with various processes associated with ceramics with an emphasis on beginning to develop a personal working direction and a unified body of work. Prerequisite: ART 214.

ART 416 Advanced Figure Drawing 3(0-6)

Continuation of figure drawing experience at the advanced level. Exploration of figure dynamics, and the application of the theories of foreshortening, and creative composition. Prerequisite: ART 316.

ART 417 Figure Drawing Studio 3-9(Spec)

The study of proportion, anatomy, and definition of form as an avenue to the expressive possibilities of drawing the human figure. Prerequisite: ART 217.

ART 430 Painting IV 3(0-6)

Independent inquiry in painting where the mode of expression is consistent. Regular consultation with instructor is required. Prerequisite: ART 330.

ART 433 Painting Studio 3-9(Spec)

An upper level course in painting with emphasis on color relationships, paint development, experimentation, and conceptual development, while developing personal expression. Prerequisite: ART 233.

ART 435 Professional Design Practices 3(0-6)

Development of print production and portfolio skills in preparation for employment in the communication design field. Prerequisites: Signed BFA with a concentration in Graphic Design. Pre/Co-requisites: ART 335.

ART 436 Graphic Design Internship 3(Spec)

Supervised internship of 180 hours in a graphic design firm or related field designed to complement classroom learning. Prerequisites: ART 235, 349; signed BFA with a concentration in Graphic Design; minimum of 56 credit hours completed and permission of instructor.

ART 438 Motion Graphics 3(0-6)

Introduction to computer-aided animation theory and application. Prerequisites: ART 235, 349; signed BFA with a concentration in graphic design.

ART 441 Photography Lighting Studio 3-6(Spec)

An upper level studio course in fine art photography with emphasis on technical refinement, conceptual development and professional presentation. Prerequisite: ART 241.

ART 446 Visual Arts and Aesthetic Education 3(3-0)

Exploration of the developmental methods and growth of aesthetic education in culture as it relates to secondary school curricula. Prerequisite: Admission to teacher education.

ART 449 Advanced Typography 3(0-6)

Advanced study in the theory and development of letterform. Prerequisites: ART 349, signed BFA with a concentration in graphic design.

ART 450 Printmaking IV 3(0-6)

A continuation of Printmaking III, with emphasis on conceptual development and advanced printing methods. Development of a fine art print portfolio. Prerequisite: ART 350.

ART 451 Printmaking Studio 3-9(Spec)

An upper-level studio course in fine art printmaking with emphasis on technical refinement, conceptual development and professional presentation. Prerequisite: ART 251.

ART 458 Web Design II 3(0-6)

Advanced web design as it relates to graphic design. Prerequisites: ART 358, signed BFA with a concentration in graphic design.

ART 460 Contemporary Bronze Casting 3-6(Spec)

ART 460 (beginning and advanced) is an advanced sculpture course focusing on the development of skills and the creation of bronze casting. Prerequisite: ART 260 or 360.

ART 462 Public Sculpture 3(0-6)

An investigation of the contemporary practices, history and concepts of public sculpture, combining research of techniques, processes and materials of installation, performance and environmental art. Prerequisites: ART 260 or 360.

ART 463 Sculpture Studio 3-9(Spec)

A continuation and expansion of skills developed in Introduction to Sculpture with an emphasis on developing a personal working direction and a unified body of work. Prerequisite: ART 261.

ART 471 BFA Exhibition 3(3-0)

Capstone experience for the B.F.A. art student, including a thesis exhibition, an artist's statement, talk and final portfolio; and strategies for a successful post-graduate career. Must be taken in the last semester prior to graduation. Prerequisites: Signed BFA in Art and senior standing.

ART 472 Graphic Design Capstone Experience 3(0-6)

A graphic design capstone experience focusing on the development of a personal design philosophy, a senior project and exhibition, a public presentation of work and a portfolio critique by an external assessor. Must be taken in one of the last two semesters prior to graduation. Prerequisites: ART 435; signed BFA with concentration in graphic design; and senior standing.

ART 474 Fibers Studio 3-9(Spec)

Intermediate level exploration of fiber concepts and techniques with custom dyed fabrics, weavings, and handmade paper and books. Prerequisite: ART 274.

ART 475 Papermaking/Book Arts II 3(0-6)

An advanced level investigation of techniques and aesthetics for making handmade paper for 2-D and 3-D forms including book binding. Prerequisite: ART 275.

ART 480 Roman Art and Architecture 3(3-0)

The art of Rome and the Roman world from earliest times to Constantine the Great. Prerequisite: ART 185.

ART 481 Western Medieval Art 3(3-0)

Art of western Europe from the fall of Rome to 1500. Origins of Romanesque art and dissemination of the French Gothic style throughout Europe. Prerequisite: Completion of 26 credit hours.

ART 482 Italian Renaissance Art 3(3-0)

An examination of the art and architecture of fifteenth- and sixteenth-century Italy in the context of social, political, and religious developments. Prerequisite: Completion of 26 hours of coursework.

ART 483 Nineteenth Century European Art 3(3-0)

Stylistic evolution of nineteenth century European art as viewed against its political and cultural background. Neo-classicism, Romanticism, Realism, Impressionism, Post-Impressionism, the Pre-Raphaelites, and the Symbolists. Prerequisite: ART 285.

ART 484 From Impressionism to the Present: New York Galleries 2(Spec)

Travel course to New York City to study original works of art.

ART 485 Art after 1945 3(3-0)

A history and analysis of works of art from 1945 to the present. May be offered as Writing Intensive. Prerequisite: ART 285.

ART 486 Independent Study in Art History 1-6(Spec)

Independent study of a topic in art history selected by student in consultation with instructor. Prerequisite: permission of instructor.

ART 488 Northern Renaissance Art 3(3-0)

An examination of fifteenth- and sixteenth-century art in Northern Europe in the context of social, political and religious developments. Prerequisite: Completion of 26 hours of coursework.

ART 489 Islamic Art 3(3-0)

Art and architecture of the Islamic world from the rise of Islam through the 17th century. Prerequisite: Completion of 26 credit hours. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ART 493 Art History Internship 1-6(Spec)

Supervised work experience applying classroom concepts and skills to the operation and functioning of a museum, gallery, historic site or other art-related organization. Prerequisites: Completion of 26 credit hours; permission of instructor; signed Art History Major or Minor.

ART 494 Gallery Management 3(2-2)

Concepts and processes in the production of art exhibitions and gallery management. Students will select a theme, research and select art, develop interpretation and market an art exhibition. Prerequisites: MST 310, 320; ART 285; senior standing.

ART 495 Art History Study Abroad 1-9(Spec)

Experiential learning-based course incorporating study in a foreign country. Students learn methods for analyzing and interpreting art of other cultures alongside appropriate tools and techniques. Prerequisites: 26 credit hours; Permission of Study Abroad Director; Permission of Instructor.

ART 497 Special Studies 1-6(Spec)

Further study when scholarly/studio adequacy beyond ART 397 is achieved.

ART 498 BA/BS Capstone Experience 1(1-0)

Students will assemble a portfolio of their work and participate in a group portfolio review for a final capstone assessment. Course must be taken in one of the last two semesters prior to graduation. Prerequisites: Signed BA/BS in Art; and senior standing.

ART 499 BAA Senior Seminar 3(3-0)

Capstone course for the B.A.A. student, including development and presentation of senior portfolio, documentation of artwork, and professional strategies for establishing a successful career. Must be taken in one of the last two semesters prior to graduation. Prerequisites: Signed BAA in Art and senior standing.

ART 506 Advanced Drawing Studio 1-12(Spec)

An individualized studio experience for the advanced student in drawing media. Development of an independently directed body of work and portfolio. Prerequisite: ART 405.

ART 514 Advanced Ceramics 1-12(Spec)

Individualized studio work in ceramics as it relates to the creation of a cohesive and personal body of artwork. Prerequisite: 9 credit hours of ART 414.

ART 517 Advanced Figure Drawing Studio 1-12(Spec)

An individualized studio experience with emphasis on the human figure that would include problems in foreshortening, placement, and composition. Prerequisite: ART 416.

ART 533 Advanced Painting Studio 1-12(Spec)

An individualized studio experience for the advanced student of painting leading to artistic achievement and professional development. Prerequisite: ART 430.

ART 535 Emerging Media in Graphic Design 3(0-6)

Developments in visual communication and their application through each step of creating a complete design cycle focused on the principles of usability design. Prerequisites: ART 358, 438; signed BFA with a concentration in graphic design.

ART 541 Advanced Photography Studio 1-12(Spec)

An individualized studio experience for the advanced photography student, emphasizing long-term independent projects, critiques, and the creation of a professional portfolio. Prerequisite: ART 342 and ART 441.

ART 551 Advanced Printmaking Studio 1-12(Spec)

An individualized studio experience in printmaking beyond ART 450 competency. Development of a fine art print portfolio. Prerequisite: ART 450 or 9 hours of printmaking credit and graduate standing.

ART 556 Independent Studio 1-12(Spec)

An individualized studio experience determined in consultation with a faculty member. Prerequisites: minimum 56 credit hours or graduate standing.

ART 561 Advanced Sculpture Studio 1-12(Spec)

An individualized studio experience focusing on personal research of new techniques, processes, materials, history and concepts of traditional and contemporary sculpture, and professional development. Prerequisites: ART 460 or 462.

ART 574 Advanced Fibers Studio 1-12(Spec)

An individualized studio experience focusing on personal research of concepts, techniques, and materials of fibers. Prerequisite: 6 credit hours of ART 474.

ART 575 Surface Design on Fabric II 3(0-6)

Advanced techniques and aesthetics for the application of image, patterning, and color with dyes and pigments through silkscreen, batik, paints, resists, and transfers on fabric. Prerequisites: ART 375 or graduate standing.

ART 580 Seminar in Ancient/Medieval Art History 3-6(3-0)

Advanced study of a topic in ancient or medieval art history selected by instructor using readings, discussion, lecture, and research as appropriate. This course is repeatable when content is not duplicated. May be offered as Writing Intensive. May be taken for graduate credit. Prerequisites: ART 283, 319, and additional 6 hours of 300+ level art history courses; or graduate standing.

ART 581 Seminar in Early Modern Art History 3-6(3-0)

Advanced study of a topic in early modern art history selected by instructor using readings, discussion, lecture, and research as appropriate. This course is repeatable when content is not duplicated. May be taken for graduate credit. May be offered as Writing Intensive. Prerequisites: ART 285, 319, and additional 6 hours of 300+ level art history courses; or graduate standing.

ART 582 Seminar in Modern and Contemporary Art History 3-6(3-0)

Advanced study of a topic in modern and contemporary art history selected by instructor using readings, discussion, lecture, and research as appropriate. This course is repeatable when content is not duplicated. May be offered as Writing Intensive. Prerequisites: ART 285, 319, and additional 6 hours of 300+ level art history courses; or graduate standing.

ART 584 Drawing in Florence 3(Spec)

An advanced drawing course in Florence, Italy, using the city as a source of inspiration for creative work. Prerequisites: ART 106 and permission of instructor.

ART 586 Special Topics Seminar in Art History 3-9(3-0)

Advanced study of a thematic or cross-temporal art historical topic selected by instructor using readings, discussion, lecture, and research as appropriate. This course is repeatable when content is not duplicated. May be offered as Writing Intensive. Prerequisites: ART 319; additional 6 hours of 300+ level art history courses; or graduate standing.

ART 589 Research Seminar in Art History 3(3-0)

Seminar supporting research projects in art history. Must be taken in one of the last two semesters prior to graduation. May be taken for graduate credit. Prerequisites: 3 credits of 500-level art history and signed Art History major; or graduate standing.

ART 597 Special Studies 1-6(Spec)

Further in-depth graduate study when scholarly/studio adequacy beyond ART 497 is achieved.

ASL - American Sign Language

See the Department of Communication Sciences & Disorders for more information.

ASL 100 Introduction to the Deaf Community and Deaf Culture 3(3-0)

An introduction to the audiological, social, linguistic, and cultural aspects of Deafness and the Deaf Community. This course may be offered in an online format.

ASL 101 American Sign Language, Level I 3(3-0)

Basic receptive and expressive American Sign Language (ASL) vocabulary and grammatical structure; fingerspelling; and conversational behavior. Basic understanding of Deaf Culture and ASL linguistics. This course may be offered in an online format.

ASL 102 American Sign Language, Level II 3(3-0)

Basic receptive and expressive ASL vocabulary, grammar, fingerspelling, and conversational behavior. Basic understanding of Deaf Culture and ASL linguistics. A continuation of ASL 101. Prerequisite: ASL 101.

ASL 201 American Sign Language, Level III 3(3-0)

Intermediate conversational American Sign Language. Beginning development of intermediate-level receptive and expressive skills. Continued consideration of Deaf Culture and ASL linguistics. Prerequisite: ASL 102.

ASL 202 American Sign Language, Level IV 3(3-0)

Further development of intermediate-level receptive and expressive ASL vocabulary, grammar, fingerspelling, and conversational behavior; Deaf Culture and ASL linguistics. Continuation of ASL 201. Prerequisite: ASL 201.

ASL 300 Introduction to the DeafBlind Community 3(3-0)

An introduction to the diversity of the DeafBlind community, including etiologies, accommodations for vision and hearing losses, communication strategies, supports, and social issues. Prerequisites: ASL 100, 202.

ASL 390 Sociocultural History of the American Deaf Community 3(3-0)

Social and cultural aspects of persons who self-identify as members of the American Deaf community, including history, patterns of social interaction, folklore, and art. Prerequisites: ASL 100, 202.

ASL 401 American Sign Language Level V 3(3-0)

Advanced conversational American Sign Language. Beginning development of advanced-level receptive and expressive skills. Continued consideration of Deaf Culture and ASL linguistics. Prerequisites: ASL 100, ASL 202.

ASL 402 American Sign Language Level VI 3(3-0)

Advanced conversational American Sign Language. Continued development of advanced-level receptive and expressive skills. Continued consideration of Deaf Culture and ASL linguistics. Prerequisites: ASL 100, ASL 401.

ASL 404 Advanced Fingerspelling and Numbers 3(3-0)

Reading/comprehending and producing fingerspelled words and numbers; emphasis on clarity, accuracy, incorporation into conversational ASL. Prerequisites: ASL 100, ASL 202.

ASL 510 ASL Linguistics 3(3-0)

This course will examine the linguistics of American Sign Language. Topics will include the form, content and use of ASL; the relationship between ASL, spoken languages, and other signed languages; ASL acquisition; and historical change in ASL. Prerequisites: ASL 100, ASL 202.

ASL 590 Independent Study 1-4(Spec)

Student-initiated study of a topic related to the ASL minor guided by a faculty member or faculty committee. Prerequisites: ASL 100, ASL 202, permission of instructor.

ASL 593 Jamaica Study Abroad 3(Spec)

An international cultural and language immersion experience. Students apply their ASL skills while learning about Jamaican mainstream and Deaf culture by providing ASL instructional support in a Jamaican residential school for Deaf and Hard of Hearing children. Prerequisites: ASL 202; ASL 100 or 390; or graduate status; permission of instructor.

ASL 594 ASL in Elementary Education 3(Spec)

Students apply their ASL skills and knowledge of Deaf culture by providing ASL instruction in a community educational enrichment program for elementary school children. Prerequisite: ASL 202; ASL 100 or 390; permission of instructor.

ASL 595 Community Placements with Deaf Children and Adults 3(1-3)

Students apply their American Sign Language skills and knowledge of Deaf culture by working in community placements with Deaf children and/or adults. Prerequisites: ASL 202; ASL 100 or 390; and permission of instructor.

ASL 597 American Sign Language Teaching Assistantship 3(Spec)

Students apply their American Sign Language skills and knowledge of Deaf culture by assisting in the provision of ASL instruction in a university ASL course. Prerequisites: ASL 202; ASL 100 or 390; and permission of instructor. Recommendations: Letter of support from university ASL course instructor.

ASL 599 Special Topics 1-6(Spec)

Study of a selected topic, specific application, or current issue related to but not covered by the ASL Minor curriculum. Prerequisites: ASL 100, ASL 202, permission of instructor.

AST - Astronomy

See the Department of Physics for more information.

AST 111 Astronomy 3(3-0)

An overview of modern astronomy which illustrates the basic physical principles and methodologies underlying all the sciences. Topics include the solar system, stars and stellar systems, galaxies and cosmology. This course may be offered in an online or hybrid format. (University Program Group II-A: Descriptive Sciences)

AST 112 Introduction to Astronomical Observations 1(0-2)

The observation and interpretation of the sky using the naked eye, small telescopes, celestial globes, and star maps. Supplements AST 111 by providing observational experience. Satisfies University Program Group II laboratory requirement. This course may be offered in an online or hybrid format. Pre/Co-Requisite: AST 111. (University Program Group II-A: Descriptive Sciences)

AST 165 Foundations of Astronomy 1(0-2)

Inquiry-based survey of astronomy including the observation and interpretation of the sky using the naked eye. Topics include solar system, stars, and galaxies.

AST 260 General Astronomy I 4(3-2)

A mathematical treatment of modern astronomy for majors/minors in the sciences. Coordinate systems, astronomical instruments, time, moon and eclipses, earth as a planet, other solar system objects. Prerequisite: PHY 145.

AST 261 General Astronomy II 4(3-2)

A continuation of AST 260. Stellar astronomy, interstellar matter, galactic structure, galaxies, quasars, cosmology. Prerequisite: AST 260.

AST 511 Astronomy for Teachers 3(2-2)

Teaching astronomy in the elementary, middle, and secondary schools. Appropriate subject matter, student activities, demonstrations, experiments, sources of astronomical materials, planetarium utilization. Prerequisite: AST 111.

AST 562 Observational Astronomy 4(3-2)

Astronomical coordinate systems, astronomical instruments, and the techniques of astronomical direct imaging, photometry, and spectroscopy. Prerequisites: AST 260, 261 or graduate standing. Pre/Co-requisite: PHY 322 or graduate standing.

AST 563 Astrophysics 3(3-0)

Stellar atmospheres, stellar interiors, interstellar matter and topics of current interest. Prerequisites: AST 261; PHY 332.

AST 580 Special Topics in Astronomy 1-9(Spec)

Topics in astronomy or astrophysics not ordinarily covered in regular courses. Prerequisites: As specified in course syllabus.

AST 590 Independent Study 1-6(Spec)

Individual study in an area not covered in regular courses. Prior permission of the instructor must be obtained. Prerequisites: AST 260 and permission of instructor.

ATR - Athletic Training

See the *School of Rehabilitation and Medical Sciences* for more information.

ATR 100 Foundations of Athletic Training 3(3-0)

Introduction to the profession of athletic training. Exploration of the professional practice for athletic trainers and performance domains.

ATR 200 Functional Anatomy for Athletic Trainers 3(2-3)

Functional human anatomy focusing on surface anatomy, palpation of anatomical landmarks, and the fundamental principles of human movement for the athletic trainer. Pre/Co-requisite: ATR 100. Recommended: HSC 211.

ATR 280 Field Experience in Athletic Training 3(Spec)

Content related to the selection process for the Athletic Training major. Student will be assigned a clinical field experience under the supervision of a preceptor. CR/NC Only. Prerequisites: ATR 200; 24 credits; Submission of Athletic Training Application.

ATR 310 Athletic Training Clinical I 1(Spec)

First of four clinical courses. Introduction to the clinical education environment and clinical decision-making. A clinical field experience under the supervision of a preceptor is required. CR/NC Only. Prerequisite: Selection into the Athletic Training major. Co-requisites: ATR 380, 382.

ATR 315 Injury Prevention I 1(Spec)

Evidence combined with theoretical application and appropriate selection of preventative devices, which includes various taping, wrapping, and bracing techniques as well as protective equipment. Prerequisite: Selection to the Athletic Training Major. Co-requisites: ATR 310, 380, 382.

ATR 320 Athletic Training Clinical II 1(Spec)

Second of four clinical courses integrating didactic learning and patient care. A clinical field experience under the supervision of a preceptor is required. CR/NC Only. Prerequisites: ATR 310, 380, 382. Co-requisites: ATR 381, 383.

ATR 380 Athletic Training Assessment I 3(2-2)

Knowledge and skills necessary to conduct a clinical examination, recognize signs/ symptoms and formulate a clinical diagnosis. Focus primarily on the lower extremity musculoskeletal injury. Prerequisites: Selection into the Athletic Training major. Co-requisites: ATR 310, 382.

ATR 381 Athletic Training Therapeutics I 3(2-2)

Application of therapeutic techniques with primary emphasis on therapeutic modalities. Other topics include tissue healing and pain management. Prerequisite: ATR 380, 382. Co-requisite: ATR 320, 383.

ATR 382 Athletic Training Assessment II 3(2-2)

Companion course with Assessment I. Knowledge and skills necessary to conduct a clinical examination, recognize signs/symptoms and formulate a clinical diagnosis. Focus primarily on the upper extremity musculoskeletal injury. Prerequisite: Selection to the Athletic Training major. Co-requisites: ATR 310, 380.

ATR 383 Athletic Training Therapeutics II 3(2-2)

Application of therapeutic techniques with primary emphasis on therapeutic exercise. Other topics include goal writing, goniometry, and girth. Prerequisites: ATR 380, 382. Co-requisites: ATR 320, 381.

ATR 384 Athletic Training Assessment III 3(3-0)

Etiology, evaluation and recognition of illnesses and general medical conditions. Prerequisites: ATR 320, 380, 382. Co-requisites: ATR 390, 394, 430.

ATR 385 Special Topics in Athletic Training 1-6(Spec)

Selected topics/current issues of interest in athletic training not normally included in existing courses. Current course topic is listed in the semester Class Schedule. Repeatable up to 6 credits when content does not duplicate previous topics studied. This course may be offered in an online or hybrid format. Prerequisites: See semester Class Schedule.

ATR 387 Athletic Training Therapeutics III 3(2-1)

Application of manual therapy techniques. Prerequisite: ATR 383.

ATR 390WI Seminar in Athletic Training 3(3-0)

Exploration of topics in athletic training using evidence-based concepts and principles. Writing Intensive. Prerequisite: ATR 320. Co-requisites: ATR 384, 394, 430.

ATR 394 Pharmacology in Athletic Training 2(2-0)

Basic pharmacological principles of common medications used in the treatment of illness and injury encountered in the practice of athletic training. Prerequisites: CHM 120, 127 or 131; ATR 320. Co-requisite: ATR 384.

ATR 397 Independent Study in Athletic Training 1-3(Spec)

Student-initiated study guided by a faculty member. Prerequisites: ATR 320; permission of Athletic Training Program Director and Course Instructor; completion of Course Contract document.

ATR 415 Injury Prevention II 1(1-0)

Application and implementation of advanced strength and reconditioning principles for the purpose of injury prevention in athletic training. Prerequisite: ATR 384, 390, 430. Co-requisites: ATR 440, 480.

ATR 430 Athletic Training Clinical III 1(Spec)

Third of four clinical course integrating didactic learning and patient care. A clinical field experience under the supervision of a clinical preceptor is required. Prerequisites: ATR 320, 381, 382. Co-requisites: ATR 384, 390, 394.

ATR 440 Athletic Training Clinical IV 1(Spec)

Fourth of four clinical education course integrating didactic learning, clinical decision-making and patient care. A clinical field experience under the supervision of a preceptor is required. Prerequisites: ATR 430, 384, 394. Co-requisite: ATR 480.

ATR 441 Pre-Internship and Professional Development 1(Spec)

Preparation for the AT internship experience; Application process for AT certification and state credentials; Final preparation for the prospective entry-level AT professional. Prerequisites: ATR 390, 430. Co-requisite: ATR 478.

ATR 478WI Research Methods in Athletic Training 3(3-0)

Introduction to methods of planning, evaluating and conducting research in athletic training. Writing Intensive. Prerequisites: ATR 390, 430. Co-requisite: ATR 441.

ATR 480 Health Care Administration in Athletic Training 3(3-0)

Prepares athletic training students to administer programs and manage facilities that provide health care services to athletes and other individuals. Prerequisites: ATR 384, 394, 430. Co-requisite: ATR 440.

ATR 481 Athletic Training Practicum 3(Spec)

A capstone experience applying athletic training didactic knowledge and clinical skills in a practical "on the job" environment concurrently with student teaching. Prerequisite: ATR 441. Co-requisite: EDU 458.

ATR 482 Athletic Training Internship 12(Spec)

A capstone experience applying athletic training didactic knowledge and clinical skills in a practical "on-the-job" environment. Prerequisite: ATR 441.

ATR 585 Special Topics 1-3(Spec)

Exploration of selected topics in the field of athletic training, sports medicine or other health related areas. Topic and prerequisites will be printed in Course Search and Registration materials. Repeatable up to 3 credits with different topics. This course may be offered in an online or hybrid format. Prerequisites: Determined specific to the topic presented. See Course Search and Registration.

AUD - Audiology

See the *Department of Communication Sciences & Disorders* for more information.

For graduate level course descriptions above 600, consult the current *College of Graduate Studies Bulletin*.

AUD 643 Disorders of Hearing 3(3-0)**AUD 720 Anatomy and Physiology Underlying Neuro-otology 3(3-0)****AUD 730 Experimental Studies in Communication Disorders 3(3-0)****AUD 731 Diagnostic Audiology 3(3-0)****AUD 740 Neuroanatomy 3(3-0)****AUD 741 Special Topics in Audiology 1-9(Spec)****AUD 744 Occupational and Environmental Hearing Conservation 3(3-0)****AUD 750 Advanced Hearing Science 3(3-0)****AUD 752 Amplification for Individuals with Hearing Loss 3(3-0)****AUD 754 Pediatric Audiology 3(3-0)****AUD 757 Geriatric Audiology 3(3-0)****AUD 759 Introduction to Clinical Practicum: Audiology 2-6(Spec)****AUD 763 Audiological Rehabilitation Considerations in Education 3(3-0)****AUD 764 Audiologic Rehabilitation for Adults 3(3-0)****AUD 765 Cochlear Implants and Other Implantable Technologies 3(3-0)****AUD 769 Intermediate Clinical Practicum: Audiology 3-9(Spec)****AUD 771 Seminars in Audiology 3(3-0)****AUD 773 Advanced Amplification Fitting Strategies 3(2-2)****AUD 781 Electrophysiological Techniques in Audiology 3(2-2)****AUD 782 Evaluation and Management of Vestibular Disorders 3(3-0)****AUD 783 Advanced Electrophysiological and Vestibular Techniques in Audiology 3(3-0)****AUD 785 Auditory Processing Disorders 3(3-0)****AUD 849 Advanced Clinical Practicum: Audiology 4-12(Spec)****AUD 853 Psychosocial Aspects of Hearing Loss 3(3-0)****AUD 863 Professional Issues in the Practice of Audiology 3(3-0)****AUD 898 Doctoral Project 1-12(Spec)****AUD 995 Clinical Externship 5-23(Spec)**

BCA - Broadcast and Cinematic Arts

See the *School of Broadcast and Cinematic Arts* for more information.

BCA 101 History and Appreciation of the Cinema 3(2-2)

History and critical analysis of outstanding fiction films and filmmakers. Innovations from early silents to the present. This course may be offered in an online or hybrid format. (University Program Group I-A: Human Events and Ideas)

BCA 210 Survey of the Mass Media 4(4-0)

Examination of historical, political, economic, social and legal evolution of mass media. Emphasis on mass media and their content in a social and cultural context.

BCA 211WI Introduction to Writing for Electronic Media 3(3-0)

Introduction to creating written content for various forms of electronic media. Writing Intensive. Prerequisites: ENG 101 with a minimum grade of B or ENG 103/193 with a minimum grade of B or ELI 198 with a minimum grade of B or ENG 201 with a minimum grade of B.

BCA 222 Audio Production 3(1-4)

The art and science of sound acoustics and basic audio and radio production. Prerequisites: BCA 210 with a C or better; or a signed minor in Multimedia Design.

BCA 223 Video Production 3(1-4)

Introductory course in video studio systems. Emphasis on structuring and integrating the various production elements that comprise video presentations. Prerequisites: BCA 210 with a C or better; or a signed minor in Multimedia Design.

BCA 265QR Understanding Media Measurement 3(3-0)

Quantitative reasoning skills in electronic media management and media audience measurement. Quantitative Reasoning. (University Program Group III-B: Studies in Social Structures)

BCA 290 French Film and Other Media 3(3-0)

French cinema in historical and cultural context; works of Gance, Clair, Renoir, *Carne* and New Wave; overview of other media; includes field trip to France. (Taught in English. Does not count toward the French major or minor.) Prerequisites: Not open to first semester freshmen. Because the course involves international travel, all students must apply through the Office of International Education.

BCA 300 African and African American Film 3(3-0)

Examination of films by and about Africans and African Americans. First part of course deals with African and second part with African American films. (University Program Group I-B: The Arts)

BCA 309 Mediated Communication & Global Identity 3(3-0)

Analysis of American and International media to identify assumptions about global citizenship and how global citizenship relates to issues such as race/ethnicity and identity. Identical to COM 309. Credit may not be earned in more than one of these courses. Prerequisites: A minimum of 12 completed credit hours. Because the course involves international travel, all students must apply through the Office of International Education. Recommended: A minimum of 56 completed credit hours.

BCA 310 Understanding New Communication Technologies 3(3-0)

A study of new and emerging communication technologies applied in mass media industries with emphasis on industrial, social, public policy, and technological changes. This course may be offered in an online or hybrid delivery format.

BCA 311WI Electronic Media Copywriting 3(3-0)

Practice in the pervasive short forms of audio and video writing: commercials, continuity, public service announcements, and campaign evolution. Writing Intensive. Prerequisite: BCA 211 with a grade of C or better; or signed Integrative Public Relations major with a grade of B or better in ENG 101, ENG 103/193, ELI 198 or ENG 201.

BCA 317 Electronic Media Performance 3(2-2)

Study of, and laboratory experience in, common electronic media performance situations. Prerequisite: BCA 210 with a grade of C or better.

BCA 318WI Electronic Media News Writing 3(3-0)

Techniques and principles of writing and producing news copy for electronic media. Writing Intensive. Prerequisite: BCA 211 with C or better; or signed Integrative Public Relations major with a grade of B or better in ENG 101, ENG 103/193, ELI 198, or ENG 201.

BCA 320 Special Topics in Electronic Media 1-9(Spec)

Consideration of subjects not listed in the regular department offerings. Repeatable when content does not duplicate previous special topics studies. Maximum credit, nine hours.

BCA 329 Practicum in Electronic Media 1-8(Spec)

Directed experience in electronic media. Maximum of 4 hours applicable to degree program. Only 4 hours can count toward a BCA major and 2 hours toward a minor. CR/NC only. Prerequisites: Minimum 2.25 GPA; permission of instructor.

BCA 332 Online Electronic Media 3(2-2)

Examination of online communication technologies, including social media, virtual spaces, and content-management systems, and their effects on the electronic media and society. Prerequisites: BCA 210 with a grade of C or better; or IPR 101 with a grade of C or better.

BCA 342 Field Audio Production 3(2-2)

Study and practice of field audio recording and production techniques for electronic media application and distribution. Prerequisites: BCA 222 with a C or better.

BCA 399 Electronic Media Career Building 1(1-0)

Strategies for obtaining entry level electronic media positions, and career building strategies for a successful career progression in electronic media. Prerequisite: BCA 210 with a C or better and a minimum of 56 completed credit hours.

BCA 411WI Long-Form Electronic Media Writing 3(3-0)

Techniques for writing extended radio/television scripts, emphasizing narrative, structure and characterization, and creative team dynamics in long-form electronic media formats. Writing Intensive. Prerequisites: BCA 311 with a C or better.

BCA 421 Advanced Audio Production 3(2-2)

Study and practice in advanced audio recording, mixing and editing for electronic media industries. Prerequisite: BCA 222 with a grade of "C" or better.

BCA 440 Introduction to Cinematic Production and Post Production 3(2-2)

Introduction to single-camera/cinema-style video production and post production, including producing, directing, lighting, camera operation and non-linear editing. Prerequisite: BCA 223 with a grade of C or better.

BCA 441 Multi-Camera Video Producing and Directing 3(2-2)

Introduction to multi-camera video producing and directing, including studio and field-remote production environments. Prerequisite: BCA 223 with a grade of C or better.

BCA 451 Practicum in Electronic Media Sales 3(1-4)

Directed sales experience at approved departmental student broadcast, cable and electronic facilities. Class serves as a capstone for the Electronic Media Sales minor. Prerequisites: MKT 340, 420; open only to signed Electronic Media Sales minors. Pre/Co-Requisites: BCA 511.

BCA 490 Independent Study in Electronic Media 1-4(Spec)

Student-initiated study guided by faculty or faculty committee. Maximum of 4 hours may be applied to degree. Does not fulfill requirements for a minimum of six (6) 400-500 level hours of electives in major. Prerequisites: Signed BCA major or minor; minimum BCA GPA of 3.0; Independent Study Project Prospectus approved by the study supervisor.

BCA 499 Senior Capstone Seminar 1(1-0)

Capstone assessment of the student's professional strengths and weaknesses plus refinement of strategies for establishing a successful post-graduate career. Prerequisites: Signed BCA major; senior standing; BCA 222, 223, 503, 510; BCA 310 or 332; BCA 311 or 318.

BCA 503WI Critiquing Mass Media 3(3-0)

Critical appraisal of mass communications systems and content with special attention to the electronic media's aesthetic properties and economic, political and societal effects. Writing Intensive. Prerequisites: BCA 210 with a C or better or signed Cinema Studies minor or graduate standing.

BCA 506WI Series Script Writing For Visual Media 3(3-0)

Techniques for creating episodic and serial scripts, emphasizing story structure, characterization, and creative team dynamics for electronic media series. Writing Intensive. Prerequisites: BCA 211 with a grade of C or better; limited to juniors or above; or graduate standing.

BCA 508WI Screenwriting for Cinematic Narrative 3(3-0)

Techniques, formatting styles and aesthetic strategies for writing and analyzing short- and feature-length cinematic narrative screenplays, emphasizing characterization, plot and structure. Writing Intensive. Prerequisites: BCA 211 with a grade of C or better; limited to juniors or above; or graduate standing.

BCA 510 Electronic Media Law 3(3-0)

Regulation of the electronic media. Examination of legal and administrative materials and cases. Prerequisites: BCA 210 with a C or better and junior standing or above; or graduate standing.

BCA 511 Electronic Media Sales 3(3-0)

Organizational systems and processes of sales in electronic media. Emphasis on techniques found most reliable in modern sales practices in radio, television, internet and cable. Prerequisites: BCA 265; limited to junior standing or above or graduate standing.

BCA 512 Electronic Media Promotion 3(3-0)

Tools and techniques of promotion for electronic media. Emphasis on media needs, community relations and problems unique to the electronic media promoter. Prerequisites: BCA 210 with a C or better or signed Integrative Public Relations major; BCA 311; limited to juniors or above; or graduate standing.

BCA 515 Sports Broadcasting 3(2-2)

Overview of the sports broadcasting industry. Emphasis on tools and techniques of live-event production and electronic sports reporting. Prerequisites: BCA 210, 317 each with C or better; or graduate standing in Broadcast and Cinematic Arts.

BCA 516WI Electronic Media Management 3(3-0)

Discusses management in contemporary American electronic media settings. Writing Intensive. Prerequisites: Limited to juniors or above; or graduate standing.

BCA 517 Advanced Audio and Video Performance 3(2-2)

Study and intensive practice in complex media performance situations. Special emphasis on realistic laboratory experience designed to explore the professional requirements of electronic media talent. Prerequisites: BCA 317 with a grade of "C" or better; or graduate standing in Broadcast and Cinematic Arts.

BCA 518 Electronic News Reporting 3(2-2)

Techniques of news gathering, reporting, and interviewing for electronic media. Prerequisites: BCA 318 with a C or better; or graduate standing.

BCA 519 Electronic Media Programming 3(3-0)

Examination of electronic media programming in terms of recent trends and strategies. Prerequisites: BCA 265.

BCA 520 Special Topics in Electronic Media 1-9(Spec)

Current topics for each semester listed in Course Search and Registration. Repeatable up to 9 hours when content does not duplicate previous special topic studies. Prerequisites: Limited to juniors or above; or graduate standing in Broadcast and Cinematic Arts.

BCA 521 Advanced Electronic Cinematography 3(2-2)

Advanced theory and practice in the production of short form narrative video, with emphasis on the aesthetic aspects of lighting, direction and editing. Prerequisites: BCA 223, 440 each with a grade of C or better; limited to juniors or above; or graduate standing.

BCA 522 Multimedia Audio Post-Production 3(2-2)

Advanced recording, editing, sweetening, synchronizing and mixing of audio for picture in multimedia applications. Prerequisites: BCA 223, 421 with a grade of C or better in each; or graduate standing in Broadcast and Cinematic Arts.

BCA 524 Producing Television News 3(1-4)

A practical approach to producing news. Encompasses gathering, writing, producing, and directing news programming over local cable outlets. Prerequisites: BCA 318 or 223; limited to juniors or above or graduate standing in Broadcast and Cinematic Arts.

BCA 525 Film Genre Study 3-9(Spec)

In-depth examination of selected film genres, themes and trends. Repeatable up to 9 hours when content previously studied is not duplicated. This course may be offered in an online or hybrid format. Prerequisites: Limited to juniors or above; or graduate standing.

BCA 527 Film Directors 3-9(Spec)

Critical examination of selected film directors, focusing on their themes and visual style. Repeatable up to nine hours when content previously studied is not duplicated. Prerequisites: Limited to juniors or above; or graduate standing in Broadcast and Cinematic Arts.

BCA 528 History and Analysis of Nonfiction Film 3(2-2)

History of the non-fiction film, with emphasis on narrative, aesthetic and rhetorical dimensions, as well as production, distribution and consumption conditions. Prerequisites: Limited to juniors or above; or graduate standing in Broadcast and Cinematic Arts.

BCA 529 Internship in Electronic Media-Film 2-6(Spec)

Directed work experience at participating media venues. May count 6 hours maximum toward a major; 3 hours toward a minor. Minimum 2.5 GPA required. Prerequisite: prior written approval of BCA Intern Director; limited to juniors or above; open only to signed BCA majors or minors.

BCA 531 Industrial and Educational Video/Media Production 3(2-2)

Lecture and intensive hands-on theory, design and production of video and interactive programs specifically for and within institutional/corporate settings. Prerequisites: BCA 223, 440 with a minimum grade of C in each; limited to juniors or above; or graduate standing.

BCA 532 Advanced Video/Multimedia Post-Production 3(2-2)

Lecture and intensive hands-on theory, design and production of multimedia/interactive digital video, with emphasis on advanced post-production technologies and techniques. Prerequisites: BCA 223, 440 with a grade of C or better; or graduate standing.

BCA 533 Advanced Electronic Media Design 3(2-2)

Advanced examination of website production, streaming, and stored audio/video media, specifically for electronic media outlets. Emphasis on design aesthetics, application of theory, and website maintenance. Prerequisites: BCA 332; or graduate standing in Broadcast and Cinematic Arts.

BCA 540WI Recording Industry & Business 3(3-0)

Exploration of the music recording industry, music copyrights and music industry business strategies to reach consumers in the physical and online domains. Writing Intensive. Prerequisites: Limited to juniors or above; or graduate standing.

BCA 542 Contemporary Recording & Mixing 3(2-2)

Advanced recording, mixing and mastering techniques of contemporary music for multimedia distribution. Summer session only. Laboratory hours arranged with instructor. Prerequisites: BCA 421 with a grade of B or better; or graduate standing in Broadcast and Cinematic Arts.

BCA 560 Radio Operations I 3(1-4)

Preparation and performance in radio broadcast practices, emphasizing daily operations and radio management principles. Summer Session I only. Laboratory hours arranged with instructor. Prerequisites: Minimum 2.25 GPA, BCA 222 or 317; or graduate standing in Broadcast and Cinematic Arts.

BCA 561 Radio Operations II 3(1-4)

Preparation and performance in radio broadcast practices, emphasizing radio programming and promotion principles. Summer Session II only. Laboratory hours arranged with instructor. Prerequisites: Minimum 2.25 GPA, BCA 222 or 317, BCA 560; or graduate standing in Broadcast and Cinematic Arts.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

BCA 600 Introduction to Electronic Media Research and Writing 3(3-0)**BCA 601 Theories of Mass Communication 3(3-0)****BCA 603 Qualitative Mass Communication Research Methods 3(3-0)****BCA 604 Quantitative Mass Communication Research Methods 3(3-0)****BCA 611 Seminar in Telecommunications Media Policy 3(3-0)****BCA 612 Electronic Media Seminar 3(3-0)****BCA 613 Media Entrepreneurship 3(3-0)****BCA 619 Continuing Registration for Final Research Project 1(1-0)****BCA 625 Film and Video Theory and Criticism 3(3-0)****BCA 720 Special Topics in Mass Media 3-9(Spec)****BCA 729 Advanced Independent Study in Electronic Media 1-9(Spec)****BCA 730 Plan B Project Research 3(3-0)****BCA 798 Thesis 1-6(Spec)****BIO - Biology**

See the Department of Biology for more information.

BIO 100 Introduction to Field Biology at Beaver Island 3(1-4)

Introduction to methods used in field study and analyses of data. Emphasis on basic relationships between organisms and their environment. At Beaver Island only. Does not count towards any Biology Major.

BIO 101 General Biology 3(2-2)

The study of living organisms. Fundamental principles of biology are integrated with local and global issues of current interest. No credit toward Biology major or minor. May be used toward satisfying the requirements of Integrated Science major or minor for students seeking certification in Elementary education only. Credit may not be earned in more than one of: BIO 101, BIO 105, BIO 110, and 165. Satisfies University Program Group II laboratory requirement. This course may be offered in a hybrid or online format. (University Program Group II-A: Descriptive Sciences)

BIO 105QR Introductory Quantitative Biology 3(2-2)

Introduction to basic biological principles, including quantitative treatments of ecology, evolution, cellular processes, genetics and diversity. No credit towards Biology Major or Minor. This course may be offered in an online or hybrid format. Satisfies University Program Group II laboratory requirement. Quantitative Reasoning. (University Program Group II-B: Quantitative and Mathematical Sciences)

BIO 110 Concepts of Biology 4(3-3)

Fundamental concepts of biology including the chemical basis of life, cell structure and function, molecular and transmission genetics, evolution and ecology. May be applied towards fulfilling the requirements of any Biology major or minor. Students may only earn credit in one of the following: BIO 101, BIO 105, or BIO 110. Satisfies University Program Group II laboratory requirement. Recommended: High school chemistry or CHM 120 and 127 or 131 or 161. (University Program Group II-A: Descriptive Sciences)

BIO 111 Foundations of Evolution and Diversity 4(3-3)

Basic principles of evolution and the application of these principles to the history and diversity of life. Satisfies University Program Group II laboratory requirement. (University Program Group II-A: Descriptive Sciences)

BIO 112 Foundations of Cell Biology 4(3-3)

Structure and function of bacteria, archaea, and eukaryotic cells including biological molecules, bioenergetics, membrane transport, respiration, photosynthesis, cell communication, and cell division. Prerequisite: BIO 111 with a C- or better. Prerequisite/Co-requisite: CHM 131.

BIO 151 Human Biology 3(3-0)

An introduction to human biology as a scientific discipline, cell biology, genetics, homeostasis, selected organ systems, biotechnology and current issues. This course may not be used to satisfy the requirements for a Biology major or minor. This course may be offered in a hybrid or online format. (University Program Group II-A: Descriptive Sciences)

BIO 165 Life Science for Elementary Teachers 4(3-3)

Survey of life science content aligned with state and national science education standards and introduction to science pedagogy for students seeking elementary teaching certification. This course satisfies the Group II laboratory requirement. Does not count toward Biology major or the Biology minor. (University Program Group II-A: Descriptive Sciences)

BIO 197 Special Topics in Biology 1-4(Spec)

Topics of special interest that are not normally included in existing courses. Prerequisites: Instructor's prerequisites will be announced in the Course Search and Registration.

BIO 208 Microbiology 4(3-3)

The biology of microorganisms: bacteria, archaea, viruses, fungi, algae, and protozoa. Does not count toward Biology majors or minors. Prerequisite: one of: BIO 101, 105, 110, 112, 151.

BIO 211 Foundations of Genetics 4(3-3)

Foundations and applications of molecular and transmission genetics in a diversity of organisms. Prerequisite: BIO 112 with a C- or better. Prerequisite/Co-requisite: CHM 132.

BIO 212 Foundations of Form and Function 4(3-3)

An integrative and comparative survey of plants, animals and microbes, with emphasis on their form and function. Prerequisite: BIO 211 with a grade of C- or better. Pre/Co-requisite: BIO 213.

BIO 213 Foundations of Ecology 4(3-3)

Study of the relationship between organisms and their environment. Prerequisite: BIO 112 with C- or better.

BIO 229 Nature Study 3(2-3)

Introduction to the ecology and evolution of organisms, populations, and communities of the Great Lakes Region. Emphasizes identification of characteristic flora and fauna. Does not count toward Biology majors or the Biology minor. This course satisfies the University Program Group II laboratory requirement. (University Program Group II-A: Descriptive Sciences)

BIO 240 Conservation of Natural Resources 3(3-0)

Ecological approaches to issues of global environmental sustainability, with emphasis on preservation of natural resources such as soil, water, forests, and wildlife. May be offered as Writing Intensive. (University Program Group II-A: Descriptive Sciences)

BIO 250WI Water as Life, Death, and Power 3(2-3)

Problems of water access, water-borne pathogens, water treatment, and power relationships in global cultures from anthropology, biology, and chemistry perspectives, via lecture and seminar. Identical to ANT 250 and CHM 250. Credit may not be earned in more than one of these courses. May not be applied to any Biology major or the Biology minor. May not be applied to Chemistry or Biochemistry major or minor. Writing Intensive. Recommended: ANT 171 or 170; BIO 101 or 110 or 111; CHM 111 or 120 or 131. (University Program Group III-B: Studies in Social Structures)

BIO 297 Special Topics in Biology 1-6(Spec)

Topics of special interest that are not normally included in existing courses. Prerequisites: Course prerequisites will be announced in the Course Search and Registration.

BIO 305 Entomology 3(2-3)

Structure, function, natural history, and control of insects. Identification to family level. Insect collection required.

BIO 306 Natural History of Vertebrates 3(2-3)

Vertebrate natural history emphasizing evolution, systematics, identification and general ecology studied through lecture, discussion, field trips and laboratory work. Includes experience in specimen preparation. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 218.

BIO 312 Life Manipulations 3(3-0)

Current technology and the ethical implications of issues such as contraception, artificial insemination, in vitro fertilization, cloning, genetic engineering, abortion, and euthanasia. Prerequisite: Completion of Group II requirements of the University Program.

BIO 315 Human Genetics 3(3-0)

Inheritance in humans, including genetic mechanisms, human populations, medical syndromes, eugenics and genetic counseling. Does not count toward Biology major or the Biology minor. This course is approved for offering in a distance learning format.

BIO 320 Biology of Microorganisms 4(3-3)

General microbiology course that explores the cell structure, metabolism, genetics, and diversity of microorganisms. Prerequisites: BIO 212, 213 both with a C- or better.

BIO 324 Eukaryotic Cell Biology 3(3-0)

Eukaryotic cellular structure and function, including experimental methods, membranes, trafficking, signaling, cytoskeleton, the cell cycle, and other cellular processes. Prerequisites: BIO 212, 213 both with a C- or better.

BIO 325 Biotechnology 3(1-5)

Laboratory experience emphasizing the theory and practice of techniques used in basic cell and molecular biology research and their applications in biotechnology. May be offered as Writing Intensive. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 211 with a grade of C- or better and a signed major in Biochemistry; or BIO 324 or 326; CHM 132.

BIO 326 Genetics 4(3-3)

The principles of heredity dealing with the location, transmission, structure and function of genes and the results of modern genetic techniques. Prerequisites: BIO 208; One of BIO 101, 105, 110.

BIO 330 Light Microscopy 3(2-2)

Principles and practice of biological light microscopy including sample preparation, use of dissecting, brightfield, and fluorescence microscopes and analysis of anatomy/histology of material. Prerequisite: 6 semester hours of biology.

BIO 334 Soil Science 3(2-2)

A lecture/field course introducing the physical, chemical, and biotic properties of soils, soil classification and mapping, and soil resource issues. Identical to GEO 334. Credit may not be earned in more than one of these courses. Prerequisites: CHM 120 or 131; one of the following: GEO 105, GEL 100, 101, 105, 130QR; or BIO 212, 213 with a C- or better.

BIO 337 Comparative Vertebrate Anatomy 4(3-3)

Comparison of the anatomy of vertebrates and close relatives with emphasis on evolutionary interpretation, systematics, ontogeny, functional morphology and adaptation. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 218.

BIO 338 Human Ecology 3(3-0)

The relationship of humans to their environment and the environmental consequences of human activities. Topics include climate change, biological invasions, biodiversity loss, emerging infectious diseases. Does not count toward biology majors or the biology minor. This course may be offered in an online format. This course may be offered as Writing Intensive.

BIO 340 Ecology 3(2-3)

Study of the relationships between organisms and their environment. Prerequisites: One of: BIO 101, 105, 110. Recommended: BIO 203 or 218.

BIO 365 Environmental Contaminants 3(3-0)

Survey of pesticide characteristics and residue problems, hazardous wastes, ground and surface water contaminants, air pollution and acid rain, and other environmental pollution concerns. Prerequisites: BIO 110 or 240; CHM 132 or 161. Recommended: CHM 345.

BIO 366 Freshwater Biology 3(2-3)

An introduction to the ecology of freshwater systems with an emphasis on the natural history, identification, and collection of freshwater organisms. Prerequisite: BIO 110.

BIO 367 Introduction to Marine Sciences 3(3-0)

This course will familiarize students with the biology of marine life. Physical factors, communities, and human impacts on the world's oceans will be presented. Prerequisites: BIO 212, 213 with a grade of C- or better; or BIO 218 with a grade of C- or better. Recommended: CHM 131.

BIO 390 Comparative Animal Physiology 4(3-3)

The study of the diversity of physiological mechanisms in animals, with emphasis on inter-species comparisons to highlight patterns of physiological adaptation. Prerequisites: BIO 218; CHM 132 or 161 or 342.

BIO 391 Plant Physiology 4(3-3)

The study of plant function including processes such as photosynthesis, water movement, growth and development, and plant response to environmental stress. Prerequisites: BIO 203 or BIO 212, 213 with a C- or better; CHM 120, 127 or 132. Recommended: CHM 421 or 425.

BIO 392 Mammalian Physiology 4(3-3)

The functioning of the mammalian body and its component parts, with an emphasis on human systems. Prerequisites: BIO 212, 213 with a C- or better, or BIO 208 or 211 with a C- or better and a signed major in biochemistry, biology in any option, biology/biomedical sciences, dietetics, neuroscience, or a signed science minor; CHM 132 or 342.

BIO 397 Special Topics in Biology 1-6(Spec)

Topics of special interest that are not normally included in existing courses. Prerequisites: Course prerequisites will be announced in the Course Search and Registration.

BIO 403WI Undergraduate Research 3-4(Spec)

Faculty-supervised research experience in the biological sciences. Requires planning with a faculty mentor the semester prior to enrollment. Writing Intensive. Prerequisites: BIO 212, 213 both with a grade of C- or better; permission of department chairperson. Recommended: Cumulative GPA of B (3.0) or better in all BIO courses.

BIO 435 Environmental Toxicology 3(3-0)

Introduction to basic principles of environmental toxicology. Students will evaluate toxic responses in people, animals, and the environment and formulate a response to health hazards. Prerequisites: BIO 208; CHM 342 or CHM 345.

BIO 440 Wildlife Ecology 3(3-0)

Examination of wildlife ecology as it pertains to the conservation and management of both game and nongame wildlife populations and their habitats. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 340.

BIO 487 Neuroscience Seminar 1-2(Spec)

Analysis of current research in specified areas of neuroscience; critiquing and discussing primary literature and the students' current research relating to specific topics. Students will repeat this course for a maximum of 2 credits. Identical to PSY 487. Credit may not be earned in more than one of these courses. Prerequisites: Signed Neuroscience Major and prior or concurrent neuroscience research experience through BIO 403 or PSY 496.

BIO 490 Biomedical Sciences Seminar 1-3(Spec)

Seminar course covering variable topics in an area of biomedical science. Students may repeat this course for a maximum of 3 credits. Prerequisites: BIO 324, 326, 392 or BIO 212, 213 both with a C- or better.

BIO 495 Undergraduate Internship in Biology 1-4(Spec)

An in-depth work experience in the student's area of interest performed under a trained professional in the selected area of biology for 6 to 24 weeks. Prerequisites: Signed Biology Major or Minor; 20 semester hours in Biology completed; minimum 3.0 GPA in biology.

BIO 497 Special Topics in Biology 1-9(Spec)

Topics of special interest that are not normally included in existing courses. Specific topics and instructor's prerequisites will be announced in Course Search and Registration. Prerequisites: BIO 212, 213 both with a grade of C- or better; Completion of 56 semester hours; See Course Search and Registration.

BIO 500 Biological Statistics 3(2-2)

An introduction to biological statistics; emphasis on concepts of descriptive statistics and central tendency, inferential statistics, one-way ANOVA and correlation/linear regression. Prerequisites: Graduate standing or twelve (12) hours of biology. Recommended MTH 130.

BIO 501 Evolution 3(3-0)

Mechanisms of descent with modification are discussed in a framework of microevolution, speciation, and macroevolution. Prerequisites: BIO 212, 213 both with a C- or better; or BIO 326; or admission to the Biology M.S., Conservation Biology M.S., Biochemistry, Cell and Molecular Biology M.S., Biochemistry, Cell and Molecular Biology Ph.D. program, or Earth and Ecosystem Sciences Ph.D. program.

BIO 502 Teaching Biology 3(2-3)

Development of pedagogical content knowledge for teaching of secondary biology; required training course for prospective teachers of biology. Prerequisites: Completion of at least 22 credits of BIO coursework; GPA of at least 2.7 in BIO classes; Tier Two - Admission of Candidacy to Teacher Education.

BIO 509 Ichthyology 4(3-3)

Anatomy, taxonomy, physiology, natural history, and ecology of fishes with laboratory emphasis on fishes of the Great lakes region. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 218; or graduate standing.

BIO 510 Fisheries Biology and Management 4(3-3)

Analysis of fish populations, management of fisheries resources, and other problems related to freshwater fisheries. Prerequisites: BIO 212, 213 both with a C- or better; or admission to the Biology M.S., Conservation Biology M.S., or Earth and Ecosystem Sciences Ph.D. program.

BIO 511 Aquatic Insects 3(1-4)

Natural history and systematic of freshwater insects. Prerequisites: BIO 218 or graduate standing.

BIO 515 Ornithology 4(2-4)

An introduction to avian biology emphasizing evolution, systematics, and the annual cycle. Identification, song, and general ecology are studied through field trips and laboratory work. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 218; or graduate standing.

BIO 518 Animal Behavior 3(2-3)

Behavior in invertebrate and vertebrate organisms related to genetics, morphology, and the ecology of animal populations. Prerequisites: BIO 218 or graduate standing.

BIO 519 Invertebrate Systematics and Ecology 4(2-4)

A review of the evolution and ecology of invertebrates with emphasis on the identification, collection and conservation of organisms in the Great Lakes region. Prerequisites: BIO 218 or Graduate Student Standing. Recommended: BIO 340.

BIO 520 Great Lakes Mollusks 2(1-3)

An examination of the ecology, life history, taxonomy, evolution, and conservation status of freshwater mollusks (bivalves and gastropods) from the Great Lakes region. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 218; or graduate standing.

BIO 523 Fresh Water Algae 4(2-4)

Taxonomy, morphology, and ecology including analysis and collection methods.

BIO 524 Molecular Biology 3(3-0)

Molecular nature of genes and recombinant DNA techniques, explored through the analysis of experimental data. Prerequisites: BIO 326, CHM 346; or graduate standing. Recommended: CHM 521, 522.

BIO 525 Plant Ecology 4(2-4)

A study of plants emphasizing physical and biotic interrelationships, and factors which govern their distribution. Field work stressed. Prerequisites: BIO 340; a plant identification course highly recommended.

BIO 526 Limnology 3(3-0)

Physical, chemical, and biological properties of inland aquatic ecosystems focusing on lakes. Topics include basin origin, light, mixing, organism diversity, nutrient cycling, and food webs. Prerequisites: BIO 212, 213 both with a C- or better; or BIO 340; or graduate standing. Recommended: One of: CHM 120, 132, 161.

BIO 527 Limnological Methods 2(0-4)

A quantitative examination of the physical, chemical and biological aspects of lake ecosystems. Pre/Co-Requisite: BIO 526.

BIO 534 Endocrinology 3(3-0)

Endocrine system function including major endocrine glands, hormone synthesis, mechanisms of hormone action, and regulation of key body functions. Prerequisites: BIO 212, 213, 392 all with a grade of C- or better; or graduate standing.

BIO 536 Histology 3(2-3)

A study of the principle cells and tissues of humans. Prerequisites: BIO 218 and 392; or graduate standing.

BIO 537 Immunology 3(3-0)

A description of the biological and biochemical mechanisms of the immune response. Emphasis will be placed on adaptive immunity activation, immunobiology, and immune system dysfunction. Prerequisites: BIO 212, 213 both with a C- or better and one of: BIO 320, 324, 392; or BIO 211 with a C- or better, BIO 392, and a signed major in biochemistry or neuroscience; or admission to the Biology M.S., Chemistry M.S., Biochemistry, Cell and Molecular Biology M.S., or Biochemistry, Cell and Molecular Biology Ph.D. program. Recommended: CHM 425 or 521.

BIO 539 Virology 3(3-0)

Basic principles of viral structure and replication. Provides a detailed survey of viruses, including emergent viral pathogens. Explores viral evolution, anti-viral drugs and vaccines. Prerequisites: BIO 324, 326 or Graduate Status in the Biology Department.

BIO 540 Mammalogy 4(3-3)

Survey of evolution, taxonomy, behavioral ecology, physiological ecology, conservation biology, and management as these relate to Class Mammalia. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 218; or graduate standing.

BIO 541 Wildlife Biology and Management 4(2-4)

Presents the basic ecological principles and the varied techniques utilized in managing the wildlife resource. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 340; or graduate standing.

BIO 544 Developmental Biology 4(3-3)

Patterns and cellular/molecular mechanisms of embryonic development, emphasizing animals. Prerequisites: BIO 212, 213 with a grade of C- or better; or BIO 324, 326; CHM 132 or 161.

BIO 545 Molecular Genetics 3(3-0)

Genetic approach to fundamental biological problems. Covers genetic techniques and modern molecular methods, including recombinant DNA technology and functional genomics in model systems and humans. May be offered as Writing Intensive. Prerequisites: BIO 212, 213 both with a C- or better; or BIO 211 with a C- or better and a signed major in Biochemistry or Neurosciences; or BIO 326; CHM 342 or 346; or graduate standing.

BIO 546 Molecular Genetics Laboratory 1(0-3)

Laboratory course, to accompany BIO 545, explores genetic techniques and modern molecular methods, including recombinant DNA technology and functional genomics in model systems. Pre/Co-requisites: BIO 545.

BIO 549 Herpetology 3(2-3)

Survey of extant amphibians and reptiles from standpoint of morphology, behavior, physiology, evolution, and ecology. Local collecting field trips required. Prerequisites: BIO 218 or graduate standing.

BIO 550 Transmission Electron Microscopy 4(1-6)

Biological specimen preparation and examination using transmission electron microscopy. Use of digital photography in electron micrograph production. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 324; BIO 330; or graduate standing; permission of instructor.

BIO 552 Scanning Electron Microscope Technique 4(3-3)

Principles and techniques of SEM including biological specimen preparation and examination. Use of digital photography in electron micrograph production. Prerequisites: BIO 212, 213 both with a grade of C- or better, or BIO 324; BIO 330; or graduate standing

BIO 553 Confocal Microscopy 3(2-3)

Principles and practice of biological confocal laser scanning microscopy, including sample preparation and the use of molecular probes. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 324; BIO 330; or graduate standing.

BIO 554 Advanced Electron Microscopy 3(1-4)

Routine maintenance, alignment and optimization of a TEM and an SEM for high resolution micrographs, as well as advanced techniques in specimen preparation. Prerequisites: BIO 550, BIO 552.

BIO 555 Great Lakes Wetland and Aquatic Plants 4(2-4)

The biology of wetland plants including: identification, systematics, and ecology. Students will visit wetlands throughout Michigan and learn to identify common wetland and aquatic plants. Prerequisites: BIO 203 or graduate standing.

BIO 556 Biological EDS Analysis 3(1-4)

Techniques for elemental analysis of biological specimens using an SEM with an energy dispersive spectrometer (EDS). Includes specimen preparation and operation of an EDS system. Prerequisite: BIO 552.

BIO 557 Woody Plants of Michigan 4(2-4)

The biology of woody plants including their identification, anatomy and physiology, systematics, ecology and evolution. Students will learn Michigan native trees and shrubs. Prerequisites: BIO 203; or BIO 212, 213 with a grade of C- or better; or graduate standing.

BIO 559 Field Botany 3(2-3)

The collection, identification, and preparation of herbarium specimens from the local flora. Prerequisites: BIO 203.

BIO 560 Avian Ecology 3(2-3)

The behavior, community organization, and ecological relationships of birds are examined through discussion of current literature, investigative field work, and other techniques. May be offered as Writing Intensive. Prerequisites: BIO 212, 213 both with a C- or better; or graduate standing. Recommended: BIO 515.

BIO 561 Wetland Ecology and Management 3(3-0)

The study of wetland ecosystem structure and function. Chemical, physical, and biological processes will be put into the context of conservation, management, and restoration. Prerequisite: BIO 340.

BIO 562 Plant Systematics and Evolution 4(3-3)

In-depth study, covering important topics in plant identification, evolution and systematics. Prerequisites: BIO 203 or graduate standing.

BIO 565 Microbial Diversity and Physiology 3(3-0)

This course explores the diversity of microorganisms, including methods for classifying microorganisms and assessing their diversity, and a detailed survey of microbial metabolic diversity. Prerequisite: BIO 326 or Biology graduate status.

BIO 566 Microbial Diversity and Physiology Laboratory 1(0-3)

This is an advanced laboratory course that explores experimental techniques used to study the diversity and physiology of microorganisms. This laboratory course accompanies BIO 565. Prerequisite: BIO 326 or Biology graduate status. Co-requisite: BIO 565.

BIO 567WI Biogeochemistry 3(3-0)

Examines the molecular mechanisms by which microorganisms drive the cycling of Earth's major elements. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 208; CHM 132; or graduate standing in a CST program.

BIO 570 Cellular Dynamics 3(3-0)

A course that explores advanced topics in cell biology focusing on landmark discoveries and experimental techniques using the primary literature. Prerequisites: BIO 324, 326; or Biology graduate status.

BIO 571 Cellular Dynamics Laboratory 1(0-3)

An advanced laboratory course that explores experimental techniques in cell biology research. This is a laboratory course that accompanies BIO 570. Prerequisites: BIO 324, 326; or Biology graduate status. Co-requisite: BIO 570.

BIO 575 Applied Bioinformatics 4(3-3)

Application of bioinformatics techniques. Topics include: gene finding, pairwise and multiple sequence alignments of DNA and protein sequences, and the use of GenBank and BLAST. Prerequisite: BIO 326 or graduate standing.

BIO 576 Mammalian Cell Culture 3(1-5)

Practical aspects of mammalian cell culture, aseptic technique, cell maintenance, differentiation, and cryopreservation. Prerequisites: BIO 212, 213 both with a C- or better; or graduate standing.

BIO 580 Medical Microbiology 4(2-4)

Focuses on the relationships between humans and pathogenic microbes. Covers major groups of medically important microorganisms, pathological consequences of infection, diagnosis, and clinical case problem solving. Prerequisites: BIO 320, 392 both with a C+ or better; or BIO 208, 211, one of: BIO 392 or HSC 215 all with a C+ or better, and a signed major in Neuroscience or Biochemistry; or graduate standing.

BIO 585 Conservation Medicine 3(3-0)

Examines various diseases and their importance to wildlife, domestic animals, and humans. Epidemiology and ecology of diseases are discussed within the framework of conservation medicine. Prerequisites: BIO 208, 340; or graduate standing.

BIO 590 Cardiovascular Physiology 3(3-0)

Basic principles of normal mammalian cardiovascular physiology. Prerequisites: BIO 392 or graduate standing.

BIO 591 Neurophysiology 3(3-0)

Principles of nervous system function: cytology, electrophysiology, ion channels, membrane potentials, neurochemistry, synaptic function and its modification, sensory physiology. Prerequisites: BIO 392.

BIO 595 Cancer Biology 3(3-0)

Examination of the underlying molecular, cellular, and genetic pathways involved in carcinogenesis, tumor growth, angiogenesis, and metastasis. Additional topics include tumor immunology and treatment strategies. Prerequisites: BIO 212, 213 both with a grade of C- or better; or BIO 324, 326; CHM 342 or 345; or graduate standing. Recommended: CHM 425 or 521.

BIO 597 Special Topics in Biology 1-9(Spec)

Topics of special interest that are not normally included in existing courses. Specific topics and instructor's prerequisites will be announced in Course Search and Registration. Prerequisites: BIO 212, 213 both with a grade of C- or better; completion of 56 semester hours; or graduate standing; additional instructor prerequisites will be announced in the Course Search and Registration.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

BIO 600 Biological Research Design and Analysis 3(2-2)**BIO 610 Biology Colloquium 1-9(Spec)****BIO 619 Continuing Registration for Final Research Project 1(1-0)****BIO 620 Biology Practicum 1-9(Spec)****BIO 626 Topics in Genetics 1-3(Spec)****BIO 629 Topics in Eukaryotic Molecular Genetics 1-4(Spec)****BIO 630 Art of Scientific Communication 3(2-1)****BIO 635 Toxicology 3(3-0)****BIO 637 Topics in Immunology 1-3(Spec)****BIO 642 Advanced Statistical Methods for Research 3(3-0)****BIO 650 Population and Community Ecology 4(3-2)****BIO 651 Topics in Ethology 1-4(Spec)****BIO 652 Behavioral Ecology 3(2-3)****BIO 653 Stream Ecology 3(2-3)****BIO 656 Fish Ecology 2(2-0)****BIO 657 Fisheries Management 2(2-0)****BIO 658 Zooplankton Biology 3(2-3)****BIO 680 Conservation Biology 3(3-0)****BIO 685 Phylogenetics 3(3-0)****BIO 690 Conservation Genetics 4(3-3)****BIO 691 Landscape Ecology 4(3-3)****BIO 692 Topics in Physiology 1-4(Spec)****BIO 695 Graduate Internship in Biology 1-6(Spec)****BIO 730 Seminar 1(1-0)****BIO 790 Research in Biology 2-4(Spec)****BIO 798 Thesis 1-9(Spec)****BIS - Business Information Systems**

See the Department of Business Information Systems for more information.

BIS 100 Introduction to Business 3(3-0)

Introduction to principles and problems of interrelated functions of business. Business organizations as social structures and their interaction with the domestic and global environments.

BIS 101WI Essential Business Communications Skills 3(3-0)

A focus on effective business communication skills and their impact on career success. This course may be offered in an online or hybrid format. Writing Intensive. Prerequisite: BUS 100.

BIS 104 Computers and Society 3(3-0)

Fundamental concepts and applications of computers. Impact of the computer on human events and social institutions. Control, predictions, and implications of future computer developments. Does not count on CPS major or minor. Identical to CPS 100. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format.

BIS 190 Entrepreneurship for Small Business 3(3-0)

Basic entrepreneurship information. For non-business students only. Prerequisite: Permission of instructor.

BIS 197 Special Studies in Business Information Systems 1-12(Spec)

Selected topics not normally included in existing courses, with current topics listed in Course Search and Registration. Repeatable up to 12 credits with different topics. Prerequisites: See Course Search and Registration.

BIS 221 Computers in Business I 3(3-0)

The management-oriented study of computer information systems in business, including model building and decision support. Includes coverage of leading software packages used in business. This course is approved for offering in a distance learning format. Prerequisite: 26 credits completed with 2.0 minimum GPA.

BIS 228 Applications Development 3(3-0)

Introduction to business applications development using rapid development programming tools.

BIS 255 Information Systems 3(3-0)

An introduction to the development and use of Information Systems (IS) in business, including the use of software applications to solve business problems. This course may be offered in an online or hybrid format. Prerequisites: GPA of 2.5 or higher; ACC 250; BLR 235; ECO 204; one of MTH 132 or 217 or STA 282 or 382; Co-requisite: ACC 255. For signed Accounting Majors, BLR 235 and ECO 204 may be co-requisites.

BIS 260WI Global Business Communication 3(3-0)

A focus on business communication skills necessary for success in the global business environment. This course may be offered in an online or hybrid format. Writing Intensive. Prerequisite: BUS 100 or BIS 100.

BIS 297 Special Studies in Business Information Systems 1-12(Spec)

Selected topics not normally included in existing courses, with current topics listed in Course Search and Registration. Repeatable up to 12 credits with different topics. Prerequisites: See Course Search and Registration.

BIS 308 Visual Business Communication and Digital Media 3(3-0)

Evaluating and designing visuals and digital media in a business setting. Work of students contributes to a professional portfolio. This course may be offered in an online or hybrid format. Recommended: BIS 104 or CPS 100 or BIS 221 or BIS 255.

BIS 315 Social Media and Emerging Technologies in Business 3(3-0)

Design and implementation of social media strategies using emerging technologies in real-world business settings. This course may be offered in an online or hybrid format. Prerequisite: BUS 100 or BIS 100.

BIS 323 Spreadsheet-Based Modeling for Business 3(3-0)

The course focuses on the use of spreadsheets in business analytics. Students gain modeling/analysis skills necessary to address a wide variety of business problems. This course may be offered in an online format. Prerequisites: BIS 255.

BIS 324 Seminar in Applications Development 3(3-0)

Development of business applications using selected programming languages and tools. Prerequisites: BIS 228; 56 hours completed and either admission to Professional Business Studies or listed on a signed major or minor.

BIS 327 Web Site Development 3(3-0)

Development of Internet and intranet web sites to support business functions including doing business on the Internet with emphasis on issues involved in designing and deploying this information technology by organizations. Prerequisite: 56 semester hours completed or listed on a signed major or minor.

BIS 328 Web Applications Development 3(3-0)

Development of web-based mobile applications to support business functions with an emphasis on issues related to application design and deployment. Prerequisites: BIS 228, 327; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

BIS 342 Intercultural Business Communication Abroad 1-9(Spec)

Experiential learning based course incorporating study abroad. Students learn and demonstrate tools and knowledge necessary for interaction in a professional setting within a foreign culture. This course may be offered in an online or hybrid format. Prerequisites: ENG 101 or BIS 101 or COM 101 or 195. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition, Option 2)

BIS 347 Enterprise Software in Business Using SAP Software 3(3-0)

The concepts, fundamentals, technical structure, and implementation issues of business enterprise software are introduced using SAP as a tool. Prerequisite: BIS 104 or CPS 100 or BIS 221 or BIS 255.

BIS 357 ABAP Programming Fundamentals 3(3-0)

Application of ABAP programming language to implement business processes using the SAP system as an example of contemporary enterprise software. Prerequisites: BIS 228, BIS 347; 56 semester hours completed and either admission to Professional Business Studies or listed on a signed major or minor.

BIS 360 Applied Business Communication 3(3-0)

Expands understanding of the communication process as students apply business communication principles related to oral, written, and employment communication in a real-world setting. Prerequisite: 56 semester hours completed. Recommended: ENG 201.

BIS 380 Enterprise Architecture 3(3-0)

Study of infrastructure issues relevant to the design, selection, implementation, and management of an organization's enterprise architecture. Prerequisites: BIS 221 or 255; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

BIS 397 Special Studies in Business Information Systems 1-12(Spec)

Selected topics not normally included in existing courses, with current topics listed in Course Search and Registration. Repeatable up to 12 credits with different topics. Prerequisites: See Course Search and Registration.

BIS 420 Systems Analysis and Design 3(3-0)

Fundamentals of business systems analysis and design; study of present system, developing system alternatives. Prerequisites: BIS 221 or BIS 255; 56 semester hours completed and admission to Professional Business Studies or listed on a signed major or minor or with approval from the Office of Undergraduate Business Studies.

BIS 422 Database Management Systems 3(3-0)

Study of database concepts with an emphasis on their application to business systems. Prerequisites: BIS 228; 56 semester hours completed; either admission to Professional Business Studies or listed on signed major or minor.

BIS 423 Decision Support Systems & Business Intelligence 3(3-0)

Analysis and design of information systems permitting the computer to become an integral part of the managerial decision-making process. Prerequisites: 56 semester hours completed; either admission to Professional Business Studies or listed on a signed major or minor.

BIS 424 E-Business Applications Development 3(3-0)

Study of the development and use of e-business applications. Special emphasis will be given to current development technologies and tools. Prerequisites: BIS 228, 327, 422; 56 semester hours completed; either admission to Professional Business Studies or listed on signed major or minor.

BIS 425 Information Systems Development Project 3(3-0)

Project course requiring students to develop and implement a computer-based information system. Prerequisites: BIS 420, BIS 422; 86 semester hours completed; either admission to Professional Business Studies or listed on signed major or minor.

BIS 456 Business Analytics Using SAP Software 3(3-0)

A study of business intelligence solutions using SAP software. Tools covered include SAP Business Warehouse (BW) and SAP BusinessObjects software. This course may be offered in an online or hybrid format. Prerequisites: BIS 247 or BUS 301.

BIS 458 Configuration and Implementation using SAP Software 3(3-0)

Concepts and application of configuring SAP software for enterprise deployment in business organizations. SAP functions matched with business requirements are configured using the implementation guide. Prerequisites: BIS 347 or BUS 301; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

BIS 470 Applied Business Communication Integrated Capstone 3(3-0)

Using effective business practices and collaboration in preparing and delivering appropriate business reports and communication as a logical approach to solving business problems. This course may be offered in an online format. Prerequisite: BIS 360; Admission to Professional Business Studies or listed on a signed major or minor.

BIS 490 Internship in Information Systems 3(Spec)

A full-time or part-time experience (400+ hours) over one or more semesters in an information systems environment. A written report (Internship Portfolio) is required. Prerequisites: Permission of department chairperson; 56 semester hours completed; either admission to Professional Business Studies or listed on a signed major or minor.

BIS 491 Independent Study 1-3(Spec)

Student-initiated study guided by a faculty member. Prerequisites: 86 semester hours completed; minimum GPA of 3.0; permission of department chairperson; either admission to Professional Business Studies or listed on signed major or minor.

BIS 495 Internship in Applied Business Communication 1-6(Spec)

A full-time or part-time work experience for one or more semesters dealing with aspects of business and organizational communication. Prerequisite: Permission of department chairperson or major advisor; 56 semester hours completed; either admission to Professional Business Studies or listed on a signed major or minor.

BIS 497 Special Studies in Business Information Systems 1-12(Spec)

Selected topics not normally included in existing courses, with current topics listed in Course Search and Registration. Repeatable up to 12 credits with different topics. Prerequisites: See Course Search and Registration.

BIS 502 Network Fundamentals 3(3-0)

Basic concepts of network communication using the Open Systems Interconnection (OSI) model, as well as media, access protocols, routing, reliability, and network services. This course may be offered in an online or hybrid format. Prerequisite: Graduate student status or 86 hours undergraduate credits completed.

BIS 510 Network & Systems Security Fundamentals 3(3-0)

Developing Skills needed to effectively and accurately analyze security risks related to networks and related systems, including issues of authenticity, confidentiality, integrity, and availability. This course may be offered in an online or hybrid format. Prerequisites: BIS 380 or CPS 565.

BIS 512 Cybersecurity Analysis 3(3-0)

Using behavioral analytics and tools to improve IT security. Configuring and using threat detection tools and performing data analysis. This course may be offered in an online format. Prerequisites: BIS 380 or 510.

BIS 520 Teaching & Training at the Post-Secondary Level 3(3-0)

Learning process, planning and delivering instruction and training, assessing learning, using technology, adult learners, and current research. Designed for collegiate-level business instructors or trainers. Prerequisites: BIS 350 or admission to the MSIS or MBA program or graduate standing. This course is approved for offering in a distance learning format.

BIS 521 Governance, Risk, & Compliance in Cybersecurity 3(3-0)

Investigating external and internal threats that compromise data and digitized intellectual property. Implementing effective policies for mitigating risks and security and remediation measures in organizations. This course may be offered in an online or hybrid format. Prerequisite: BIS 510.

BIS 523 Cybercrime Forensics 3(3-0)

Introduction to cybercrime and computer forensics. Exploring laws regulating electronic evidence along with establishing the basis for gathering electronic digital evidence and artifacts. This course may be offered in an online or hybrid format. Prerequisite: BIS 510.

BIS 525 Managing Security & Privacy in the Cloud 3(3-0)

Exploring cloud computing concepts, frameworks, and security/privacy issues related to cloud deployments. Evaluating relevant security approaches, security architecture, and cloud security policy and requirements. This course may be offered in an online or hybrid format. Prerequisite: BIS 510.

BIS 530 Cybersecurity, Systems, and Network Certification 3(3-0)

Building upon the ten security domains, uses the essential preparation tools and techniques to become a Certified Information Systems Security Professional. This course may be offered in an online or hybrid format. Prerequisite: BIS 510.

BIS 535 System Administration Using SAP Basis 3(3-0)

Tasks, tools, and transactions of the SAP system administrator are explained using hands-on exercises and step-by-step guides based on real-world examples. Prerequisites: BIS 347 and BUS 301; or BIS 647 and BIS 638.

BIS 588 Business Analytics using GIS 3(3-0)

Addresses concepts and methods in Business Analytics using Geographic Information Systems (BAGIS) and the application of GIS in business research, finance, marketing, logistics and decision-making. This course may be offered in an online format. Prerequisites: BIS 255 or BIS 601 or MBA 610. Recommended: BIS 422 or BIS 638.

BIS 597 Special Studies in Business Information Systems 1-12(Spec)

Selected topics not normally included in existing courses, with current topics listed in Course Search and Registration. Repeatable up to 12 credits with different topics. This course may be offered in an online or hybrid format. Prerequisites: See Course Search and Registration.

BIS 598 Integration of Business Processes Using SAP Software 4(Spec)

Examination of how ERP fundamental business processes interact using SAP software. Prerequisites: A course supported by SAP software taken at CMU or permission of BIS Chairperson.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

BIS 601 Information Systems 3(3-0)**BIS 605 Communication in Professional Contexts 3(3-0)****BIS 619 Continuing Registration for Final Research Project 1(1-0)****BIS 625 Research in Information Systems 3(3-0)****BIS 627 Web Site Development 3(3-0)****BIS 628 Application Development 3(3-0)****BIS 630 Information Systems Process Management 3(3-0)****BIS 633 Business Intelligence/Analytics 3(3-0)****BIS 634 Seminar in Information Systems Issues 3(3-0)****BIS 635 Business Systems Applications 3(3-0)****BIS 636 Systems Analysis and Design 3(3-0)****BIS 638 Database Management for Business Systems 3(3-0)****BIS 647 Enterprise Systems for Management Using SAP Software 3(3-0)****BIS 656 Business Intelligence Using SAP Software 3(3-0)****BIS 657 ABAP Programming for ES 3(3-0)****BIS 658 Enterprise System Configuration Using SAP Software 3(3-0)****BIS 660 Managerial Communication 3(3-0)****BIS 688 Directed Work/Observation/Internship 1-6(Spec)****BIS 697 Special Studies in Business Information Systems 1-12(Spec)****BIS 698 Information Systems Project 3(3-0)****BIS 791 Independent Research 3(Spec)****BIS 798 Thesis 1-6(Spec)**

BLR - Business Law and Regulation

See the Department of Finance and Law for more information.

BLR 197 Special Topics 1-6(Spec)

Special topics in legal studies. This course may be offered in an online format.

BLR 202 Legal Environment of Business 3(3-0)

Introduction to the concept and use of law as a social institution. Open to both nonbusiness and business students. BLR 202 may not be applied toward the University Program requirements if a student is earning the Bachelor of Science in Business Administration degree. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Global Cultures)

BLR 222 The Search for Racial Justice through Law 3(3-0)

Chronicles and evaluates the use of law by racial minorities in America in the search for justice. May be offered as Writing Intensive. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

BLR 235 Business Law 3(3-0)

Introduction to law applicable to business transactions; case studies in torts, property, contracts, sales, agency, business organizations. Employment law. May be offered as Writing Intensive. This course may be offered in an online format. Prerequisites: BIS 101, Tier 1 Continuing Admission to Professional Business Studies.

BLR 297 Special Topics 1-6(Spec)

Experimental courses to cover material of special interest not covered in the regular curriculum. This course may be offered in an online format.

BLR 302 Law of Agreements 3(3-0)

Topics include common law contracts, sales, commercial paper, secured transactions. Special emphasis upon the economic setting and modern development of the legal doctrines. Prerequisites: BLR 202 or BLR 235; 56 semester hours.

BLR 310 Alternative Dispute Resolution in Business 3(3-0)

Techniques of negotiation, mediation, and arbitration as compared to litigation are examined and illustrated with student participation. Legal research and writing skills emphasized. Prerequisite: BLR 202 or 235.

BLR 320 White Collar Crime and Other Criminal Law Concepts 3(3-0)

Fundamentals of American criminal law with a focus on white collar crime. This course may be offered in an online format. Prerequisite: 56 semester hours. Recommended: BLR 202 or 235.

BLR 325 Women and the Law 3(3-0)

Examines perceptions and behavior toward women and their struggle for change so as to achieve gender equality through the use of law. May be offered as Writing Intensive. Prerequisites: 56 semester hours completed.

BLR 327 Legal Research 3(3-0)

Focuses on the importance of legal research as well as teaching methods of finding, analyzing, and evaluating the law. Open to both business and nonbusiness students. Prerequisites: BLR 202 or BLR 235; 56 semester hours.

BLR 328 Employment Law 3(3-0)

A survey of the regulation of employment and personnel function, nationally and internationally. Prerequisites: BLR 202 or BLR 235; 56 semester hours.

BLR 330 Real Estate Law 3(3-0)

The fundamentals of the law relating to land ownership and use, including possessory and non-possessory rights and interests in land. May be offered as Writing Intensive. Prerequisites: BLR 202 or 235.

BLR 337 Sports Law 3(3-0)

This course identifies and applies various areas of law to the sport business including discrimination in sport with respect to race, gender, and disability. Prerequisites: BLR 202 or 235.

BLR 350 Law and Economics 3(3-0)

Theory and application of analytical tools of law and of economics in an integrative approach to both subjects. Identical to ECO 350. Credit may not be earned in more than one of these courses. Prerequisites: BLR 202 or 235, ECO 202 or 203.

BLR 365 Native American Justice Through Law 3(3-0)

Examines the legal and historical foundations and current application of the law with respect to the Native American's struggle for recognition and autonomy. Prerequisite: 56 semester hours.

BLR 390 Law of Enterprise Organization 3(3-0)

Survey of laws regulating the creation, operation, and termination of agencies, partnerships, and corporations. Prerequisites: BLR 202 or BLR 235; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

BLR 397 Special Topics 1-3(Spec)

Special topics in legal studies. This course may be offered in an online format. Prerequisites: BLR 202 or 235; 56 semester hours.

BLR 410 Regulatory Law 3(3-0)

Survey of major regulatory programs affecting business decision-making, including antitrust, securities regulation, labor-employment law, environmental-land use regulation, utility regulation, administrative law. Prerequisites: BLR 202 or BLR 235; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

BLR 445 Personal Estate Planning 3(3-0)

Fundamentals of estate planning for personal use and professional training. Professional topics target applications in trust administration, accounting, and personal financial planning. Identical to FIN 445. Credit may not be earned in more than one of these courses. This course may be offered in an online format. Prerequisites: FIN 302, 307; FIN 310 or FIN 315; 56 semester hours completed. Pre/Co-requisite: FIN 347.

BLR 491 Independent Studies 1-6(Spec)

Directed reading or research on an approved topic. Open to seniors in good academic standing. Prerequisites: prior permission of instructor and department chairperson; 86 semester hours.

BLR 521 Environmental Law and Policy 3(3-0)

A survey of environmental laws and policies that affect business decision making, stressing macroenvironmental considerations and major Michigan environmental issues. Prerequisites: BLR 202 or BLR 235 or ENV 101; completion of 86 hours; admission to Professional Business Studies or listed on signed major or minor or permission of MBA director or MBE advisor.

BLR 565 The International Legal Environment of Business 3(3-0)

Examines global legal environments that affect business and international business relationships. Prerequisites: BLR 202 or BLR 235; 86 semester hours completed and admission to Professional Business Studies or listed on a signed major or minor or graduate status.

BLR 597 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcript. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

BLR 600 Legal and Social Environment of Business 3(3-0)**BLR 631 Public Policy and Regulated Industries 3(3-0)**

BUS - Business

See the College of Business Administration for more information.

BUS 100 Essential Business Skills 3(3-0)

Introduces students to the concept of a business, its disciplines, and essential business skills including decision making, team work, and oral and written communication. This course is approved for offering in a distance learning format.

BUS 109 Collegiate Success for Business Students 1(1-1)

Fundamentals of collegiate success strategies for business students. A first year course in academic resources and career development. Prerequisite: Only open to students in the Business Residential College.

BUS 300QR Applied Business Statistics 3(3-0)

Applications of statistical analysis to support business decision making. Covers collection of business data, analysis of business datasets, and presentation of results. This course may be taught in an online format. Quantitative Reasoning. Prerequisites: STA 282 or 382; 26 hours completed.

BUS 301 Integrated Business Experience 3(2-1)

Enterprise Resource Planning (ERP) applications emphasizing functional integration of business activities. An integrated business simulation experience links management decisions across organizations. This course may be offered in an online or hybrid format. Prerequisites: Tier 2 Admission to Professional Business Studies; ACC 255, BIS 255, MGT 258. Prerequisite/Co-requisites: FIN 302, MGT/MKT 303, MKT 304.

BUS 501 Project Management Fundamentals 3(3-0)

Covers foundational terms, concepts, and processes of project management, providing an opportunity to apply key elements of project management to a simulated project. This course may be offered in an online or hybrid format. Prerequisite: Graduate student status or 86 hours undergraduate credits completed.

BUS 503 Business Process Improvement 3(3-0)

This course applies principles and practices of Lean Six Sigma (LSS) and other operations improvements that have been demonstrated to bring value to business. LSS builds on a business statistics foundation. Prerequisites: STA 282 or 382; 56 semester hours completed.

BUS 505 Application of Project Management Principles 3(3-0)

Building on fundamentals, students analyze and apply project organization, staffing, and behavioral and qualitative skills in a simulated project to develop core project management competencies. This course may be offered in an online or hybrid format. Prerequisite: BUS 501.

BUS 507 Advanced Project Management Methodologies 3(3-0)

Evaluate and create project management solutions appropriate for projects/programs through the complete life cycle, using key processes and knowledge areas of project management. This course may be offered in an online or hybrid format. Prerequisite: BUS 505.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

BUS 619 Voice of the Customer 3(3-0)**BUS 629 Corporate Governance & Social Responsibility 3(3-0)****BUS 639 Process Improvement 3(3-0)****BUS 691 Management Consulting: Client Relations 2(2-0)****BUS 692 Management Consulting: Diagnosis 2(2-0)****BUS 693 Management Consulting: Measurement 2(2-0)****BUS 694 Management Consulting: Implementation 2(2-0)****BUS 697 Special Topics in Business 1-12(Spec)****BUS 698 Integration of Business Processes for Management using SAP Software 4(Spec)****CDE - Planned Experience****CDE 291 Planned Experience in Community Development 1-15(Spec)****CDE 491 Planned Experience in Community Development 1-15(Spec)****CED - Counselor Education and Personal Development**

See the Department of Counseling and Special Education for more information.

CED 101 Career and Self-Exploration 1(1-0)

This course prepares students with self-awareness, career awareness, and academic awareness skills leading to career development. This course may be offered in an online format.

CED 502 Student Development in Higher Education 3(3-1)

The college student personnel movement, its social, psychological, and cultural foundations. Student development functions; career program models; legal, ethical, and professional considerations; role of professionals. This course is approved for offering in a distance learning format. Prerequisites: Junior standing or graduate status.

CED 505 Orientation to the Counseling Profession 1(1-0)

Orient students to the profession by examining history, identity, and process of becoming a professional counselor in a diverse society. This course is approved for offering in a distance learning format. Prerequisites: Senior standing or graduate status.

CED 520 Personal Growth and Development 2(Spec)

Personal growth group to help participants increase awareness and acceptance of self and others. Prerequisites: Junior standing or graduate status.

CED 555 Human Relations Skills 3(3-0)

An introduction to the theories, skills, and models utilized in developing helping relationships in organizations. This course may be offered in an online format. Prerequisites: Senior standing or graduate status.

CED 580 Seminar: Professional Topics 1-12(Spec)

Special topics that are germane to the field of counseling. This course is approved for offering in a distance learning format. Prerequisites: Junior standing or graduate status.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

CED 603 Introduction to Clinical Mental Health Counseling 3(3-0)**CED 604 Introduction to School Counseling 3(3-0)****CED 605 Introduction to Couple and Family Counseling 3(3-0)****CED 608 Clinical Skills in Couple and Family Counseling 3(3-0)****CED 610 Career Counseling 3(3-0)****CED 611 Developmental Career Counseling 3(2-1)****CED 612 Work and Career in a Global Society 3(3-0)****CED 615 Postsecondary Planning for School Counselors 3(3-0)****CED 616 Basic Group Participation 1(Spec)****CED 617 The Counseling Supervisor 3(3-0)****CED 619 Continuing Registration for Final Research Project 1(1-0)****CED 620 Introduction to Multicultural Issues in Counseling 3(3-0)****CED 621 Orientation to a Culturally Diverse Society 3(3-0)****CED 625 Cross-Cultural Service Learning for Counselors 3(Spec)****CED 630 Ethics & Consultation in Counseling 3(3-0)****CED 640 Assessment in Counseling 3(3-0)****CED 641 Introduction to Counseling for Addictions 3(3-0)****CED 642 Neuropsychopharmacology 3(3-0)****CED 643 Etiology of Addiction 3(3-0)****CED 644 Addiction Oriented Systems and Methods of Care 3(3-0)****CED 645 School Counseling Seminar 3(3-0)****CED 650 Theories and Techniques of Group Counseling 3(3-0)****CED 651 Counseling Children and Adolescents 3(3-0)****CED 660 Counseling Techniques 3(3-0)****CED 665 Personal and Professional Development Across the Lifespan 3(3-0)****CED 668 Family Counseling and Therapy 3(3-0)****CED 670 Independent Study 1-12(Spec)****CED 677 Counseling Theories 3(3-0)****CED 679 Crisis and Trauma Counseling 3(3-0)****CED 680 Seminar: Professional Topics 1-12(Spec)****CED 683 Sexuality Counseling and Therapy Techniques 3(3-0)****CED 684 Grief and Loss Counseling 3(3-0)****CED 685 Counseling Aspects of Grief and Loss 3(3-0)****CED 686 Psychopathology 3(3-0)****CED 690 Counseling Practicum 1-6(Spec)****CED 691 Internship 1-6(Spec)****CED 695 Research in Counseling 3(3-0)****CED 696 Independent Research 3(Spec)****CED 698 Thesis 1-6(Spec)****CED 699 Diagnosis & Treatment Planning in Counseling 3(3-0)****CED 750 Advanced Group Facilitation 3(3-1)****CED 751 Facilitation of Play Therapy Sessions 3(3-1)****CED 780 Seminar: Professional Topics 1-12(Spec)****CED 790 Advanced Counseling Practicum 3(1-3)****CED 791 Advanced Internship in Counseling 3(Spec)****CGL - Cultural and Global Studies**

For more information, contact the College of Humanities and Social & Behavioral Sciences.

CGL 145 Racism and Discrimination in America through Dialogue 3(3-0)

Interdisciplinary course examines (through lecture and dialogue) the historical and economic causes of racism and ways of achieving a just society. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

CGL 200 Short-term Study Abroad 1-3(Spec)

A short-term faculty-led study abroad experience, to be used within relevant and appropriate CGL curricula. Prerequisite: Signed CGL certificate.

CGL 300 Study Abroad Experience 1-6(Spec)

Study abroad experience, to be used within relevant and appropriate CGL curricula. Prerequisites: Signed CGL certificate; 3 hours completed of that certificate. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

CGL 301 Global Studies Experience in the U.S. 3(3-0)

Faculty-led experience within the United States with diverse cultures, to be used within relevant and appropriate CGL curricula. Prerequisites: Signed CGL certificate; 3 hours completed of that certificate.

CGL 302 Cultural and Global Studies Internship 1-3(Spec)

Internship experience within or outside of the United States to complement the Cultural and Global Studies Major, Minor or Certificate being completed. Prerequisites: Signed CGL Major, CGL Minor, or CGL certificate; 3 hours of curriculum completed; permission of a CGL faculty advisor.

CGL 305 Special Topics in Cultural and Global Studies 1-6(Spec)

Course covers special topics of interest to Cultural and Global Studies not covered in existing courses.

CGL 350 Latino Culture in the U.S. 3(3-0)

This course discusses broader issues of identity, opportunity, inequality, race, ethnicity and discrimination in U.S. Latino Culture. This course may be offered in an online format. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

CGL 351 Living in America: Social Structures in Latino Culture 3(3-0)

A study of the ways Latino culture has integrated itself within the stratification, social structures and social policy of the US society. This course may be offered in an online format. (University Program Group III-B: Studies in Social Structures)

CGL 353 Contested Boundaries: The US-Mexico Border 3(3-0)

An examination of the historical development and contemporary cultural, economic and political issues concerning the US-Mexico border and US Southwest. Identical to ANT 353. Credit may not be earned in more than one of these courses. (University Program Group III-B: Studies in Social Structures)

CGL 445 Intergroup Dialogue Facilitation 3(3-0)

This course gives students a foundation in the skills and knowledge needed to facilitate dialogue in small diverse groups on topics related to discrimination. Prerequisites: LAR 145 or CGL 145.

CGL 496WI Seminar in Cultural and Global Studies 3(3-0)

An interdisciplinary capstone seminar in Cultural and Global Studies integrating themes in current research and practice, focusing on global movements, cultural institutions, and current issues. Writing Intensive. Prerequisites: ANT 170 or GEO 121. Minors must have completed at least 12 hours of additional course work for the program. Majors must have completed at least 21 hours of additional course work.

CGL 499 Cultural and Global Studies Portfolio Workshop 1(1-0)

Capstone workshop to develop a portfolio of work within CGL stand-alone certificate programs to develop students' synthetic reflection on certificate coursework. Pre/Co-requisites: Signed CGL certificate; 12 hours completed in appropriate certificate program.

CGL 505 Advanced Cultural and Global Studies Topics 1-6(Spec)

Course covers advanced special topics of interest to Cultural and Global Studies not covered in existing courses. Prerequisite: Graduate standing or completion of 56 undergraduate credit hours.

CHM - Chemistry

See the Department of Chemistry and Biochemistry for more information.

CHM 101 Armchair Chemistry 3(2-2)

An introduction to the science of chemistry, using equivalent portions of laboratory experiments and directed discussions. No credit toward chemistry or biochemistry major or minor. Satisfies University Program laboratory requirement. (University Program Group II-B: Quantitative and Mathematical Sciences)

CHM 111 The Interaction of Chemistry and Society 3(3-0)

The impact of chemistry on our environment. Emphasis on water, air, and environmental pollution. Recommended for elementary school teachers. No credit toward chemistry or biochemistry major or minor. No previous chemistry required.

CHM 112 Chemistry and Society Laboratory 1(0-3)

Elementary laboratory experiments which parallel CHM 111 and 120 lectures and investigate the impact of chemistry on our environment. Recommended for elementary/middle school education majors. No credit toward chemistry or biochemistry major or minor. Satisfies University Program Group II laboratory requirement. This course may be offered in an online or hybrid format. Pre/Co-requisite: CHM 111 or CHM 120. (University Program Group II-B: Quantitative and Mathematical Science)

CHM 120 Survey of Chemistry 4(4-0)

Elementary concepts in chemistry. For students on curricula needing minimal chemical background or students who need additional preparation for CHM 131. This course provides suitable preparation for the successful completion of the laboratory courses, CHM 112 or CHM 127. Cannot be counted on a Chemistry/Biochemistry major or Chemistry minor. This course may be offered in an online or hybrid format. Recommended: High school Algebra II or MTH 105. (University Program II-B: Quantitative and Mathematical Science)

CHM 127 Introductory Chemistry Laboratory 1(0-2)

Elementary laboratory experiments which parallel the syllabus for CHM 120. Recommended for students in dietetics, sports medicine, health education, and elementary/middle school education. No credit toward chemistry or biochemistry major or minor. Satisfies University Program Group II laboratory requirement. Pre/Co-requisite: CHM 120. (University Program Group II-B: Quantitative and Mathematical Science)

CHM 131 General Chemistry I 4(3-3)

Fundamental concepts of chemistry including stoichiometry, gas laws, thermochemistry, and molecular structure. CHM 131 is a first course for science majors. Satisfies University Program Group II laboratory requirement. Recommended: High school algebra or MTH 107; high school chemistry or CHM 120. (University Program Group II-B: Quantitative and Mathematical Sciences)

CHM 132 General Chemistry II 4(3-3)

Continuation of CHM 131 including solutions, kinetics, equilibrium, weak acids and bases, thermodynamics, and electrochemistry. Prerequisite: CHM 131. Recommended: a grade of C or better in CHM 131.

CHM 161 Principles of Chemistry 5(4-4)

Intensive introduction to chemical principles for the well-prepared, motivated student. Recommended: High school Algebra II or MTH 107 (preferably with a B or better); high school chemistry or CHM 120.

CHM 171 Perspectives in Chemistry 1-6(Spec)

Selected topics in chemistry for the nonscientist. May be repeated for a total of 6 credits when the content is not a duplication of previous topics. No credit toward major or minor.

CHM 172 Introduction to the Techniques of Research 1-3(Spec)

Introduction to laboratory techniques used in research for beginning students in chemistry and for participants in other summer research programs at the beginning level.

CHM 211QR Quantitative Analysis 4(3-5)

Analysis and interpretation of quantitative chemical information from volumetric, electrochemical, spectroscopic, and chromatographic techniques. This course may be offered in an online/hybrid format. Prerequisite: CHM 132 or 161. Recommended: MTH 107. Quantitative Reasoning.

CHM 250WI Water as Life, Death, and Power 3(2-2)

Problems of water access, water-borne pathogens, water treatment, and power relationships in global cultures from anthropology, biology, and chemistry perspectives, via lecture and seminar. Identical to ANT 250 and BIO 250. Credit may not be earned in more than one of these courses. May not be applied to any Biology major or the Biology minor. May not be applied to Chemistry or Biochemistry major or minor. Writing Intensive. Recommended: ANT 171 or 170; BIO 101 or 110 or 111; CHM 111 or 120 or 131. (University Program Group III-B: Studies in Social Structures)

CHM 265QR Chemical Physical Science for Elementary Teachers 2(1-3)

Physical science with an emphasis on chemical concepts for elementary teachers. Chemical reactivity and atomic structure principles are explored in a contextual format. May not be applied to Chemistry or Biochemistry majors or minor. Quantitative Reasoning. Prerequisite: MTH 152 with C- or better.

CHM 331 Inorganic Chemistry 3(2-4)

Descriptive chemistry of selected main group and transition elements, coordination complexes, structures and properties of solids. Synthesis and characterization of inorganic compounds. Prerequisites: CHM 132 or CHM 161.

CHM 333 Bioinorganic Chemistry 3(3-0)

Introduction to the function of metals and inorganic ions in living systems. Metal ion transport, storage, biomineralization, and processes of metalloproteins are examined. Prerequisite: CHM 132 or 161. Recommended: CHM 346.

CHM 342 Survey of Organic Chemistry 4(3-3)

Elementary course covering the field of organic chemistry. Course meets the needs for entrance to some professional schools. No credit toward chemistry major or minor. Prerequisites: One of: CHM 120, 127, or CHM 132 or CHM 161.

CHM 345 Organic Chemistry I 3(3-0)

Overview of common organic reactions. Reactions of alkanes, alkenes, alkynes, and alkyl halides, Ultraviolet/Visible, Infrared, and Nuclear Magnetic Resonance spectroscopy, mass spectrometry. Prerequisite: CHM 132 or 161.

CHM 346 Organic Chemistry II 3(3-0)

Continuation of CHM 345. Overview of common organic reactions of aromatic compounds, alcohols, carbonyl compounds, and amines. Prerequisite: CHM 345.

CHM 349 Organic Chemistry Laboratory 2(0-6)

Laboratory techniques in organic chemistry; methods of synthesis, separation, purification, structure determination - spectroscopic methods; utilization of electronic database (Scifinder) searching techniques. Prerequisite: CHM 345. Pre/Co-requisite: CHM 346.

CHM 351 Physical Chemistry I 3(3-0)

Fundamental principles of chemistry based on a quantitative approach. Classical thermodynamics of gases and solutions, chemical equilibria, and electrochemistry. Prerequisites: CHM 211; PHY 146; Pre/Co-requisite: MTH 233.

CHM 352 Physical Chemistry II 3(3-0)

Fundamental principles of chemistry based on a quantitative approach. Quantum mechanics, spectroscopy, and kinetics. Prerequisite: CHM 351.

CHM 355 Biophysical Chemistry 3(3-0)

Application of physical theories to the understanding of energetics, kinetics, and spectra of biochemically relevant structures and reactions. Prerequisites: CHM 211; MTH 133; Pre/Co-Requisite: PHY 131 or 146.

CHM 357 Physical Chemistry Laboratory 2(0-4)

Laboratory techniques with advanced data analysis and error propagation in thermochemistry, phase equilibria, kinetics, spectroscopy, surface effects and computational chemistry. Pre/Co-Requisite: CHM 352.

CHM 371 Special Topics in Chemistry 1-6(Spec)

Special topics in chemistry presented at an undergraduate level. Course may be taken for credit more than once as long as course content is not duplicated; total credit not to exceed six hours. Prerequisites: CHM 132 or 161.

CHM 421 Survey of Biochemistry 3(3-0)

Introductory one-semester Biochemistry course. Intended for students in allied health fields, dietetics, and some biology programs. No credit toward Chemistry/Biochemistry major, Biology/Biomedical Sciences major or Chemistry minor. Prerequisites: CHM 342 or 346.

CHM 425 Introductory Biochemistry 3(3-0)

Structure, function, and metabolism of proteins, carbohydrates, lipids, and nucleic acids. Prerequisites: CHM 346.

CHM 491WI Undergraduate Research 1-3(Spec)

Culminating experience for chemistry/biochemistry majors: Research; capstone thesis. Development of critical thinking, laboratory skills, instrumentation competence, scientific reasoning and communication skills. Writing Intensive. Prerequisites: 8 credits of chemistry courses and permission of instructor.

CHM 505 Teaching Chemistry and Physics in Secondary Schools 3(3-0)

Exposes pre-service secondary chemistry and physics teachers to theory and practice of teaching in secondary schools, design of instructional units, and safety practices. Must be completed prior to student teaching. Identical to PHY 505. Credit may not be earned in more than one of these courses. Prerequisites: CHM 132 or 161; PHY 131 or 146; Tier Two - Admission of Candidacy to Teacher Education; signed major or minor in chemistry, physics or chemistry-physics (secondary education); Junior standing. Graduate students must be enrolled in a teaching master's program.

CHM 507 Field Experience in Teaching Chemistry/Physics 1(Spec)

Supervised experience in high school chemistry and/or physics classes. Experience will include observation, participation in instruction, and critical analysis of the experience. Identical to PHY 507. Credit may not be earned in more than one of these courses. CR/NC only. Prerequisites: Tier Two - Admission of Candidacy to Teacher Education; junior or senior standing. Graduate students must be enrolled in a teaching master's program. Pre/Co-requisite: CHM 505 or PHY 505.

CHM 509 Environmental Chemistry for Science Teachers 4(3-3)

For science teachers and prospective teachers of grades 4-12. Emphasis on environmental chemistry concepts and laboratory/field activity development for use in middle and high school. This course may be offered in an online or hybrid format. Prerequisites: 8 credit hours of college level Chemistry; 6 credit hours of education coursework; Senior or Graduate standing; admission to Teacher Education Program or valid teaching certificate. Recommended: College level Organic Chemistry and a Teaching Methods course.

CHM 511 Advanced Analytical Chemistry 4(2-4)

Spectroscopic, electrochemical, and other techniques as applied to analytical chemistry. Prerequisites: CHM 211. Recommended: CHM 352 or 355.

CHM 513 Chemistry of Natural Waters 3(1-6)

Fundamentals of laboratory and field analysis of water and their application to environmental studies. Prerequisites: CHM 211.

CHM 521 Fundamentals of Biochemistry 3(3-0)

Structure, function, and metabolism of proteins, carbohydrates, lipids, and nucleic acids. Prerequisites: CHM 346.

CHM 522 Intermediate Biochemistry 3(3-0)

Continuation of CHM 521. Material covered will include in-depth exploration of metabolism of biomacromolecules and biochemical processes requiring their use. Prerequisites: CHM 521.

CHM 527 Biochemistry Laboratory 1(0-4)

Isolation, characterization, and analysis of proteins, carbohydrates, lipids, vitamins, and nucleic acids using chromatographic, electrophoretic, and spectroscopic techniques. Prerequisite: CHM 211, CHM 349. Pre/Co-Requisite: CHM 425 or CHM 521.

CHM 528 Bioanalytical Techniques Laboratory 2(1-3)

Laboratory analysis of biochemical materials using volumetric, electroanalytical, spectroscopic, and chromatographic techniques. Prerequisites: CHM 211 or graduate standing; Pre/Co-requisite: CHM 425 or 521.

CHM 531 Advanced Inorganic Chemistry 3(3-0)

Molecular structure and symmetry, acid-base and oxidation-reduction chemistry, reactivity of inorganic compounds from a thermodynamical basis, catalysis, solid state and organometallic compounds. Prerequisites: CHM 331. Recommended: CHM 352.

CHM 541 Intermediate Organic Chemistry 3(3-0)

Mechanisms of organic reactions, emphasizing methods by which these are determined, including kinetics, principles of bonding, stereochemistry, and nuclear magnetic resonance in depth. Prerequisites: CHM 346. Recommended: CHM 351 or 355.

CHM 542 Structure Determination Using Spectroscopic and Related Methods 2(2-0)

Utilization of spectroscopic and related methods (UV, IR, MS, NMR, other) for the determination of molecular structure. Prerequisites: CHM 345 or graduate standing.

CHM 547 Advanced Chemistry Laboratory 2(1-3)

Advanced synthesis, separation, and structure determination of organic and inorganic compounds. Prerequisite: CHM 349, 331.

CHM 551 Materials Chemistry: Inorganics and Nanomaterials 3(3-0)

This course will provide a detailed survey of metals, semiconductors, ceramics, and nanomaterials, with a special emphasis on structure-property relationships. Students cannot receive credit for both SAM 700 and CHM 551. Prerequisites: CHM 331 or graduate status. Recommended: CHM 346.

CHM 555 Advanced Physical Chemistry 3(3-0)

Advanced development and application of physical theories using a statistical mechanic approach to understanding of molecular energetics and kinetics. Prerequisites: CHM 352 or 355; MTH 233.

CHM 561 Polymer Chemistry 3(3-0)

An introductory course on polymer synthesis, polymer theory, and basic characterization techniques. Prerequisites: CHM 346, 352.

CHM 562 Industrial Chemistry 3(3-0)

Treatment of the following three primary areas: 1) actual chemistry of industry, 2) the technology of industry, and 3) the industrial chemical environment. Prerequisite: CHM 346.

CHM 564 Polymer Technology 3(3-0)

A consideration of the major groups of technologically important polymers, including raw material base, the important methods of manufacture, properties, processing, compounding, uses and testing. Prerequisite: CHM 561.

CHM 566 Introduction to Biomaterials 3(3-0)

Introduction to biomaterials science, including materials properties, interactions between materials and living tissues, and materials and biological testing. Prerequisite: CHM 346 or graduate standing. Recommended: CHM 352 or 355, CHM 425 or 521, CHM 561, BIO 110.

CHM 567 Polymer Science Laboratory 2(1-3)

Treatment of laboratory techniques common to polymer science: synthesis of polymers and the characterization of these materials by spectroscopic, thermal, and mechanical methods. Prerequisites: CHM 349. Co-requisite: CHM 561.

CHM 568 Pharmaceutical Chemistry 3(3-0)

Interdisciplinary introduction to the science of drug formulation, delivery and efficacy. Prerequisites: CHM 346 or 342 or graduate standing. Recommended: CHM 425 or 521, CHM 355, BIO 392.

CHM 571 Topics in Chemistry 1-9(Spec)

Special topics in chemistry presented at an advanced undergraduate - beginning graduate level. Course may be taken for credit more than once; total credit not to exceed nine hours. Prerequisites: See Course Search and Registration.

CHM 572 Selected Topics in Chemistry 1-9(Spec)

Special topics in chemistry, presented in short course or workshop format. Course may be taken for credit more than once; total credit not to exceed nine hours. CR/NC only. Prerequisites: Senior level undergraduate or graduate standing in chemistry or biochemistry programs.

CHM 583 Seminar in Chemistry 1-2(Spec)

Presentation of technical material and training in the use of chemical literature. Prerequisites: 25 credit hours of chemistry courses or graduate standing.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

CHM 601 Chemistry Seminar Presentations 2(2-0)**CHM 602 Scientific Writing in Chemistry 1(1-0)****CHM 611 Advanced Topics in Analytical Chemistry 1-9(Spec)****CHM 612 Techniques in Nuclear Magnetic Resonance Spectroscopy 3(2-3)****CHM 619 Continuing Registration for Final Research Project 1(1-0)****CHM 621 Advanced Biochemistry 3(3-0)****CHM 624 Advanced Topics in Biochemistry 1-9(Spec)****CHM 631 Coordination Chemistry 3(3-0)****CHM 632 Advanced Topics in Inorganic Chemistry 1-9(Spec)****CHM 641 Advanced Topics in Organic Chemistry 1-9(Spec)****CHM 643 Physical Organic Chemistry 3(3-0)****CHM 644 Organic Reactions and Synthesis 3(3-0)****CHM 651 Advanced Topics in Physical Chemistry 1-9(Spec)****CHM 655 Quantum and Computational Chemistry 3(3-0)****CHM 663 Polymer Synthesis 3(3-0)****CHM 665 Advanced Topics in Polymer Chemistry 1-9(Spec)****CHM 667 Polymer Additives 3(3-0)****CHM 669 Polymer Processing 3(3-0)****CHM 781 Chemistry Teaching Practicum 2(Spec)****CHM 791 Directed Research 1-6(Spec)****CHM 793 Chemistry Teaching Internship 1-9(Spec)****CHM 794 Experimentation in the Teaching of Chemistry 1-6(Spec)****CHM 798 Thesis 1-6(Spec)****CHN - Chinese**

See the Department of World Languages and Cultures for more information.

CHN 101 Elementary Chinese I 4(4-0)

Designed for students who have had no Chinese. Basic Mandarin Chinese language skills and introduction to the cultures of China. Students who have had one year of Chinese study may not enroll without permission of instructor. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

CHN 102 Elementary Chinese II 4(4-0)

Continuation of CHN 101. Basic Mandarin Chinese language skills and introduction to the cultures of China. Recommended: CHN 101. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

CHN 201 Intermediate Chinese 4(4-0)

Further development of Chinese language skills in reading, writing, listening and speaking, focusing on communicative competence. Organized by topics in everyday life. Recommended: CHN 102. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

COM - Communication

See the Department of Communication and Dramatic Arts for more information.

COM 100 Communication and Society 1(1-0)

This course introduces students to a variety of communication concepts and career possibilities in addition to the role communication plays in contemporary society.

COM 101 Introduction to Communication 3(3-0)

General education approach to theory and process of human communication with practicum opportunities.

COM 103 Oral Communication in the Online Environment 3(3-0)

General education approach to theory and process of human communication, especially communication tailored for electronic media. This course may be offered in an online or hybrid format.

COM 195 Intercultural Communication 3(3-0)

Content focuses on how values, attitudes and beliefs influence communication among people from different cultural backgrounds. This course may be offered in an online or hybrid format.

COM 225 Introduction to Communication in Virtual Environments 3(3-0)

This course addresses the implications of communicating in virtual worlds. Concepts to be addressed include: identity construction, online relationships, collaborative work environments, and ethics. This course may be offered in an online format.

COM 251 Foundations of Communication Theory 3(3-0)

Basic theories pertaining to spoken symbolic interaction, focusing mainly on the psychological and sociological aspects of interpersonal communication and public address.

COM 255 Special Topics in Communication 1-6(Spec)

Varied topics of current interest; course is repeatable for up to 6 hours when content previously studied is not duplicated.

COM 264 Organizational Communication 3(3-0)

Current communication theories and practices in the modern formal organization. Especially recommended for students on preprofessional curricula.

COM 267 Introduction to Debate 3(3-0)

Prepares students without experience to gain understanding of theory and practice of debate. Recommended for prelaw, prebusiness, urban government students, and teachers.

COM 269 Practicum in Debate/Forensics 2-8(Spec)

Opportunities for intensive research on topics in debate and various forms of forensics for students in the University forensics program. Prerequisite: permission of instructor.

COM 277 Video Games and Human Communication 3(3-0)

Video Games and Communication is an introduction to key issues related to contemporary digital game studies. May be offered as Writing Intensive.

COM 301WI Survey of Research in Communication 3(3-0)

An introduction to the research and its methodologies in speech communication. Students will read and write about primary research in the discipline. Writing Intensive. Prerequisite: a grade of C (2.0) or better in COM 251.

COM 309 Mediated Communication & Global Identity 3(3-0)

Analysis of American and International media to identify assumptions about global citizenship and how global citizenship relates to issues such as race/ethnicity and identity. Identical to BCA 309. Credit may not be earned in more than one of these courses. Prerequisites: A minimum of 12 completed credit hours. Because the course involves international travel, all students must apply through the Office of International Education. Recommended: A minimum of 56 completed credit hours.

COM 352 Communication and Social Influence 3(3-0)

This course explores how language and public speeches shape decisions, create political support, define presidential leadership, repair public images, and celebrate community values.

COM 353 Small Group Communication 3(3-0)

Theories and application of the methods surrounding small-group interaction processes.

COM 357 Public Speaking 3(3-0)

Theories and techniques for creating public speeches. Designed for students who seek to improve public-speaking skills.

COM 361 Interpersonal Communication 3(3-0)

Assists the student in understanding the interpersonal communication process and in analyzing barriers to its effectiveness.

COM 362 Gender Communication 3(3-0)

Focuses on the role of communication in the creation and perpetuation of gender stereotypes. Emphasis on personal growth and awareness in a variety of contexts. Identical to WGS 362. Credit may not be earned in more than one of these courses.

COM 363 Principles and Types of Interviewing 3(3-0)

Study of establishing and achieving communication goals in a variety of formalized interviewing contexts. Emphasis given to question development and interviewing skills.

COM 365 Persuasion and Social Influence 3(3-0)

Application of theories and principles underlying attitude change. This course is approved for offering in a distance learning format.

COM 367 Nonverbal Communication 3(3-0)

Examines the non-language dimensions of communication in several social settings: dyadic, small group, crosscultural, and subcultural.

COM 369 Health Communication 3(3-0)

This course will assist students in increasing their understanding of communication skills applied to the health professions and healthcare settings.

COM 401 Capstone in Communication 3(3-0)

Designed to help students integrate their communication knowledge and demonstrate higher-order thinking, decision-making, and interaction skills by applying them to professional and real-world situations. Students must achieve a C or better to count COM 401 toward the COM major and satisfy requirements for graduation. Prerequisites: COM 251, 301 with a grade of C or better; COM 353, 357, 361; 9 additional hours toward the COM major; senior status.

COM 461 Communication in Leadership 3(3-0)

Theory and practice in leadership skills with special emphasis on oral communication. Examines leadership in both voluntary and non-voluntary organizations. This course may be offered in an online or hybrid format. Prerequisites: COM 251, 301 with C (2.0) or better; or LDR 200 and junior standing.

COM 464 Communication Internship 1-6(Spec)

Designed to apply a variety of communication concepts and skills within a supervised organizational setting. Prerequisite: Prior written approval of COM internship coordinator. Limited to junior and senior COM majors and minors.

COM 468 Advanced Interpersonal Communication 3(3-0)

Survey of interpersonal communication theories. Focuses on current issues and concepts in the area of interpersonal relationships. May be offered as Writing Intensive. Prerequisites: COM 251, 301, with a grade of C (2.0) or better; COM 361.

COM 490 Independent Study 1-4(Spec)

Student-initiated study guided by faculty member. Prerequisites: overall B average; signed Independent Study Form with faculty member.

COM 492 Speech Methods in Secondary School 4(4-0)

Philosophy, principles, and methods. Curricular and co-curricular responsibilities of secondary teachers (grades 7-12). Students also will work as a teaching assistant in COM 101. Prerequisites: Tier Two - Admission of Candidacy to Teacher Education. Must be taken the spring semester prior to student teaching at the secondary level in Speech.

COM 493 Field Experience in Speech Education 1(Spec)

Individual one-week assignment in a public school of on-site observation and participation under the supervision of the department and a secondary speech communication teacher. CR/NC only. Prerequisites: permission of instructor; EDU 107. Co-requisite: COM 492.

COM 495 Communication Facilitation 2-6(Spec)

Guided experience as a teaching assistant in a communication class. Students will have the opportunity to develop interpersonal, small group, public speaking, and supervisory communication skills in an applied setting. Prerequisite: Interview and contract with instructor.

COM 511 Crisis Communication 3(3-0)

Current communication theories and practices in organizational crisis management and external crisis communication. Emphasis on public relations and communication. This course may be offered in an online format. Prerequisites: COM 251, 301, with a grade of C (2.0) or better and completion of 56 credit hours; or JRN 350, 369 with a grade of C (2.0) or better and completion of 56 hours; or graduate standing.

COM 523 Dark Side of Communication 3(3-0)

This course examines negative communication behaviors such as expression of jealousy, gossip and rumor, embarrassment, criticism, deception, coercion, and obsession. Prerequisites: COM 251, 301 with grades of C or better; COM 361.

COM 525 Virtual Team Communication 3(3-0)

Examines communication issues and best practices for successful virtual teams. Includes processes for developing and maintaining virtual team identity/roles, leadership, performance, project planning/organization, and evaluation. This course may be offered in an online format. Prerequisites: COM 225; COM 251, 301 with a C or better; or graduate standing.

COM 527 Political Communication 3(3-0)

This course considers the influence of political communication in American society. The course addresses the connections between political discourse, the American people, and the media. Prerequisites: COM 251, 301 with a grade of C or better; junior standing.

COM 555 Special Topics in Communication 3-9(Spec)

Current topics of each semester listed in Course Search and Registration. 3 hours each; maximum credit 9 hours. Prerequisites: grades of C (2.0) or better in COM 251, 301.

COM 558 Historical Backgrounds of Communication Theory 3(3-0)

Theories of rhetoric and communication from the classical, medieval, and Renaissance periods studied in a comprehensive historical philosophical survey. Prerequisite: COM 251, 301 with grades of C or better.

COM 560 Communication and Social/Organizational Change 3(3-0)

Research and methods of communicating changes into existing social systems. This course may be offered in an online or hybrid format. Prerequisite: COM 251, 301, with grades of C or better; or IPR major with junior standing; or graduate standing.

COM 561 Communication in Conflict Management 3(3-0)

Theory, research, and practical application of managing conflicts through communication. Focuses on conflict between people in the contexts of family, group, and organizations. Prerequisite: COM 251, 301 with grades of C or better; or IPR major with junior standing; or graduate standing.

COM 562 Family Communication 3(3-0)

The study of verbal and nonverbal communication processes, patterns, and problems in the family. The uniqueness of the family system as a communication context is emphasized. Prerequisites: COM 251, 301 with grades of C or better.

COM 563 Health Communication Campaigns 3(3-0)

Research and methods of communicating health messages for education and disease prevention. This course may be offered in an online or hybrid format. Prerequisites: COM 251, 301 each with a grade of C or better; or graduate standing.

COM 565 Communication Training in Organizations 3(3-0)

This course examines the role of training in improving communication in organizations. The course discusses the design, development, implementation, and evaluation of organizational communication training. Prerequisites: COM 251, 301 with grades of C or better; COM 264.

COM 569 Communication in the Classroom 3(3-0)

Integrates research from several fields describing communication patterns between students and teacher-to-student within school settings. Designed for students interested in teaching or administration. Prerequisite: completion of 56 hours of undergraduate credit.

COM 594 Directing Speech Activities 3(3-0)

Designed to provide the student or the professional teacher with the skills needed to coach and administer forensic activities on the high school level. Prerequisites: COM 251, 301 with grades of C or better.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

COM 600 Introduction to Research and Graduate Study in Communication 3(3-0)**COM 601 Research Design in Communication 3(3-0)****COM 602 Qualitative Research Methods 3(3-0)****COM 603 Professional Seminar in Communication 1-3(Spec)****COM 619 Continuing Registration for Final Research Project 1(1-0)****COM 660 Special Topics: Graduate Seminar 3-9(Spec)****COM 661 Contemporary Communication Theory 3(3-0)****COM 662 Seminar in Persuasion 3(3-0)****COM 664 Seminar in Organizational Communication 3(3-0)****COM 665 Seminar in Communication and Negotiation in Employee Relations 3(3-0)****COM 667 Seminar in Intercultural Communication 3(3-0)****COM 668 Seminar in Interpersonal Communication 3(3-0)****COM 750 Seminar in Rhetorical Criticism 3(3-0)****COM 764 Communication Internship 1-6(Spec)****COM 790 Advanced Independent Study 1-4(Spec)****COM 795 Seminar: Teaching College Communication 3(2-2)****COM 798 Thesis 1-6(Spec)****CPS - Computer Science**

See the Department of Computer Science for more information.

CPS 100 Computers and Society 3(3-0)

Fundamental concepts and applications of computers. Impact of the computer on human events and social institutions. Control, predictions, and implications of future computer developments. Identical to BIS 104. Credit may not be earned in more than one of these courses. Does not count on CPS major or minor. This course is approved for offering in a distance learning format.

CPS 105 Word Processing Concepts 1(1-0)

Introduction to word processing and desktop publishing concepts. Features common to most word processing software. Evaluation of software packages. Identical to BIS 105. Credit may not be earned in more than one of these courses. Recommended: BIS 112.

CPS 106 Spreadsheet Concepts 1(1-0)

Introduction to spreadsheets and report generation. Features common to most spreadsheets. Evaluation of software packages. Recommended: Familiarity with personal computer use. This course is approved for offering in a distance learning format.

CPS 107 Database Concepts 1(1-0)

Introduction to database and report generation. Features common to most database products. Evaluation of software packages. Identical to BIS 107. Credit may not be earned in more than one of these courses. Recommended: Familiarity with microcomputer use.

CPS 108 Computer Graphics Concepts 1(1-0)

Introduction to computer graphics. Use of one or more graphics programs. Concepts needed for design and generation of computer images. Evaluation of software. Identical to BIS 108. Credit may not be earned in more than one of these courses. Recommended: Familiarity with microcomputer use.

CPS 109 Computer Communication Concepts 1(1-0)

Introduction to concepts needed for computer communications. Local and wide area networks, electronic mail, file transfer, electronic bulletin boards, conferences. Use of several communication programs. Identical to BIS 111. Credit may not be earned in more than one of these courses. Recommended: Familiarity with use of a computer.

CPS 110 Information Technology Programming I 3(3-0)

Introduction to operating a computer and writing computer programs. First programming course in the information technology major/minor. Language used is Visual Basic.

CPS 150 FORTRAN Programming 3(3-0)

Algorithms, programs, and computers. Computer solution of several numerical and nonnumerical problems. Does not count toward a major or minor in CPS. Prerequisites: One of: MTH 106, 107, 130, 132.

CPS 165 Modern Website Design 3(3-0)

Design and development of dynamic, interactive websites. Maintain a web portfolio. Learn about web publishing best practices with consideration of social aspects. Recommended: CPS 100.

CPS 180 Principles of Computer Programming 3(3-0)

Algorithm development and problem solving methods. Design and development of computer programs in a structured programming language. Pre/Co-requisite: One of MTH 130, 132, 133, 217. (University Program Group II-B: Quantitative and Mathematical Sciences)

CPS 181 Introduction to Data Structures 3(3-0)

Continuation of CPS 180. Dynamic storage allocation, recursion, abstract data types (such as stacks, queues, linked lists, and binary trees), sorting and searching. Prerequisites: CPS 180; Co-requisite: MTH 175.

CPS 196 Special Topics in Computer Science 1-6(Spec)

Selected topics in computer science not otherwise available in a course regularly offered. Topic(s) are listed in Course Search and Registration. Repeatable up to 6 credits when content does not duplicate previous special topic studies. Pre/Co-requisites: See Course Search and Registration. Determined by the specific topics presented.

CPS 210 Assembly Language and Computer Organization 3(3-0)

Topics in assembly language concepts, introduction to computer organization, machine representation of information, models of computer architecture, instruction and addressing fundamentals, control structures. Pre/Co-Requisite: CPS 181. Recommended: One of: MTH 132 or MTH 216.

CPS 240 Object-Oriented Programming, Analysis and Design 3(3-0)

Detailed coverage of the object-oriented programming paradigm and concepts, design patterns, distributed objects, graphical user interfaces and event handling. Software design in teams. Prerequisite: CPS 181 with a C or better.

CPS 280 Alternative Programming Languages 1-6(Spec)

Intensive study of one or more selected programming languages. Languages presented will be announced in Course Search and Registration. Students may not earn credit for a language in which they already have credit in one of the primary programming sequences. Prerequisite: CPS 181 or ITC 111.

CPS 282 Introduction to Multimedia Design 3(3-0)

Introduction to multimedia concepts. Survey of multimedia applications in fields such as education, business and entertainment. Introduction to multimedia authoring tools. Hands-on projects.

CPS 296 Special Topics in Computer Science 1-6(Spec)

Selected topics in computer science not otherwise available in a course regularly offered. Topic(s) are listed in Course Search and Registration. Repeatable up to 6 credits when content does not duplicate previous special topic studies. Pre/Co-requisites: See Course Search and Registration. Determined by the specific topics presented.

CPS 340 Advanced Data Structures and Algorithms 3(3-0)

Theory of and advanced techniques for representing information: lists, trees, graphs. Analysis of algorithms: sorting, searching and hashing techniques. Prerequisites: CPS 181; CPS 210 or EGR 396. Pre/Co-requisite: MTH 223 or 232. Recommended: CPS 240.

CPS 360 Computer Design and Architecture 3(3-0)

Design and analysis of digital circuits, processor datapath, instruction set architecture, cache memory, pipelined instruction execution, virtual memory. Prerequisite: CPS 210.

CPS 382 Advanced Multimedia Design 3(3-0)

Design interactive multimedia projects using advanced authoring tools and discuss issues concerning representation, storage, compression, transmission, and manipulation of various multimedia components. Prerequisite: CPS 240 or 282.

CPS 395 Internship in Computer Science 1-9(Spec)

Supervised work experience in computer science. Only 3 hours may count toward the major. Any additional hours must provide a significantly different educational experience. CR/NC only. Prerequisites: CPS 210 or ITC 291; permission of department chairperson.

CPS 396 Special Topics in Computer Science 1-6(Spec)

Selected technical topics of the latest developments in the field. These topics are normally not covered in existing courses. Topic(s) are listed in Course Search and Registration. Repeatable up to 6 credits when content does not duplicate previous special topic studies. Prerequisite: 40 credit hours completed.

CPS 410 Software Engineering 3(3-0)

Software specification, design methods, programming and testing techniques and CASE tools. Developing large software systems in a group environment using modern software engineering techniques. Prerequisites: CPS 340.

CPS 420 Web Application Development - Web Services SOA 3(3-0)

Web-based applications focusing on server-side processing, data persistence, use of web services, Service Oriented Architecture, remote procedure calls, asynchronous messaging, transactions and security considerations. Prerequisite: CPS 340 or ITC 320. Recommended: ITC 341.

CPS 450 Programming Language Concepts 3(3-0)

Formal definition of programming languages including specification of syntax and semantics. Prerequisite: CPS 340.

CPS 470 Introduction to Operating Systems 3(3-0)

Operating systems as resource manager. Study of the strategies used to manage system resources such as devices, files, memory, processors. Prerequisites: CPS 340, 360.

CPS 480 Introduction to Artificial Intelligence 3(3-0)

Automated reasoning, search strategies, knowledge representation, game playing, expert systems, machine learning and perception; applications. Prerequisites: CPS 340.

CPS 496 Special Topics in Computer Science 1-6(Spec)

Selected topics in computer science not otherwise available in a course regularly offered. Topic(s) are listed in Course Search and Registration. Repeatable up to 6 credits when content does not duplicate previous special topic studies. Pre/Co-requisites: See Course Search and Registration. Determined by the specific topics presented.

CPS 497 Independent Study 1-6(Spec)

Open to students with permission of instructor. May be taken for credit more than once, total credit not to exceed 6 hours.

CPS 501 Survey of Computer Science 3(3-0)

Computer organization, low and high level computer languages, various computer applications. Does not count toward CPS major or minor or the M.S. in Computer Science except the Teaching Minor in Computer Science on the secondary education curriculum. This course is approved for offering in a distance learning format.

CPS 510 Software Systems Engineering 3(3-0)

Covers requirements analysis and techniques to develop a system from those requirements. Credit will not be given for both CPS 410 and CPS 510. Does not count for the M.S. in Computer Science. Prerequisites: CPS 340; MTH 175. This course is approved for offering in a distance learning format.

CPS 520 Software Architecture 3(3-0)

Study of software architecture styles and quality attributes; achieving software quality; designing, documenting, and restructuring software architecture evaluation; tools for architectural design. Prerequisite: CPS 410 or graduate status.

CPS 530 Simulation of Discrete Event Systems 3(3-0)

Development of computer models for discrete systems using computer simulation languages. Performance evaluation of computer, industrial and engineering systems. Prerequisite: CPS 181; STA 282 or STA 382.

CPS 531 Distributed Programming 3(3-0)

Study of design and implementation issues in distributed programming, including event model, client/server, distributed data processing, remote objects, network services, and security. Prerequisite: CPS 340 or admission into CPS graduate program. Recommended: CPS 280J.

CPS 541 Databases 3(3-0)

Physical and logical organizations of databases, database management systems, project involving a student-designed database. Prerequisites: CPS 340 and CPS 370; or ITC 441 and permission of instructor.

CPS 542 Analysis and Design of Algorithms 3(3-0)

Models of computation. Analysis of algorithms including computing time and space requirements. Efficient algorithm design techniques. Introduction to parallel algorithms. Prerequisite: CPS 340.

CPS 560 Digital Computer Design 3(3-0)

Design of basic components of a general purpose computer such as CPU, memory, I/O systems. Instruction set design. CISC versus RISC debate. Parallel Architectures. Prerequisite: CPS 360.

CPS 565 Computer Networks I 3(3-0)

Introduction to computer networks. Point-to-point, local area and wireless networks. Protocols, routing algorithms, and congestion control in networks. Prerequisites: CPS 340, 360.

CPS 575 Computer Graphics 3(3-0)

Representation of line drawings, handwritings, and three-dimensional surfaces in computers. A plotter and graphics terminal are used. Prerequisites: CPS 181 or MTH 223.

CPS 576 Digital Image Processing 3(3-0)

Digital image fundamentals. Introduction to digital image processing concepts and techniques. Image transforms. Enhancement, segmentation, representation, and description of images. Image encoding and restoration. Prerequisites: CPS 340; MTH 175, MTH 223.

CPS 585 Applied Data Engineering 3(3-0)

Study of data engineering concepts and techniques, including data preparation, storage and warehousing, analysis and mining, security, visualization, and applications. Use of data analysis tools. Prerequisites: STA 382.

CPS 596 Special Topics in Computer Science 1-6(Spec)

Selected topics in computer science not otherwise available in a course regularly offered. Topic(s) are listed in Course Search and Registration. Repeatable up to 6 credits when content does not duplicate previous special topic studies. Prerequisite: See Course Search and Registration. Determined by the specific topics presented.

CPS 597 Independent Study 1-6(Spec)

Open to students with permission of instructor. May be taken for credit more than once, total credit not to exceed 6 hours.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

CPS 603 Computer Information Systems 3(3-0)**CPS 610 Advanced Software Design and Development 3(3-0)****CPS 611 Software Verification and Validation 3(3-0)****CPS 612 Software Project Management 3(3-0)****CPS 613 Specification of Software Systems 3(3-0)****CPS 614 Principles and Applications of Software 3(3-0)****CPS 615 Software Generation and Maintenance 3(3-0)****CPS 619 Continuing Registration for Final Research Project 1(1-0)****CPS 641 Advanced Topics in Databases 3(3-0)****CPS 650 Theory and Practice of Compiler Construction 3(3-0)****CPS 665 Computer Networks II 3(3-0)****CPS 670 Operating Systems 3(3-0)****CPS 675 Advanced Topics in Computer Graphics 3(3-0)****CPS 680 Artificial Intelligence 3(3-0)****CPS 685 Pattern Recognition and Data Mining 3(3-0)****CPS 691 Graduate Seminar 3(3-0)****CPS 695 Professional Field Experience 1-6(Spec)****CPS 696 Special Topics in Computer Science 1-6(Spec)****CPS 697 Independent Study 1-6(Spec)****CPS 710 Software Engineering Metrics, Models and Management 3(3-0)****CPS 798 Thesis 1-6(Spec)****CRM - Cultural Resource Management**

See the College of Humanities, Social and Behavioral Sciences for more information.

CRM 521 North American Indian Ethnohistory 3(3-0)

The history of Native American peoples in North America since 1492, impact of colonization and U.S. policy upon Native Americans, and ethno-historical theory and methodology. Identical to ANT 521. Credit may not be earned in more than one of these courses. Prerequisite: Senior standing and ANT 320 or 365 or HST 323; or graduate standing.

CRM 540 Archaeological Field and Laboratory Techniques 3(3-0)

Practical instruction in archaeological methods including field survey and excavation; description, classification, data analysis, and documentation of cultural materials in the laboratory. Identical to ANT 540. Credit may not be earned in more than one of these courses. Prerequisites: ANT 175 and one of the following: ANT 340, 344, 348; or Graduate standing.

CRM 542 Methods in Forensic Anthropology: Osteology and Skeletal Analysis 4(3-2)

Lectures and laboratory training in forensic identification and analysis of human skeletal remains for utilization by criminal justice authorities, missing persons bureaus, archaeologists and paleoanthropologists. Identical to ANT 542. Credit may not be earned in more than one of these courses. Prerequisites: ANT 173, 342, or 347; or graduate standing.

CRM 544 Great Lakes Archaeology 3(3-0)

Examination of prehistoric cultural trends and societies in the Great Lakes region within the context of broader trends in eastern North America and impact of historic Euroamerican settlement. Identical to ANT 544. Credit may not be earned in more than one of these courses. Prerequisites: ANT 175; or Graduate standing.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

CRM 600 Advanced Field Methods in Archaeology 1-6(Spec)**CRM 626 Theory and Research in Archaeology 3(3-0)****CRM 645 Cultural Resource Management in Archaeology 3(3-0)****CRM 700 Directed Student Research in Archaeology 1-6(Spec)****CRM 798 Thesis 3-6(Spec)**

CSD - Communication Sciences & Disorders

See the Department of Communication Sciences & Disorders for more information.

CSD 130 Normal Speech and Language Acquisition 3(3-0)

Study of normal acquisition of language and speech of children examined on the basis of current linguistic theory. (University Program Group III-A: Behavioral Sciences)

CSD 230 Introduction to Speech, Language, and Hearing Disabilities/Differences in Society 3(3-0)

Study of types and management of communicative disorders experienced by people of all ages/cultures; with emphasis on portrayal of disabilities in literature/film and societal responses.

CSD 278 Normal Speech Developmental/Descriptive Phonetics 3(3-0)

Study of speech sound acquisition emphasizing broad and narrow transcription of normal and disordered American English speech sound production using the International Phonetic Alphabet.

CSD 297 Special Topics in Communication Disorders 1-12(Spec)

Contains subject matter not included in courses currently listed in the Bulletin.

CSD 330 Language Development 3(3-0)

Study of language development in normally developing children from birth through adulthood; oral language sample analysis; language characteristics in disordered language learners.

CSD 331 Introduction to Audiology 3(3-0)

Anatomy and basic psychophysics of hearing, pathologies causing hearing loss, and measurement procedures used to test hearing. Prerequisite: 24 credit hours. Recommended: Math competency and one course in the natural sciences.

CSD 335 The Anatomy and Physiology of Speech and Hearing 3(3-0)

Anatomical structures and functions for speech and hearing.

CSD 338 Introduction to Speech Sound Disorders 3(3-0)

The study of formal and informal assessment of speech sound system disorders, associated factors and intervention approaches applied to various etiologies. Prerequisites: Admission to the CDO Major; CDO 278, 335. Co-requisites: CDO 340, 431.

CSD 340 Child Language Assessment and Intervention 3(3-0)

Formal/informal assessment of language, cognition, and communication functioning in infant through school-aged children not developing normal language parameters: intervention approaches for deficits in language. Prerequisites: Admission to the CDO Major; CDO 330. Co-requisites: CDO 338; CDO 431.

CSD 402 Diagnostics in Communication Disorders 2(2-0)

Exploration of the diagnostic process in speech and language including formal and informal assessment methods and tools and strategies for analysis/interpretation of diagnostic findings. Prerequisites: CDO 230, CDO 278, CDO 330, CDO 335, CDO 338, CDO 340.

CSD 417 Introduction to Adult Communication Disorders 3(3-0)

Overviews neuroanatomical bases of acquired adult communication disorders and reviews nature and impact of such disorders including aphasia, dementia, apraxia, dysarthria, and traumatic brain injury. Prerequisites: Admission to the CDO major; CDO 335, 340. Co-requisites: CDO 439, 494.

CSD 431 Audiologic Rehabilitation 3(3-0)

Habilitative and rehabilitative issues/approaches for persons with hearing loss, including hearing aids, cochlear implants, speechreading, conversational strategies, auditory training, speech/language intervention, psychosocial adjustment, and education. Prerequisite: CDO 331.

CSD 432WI Clinical Communication in Speech-Language Pathology 3(3-0)

Clinical communication using case-based formats to interpret/report outcome data and develop oral/written skills in correspondence with clients, families, and stakeholders. Writing Intensive. Pre/Co-requisite: CDO 417.

CSD 438 Language Disorders in Special Education Populations 3(3-0)

To assist special education, elementary, and secondary teachers in the management of language disorders in mentally impaired, emotionally impaired, learning disabled, and autistic populations. Prerequisite: one course in the area of CDO.

CSD 439 Diagnostic and Intervention Methods in Speech Language Pathology 3(3-0)

Classroom lecture integrating the clinical interaction process with clinical principles and techniques. Prerequisites: Admission to the CDO major; CDO 278, 338, 340. Co-requisites: CDO 494, 417.

CSD 463 Introduction to Acoustic Phonetics 3(3-0)

Physical properties of sound generation, transmission, reception, and perception. Acoustics of sound production, phonemic distinctions, and graphic representations of American English speech. Prerequisites: Admission to the CDO Major; CDO 278. Co-requisites: CDO 525, 551.

CSD 490 Independent Study 1-4(Spec)

Student-initiated study guided by faculty member or faculty committee. Prerequisites: an overall B average; permission of advisor and instructor (and completion of form).

CSD 494 Mentored Practicum in Communication Disorders 4(2-4)

Supervised clinical assignment with an experienced student mentor encompassing up to 4 hours per week; with required weekly lectures regarding clinical procedures, issues, and cases. CR/NC only. Prerequisites: Admission to the CDO major; CDO 338, 340. Co-requisites: CDO 417, 439.

CSD 495 Clinical Experience: Communication Disorders 3-6(Spec)

Enables students in communication disorders to carry out directed clinical practicum. Weekly discussion of clinical problems and cases. Prerequisites: A signed major in CDO; CDO 278, 330, 331, 335, 338, 340, 439, 494; a grade point of at least 3.0.

CSD 512 Supporting Students with Literacy Disorders 3(3-0)

Learn how the foundations of literacy are built on oral language and how to assess and remediate literacy issues. Prerequisites: 55 credit hours completed or graduate status.

CSD 525 Research Design in Communication Disorders 3(3-0)

Study of critical evaluation of scientific literature. Research in evidence-based practice related to clinical decision-making. Exploration of quantitative, qualitative and mixed-methods in research design procedures. Prerequisites: Admission to the CDO major; CDO 494, 439; a statistics course; or admission to the graduate program in Speech-Language Pathology or Audiology. Co-requisites: For Undergraduates Only: CDO 463, 551.

CSD 537 Special Topics in Communication Disorders 1-9(Spec)

Current topics for each semester listed in Course Search and Registration. 3 hours each; maximum credit 9 hours.

CSD 550 Communication Assessment and Intervention in Children with Autism Spectrum Disorders 3(3-0)

This course examines procedures for assessment of communication, language, and speech of students with autism spectrum disorders, and reviews strategies for enhancing communication and language. Prerequisites: SPE 530; senior or graduate status.

CSD 551 Autism Spectrum Disorders: A Clinical Focus 3(3-0)

This course examines clinical procedures and evidence-based practice for assessment and intervention of communication skills of clients with autism spectrum disorders. Prerequisites: Signed CDO major, 30 hours CDO coursework; or admitted SLP or AuD.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

CSD 619 Continuing Registration for Final Research Project 1(1-0)

CSD 790 Advanced Independent Study 1-9(Spec)

DAN - Dance

See the Department of Communication and Dramatic Arts for more information.

DAN 104 Latin Dance I 1(1-0)

Introduction to the social dances of Central and South America and other Latin cultures. Emphasis on basic steps; rhythmical patterning and development of style.

DAN 105 Social Dance I 1(Spec)

Introduction to social dance forms and styles.

DAN 106 Country Line Dance 1(Spec)

Introduction to the basic elements and skills used in the performance of country line dance.

DAN 107 Swing Dance 1(Spec)

Introduction to the basic steps and styles of swing dance.

DAN 125 Introduction to Alexander Technique 2(1-1)

This class is a body awareness and movement class based on the Alexander Technique.

DAN 126 Hip Hop 2(1-2)

Introduction to hip hop forms and styles.

DAN 127 Ballroom Dance 1(1-0)

An introduction to the various techniques and styles of ballroom dance.

DAN 133 Modern I 2(1-2)

An introduction to and beginning instruction in the various techniques and styles of modern dance.

DAN 136 Ballet Technique I 2(Spec)

To familiarize the beginning student with the basics of ballet.

DAN 137 Tap I 2(1-2)

An introductory dance course of basic tap instruction.

DAN 138 Jazz I 2(Spec)

An introductory course in jazz dance that builds from traditional jazz into the contemporary.

DAN 175 Dance Appreciation 3(3-0)

An introduction to dance designed to develop an aesthetic awareness, appreciation, and understanding of the art of dance.

DAN 230 Movement-Rhythmic Form and Structure 3(3-0)

An in-depth study of the dynamic functions of movement and dance.

DAN 231 Fundamental Movement 2(2-0)

An introduction to the basic analysis of locomotor and nonlocomotor movement. Emphasis on skills, posture, and physical development of the individual.

DAN 232 Dance Composition I 2(2-0)

Introduction to the basic elements of dance choreography through the use of creative problem solving. Prerequisite: DAN 133.

DAN 233 Dance Technique II 2(1-2)

Intermediate technique. Prerequisite: DAN 133.

DAN 236 Ballet II 2(Spec)

To afford students the opportunity to use skills learned in Ballet I to progress to a higher level of proficiency in ballet movement. Recommended: Ballet I.

DAN 237 Tap II 2(1-2)

Continuation of DAN 137, Tap I, leading to the development of intermediate tap techniques. Prerequisites: DAN 137.

DAN 305 Studio: Dance Performance 1-4(Spec)

Major participation in faculty/staff-supervised university theatre activity in the areas of dance performance or choreography. Prerequisite: Permission of the instructor.

DAN 332 Dance Composition II 3(3-0)

Continuation of DAN 232 with the inclusion of historical approaches to dance choreography. Prerequisite: DAN 232.

DAN 333 Modern Dance III 2-4(1-2)

Advanced modern dance technique. Only offered for 2 credits per semester; may be repeated up to 4 hours. Prerequisite: DAN 233 with a grade of B or better.

DAN 334 Teaching of Folk, Square, and Social Dance 3(3-0)

Skills, techniques, and materials for teaching.

DAN 337 Tap III 1(Spec)

Development of intermediate to advanced tap techniques in various combinations with jazz styling. Prerequisites: DAN 237; intermediate techniques.

DAN 340 Dance Repertory Theatre and Tour Company 2-8(Spec)

Study of choreography created by members of the dance faculty and guest artists, leading to public performance. Prerequisite: Audition.

DAN 430 Dance Production 3(2-2)

Basic techniques of lighting, costuming, make-up, programming, and general design of a dance concert. Class, projects, guest speakers, and field trips.

DAN 435 Methods of Creative Movement 2(Spec)

Techniques and procedures for teaching rhythm and dance activities for the physical education and dance teacher in grades K-12.

DAN 480 Dance Practicum 1-3(Spec)

Curriculum planning and teaching of K-12, college, or adults in a laboratory setting. CR/NC only. Prerequisites: permission of instructor; senior standing.

DAN 494 Field Study in Dance 1-3(Spec)

An approved investigation, survey, study, or description observation in some area of dance performed off-campus. Prerequisites: permission of instructor; junior standing.

DAN 530 History of Dance 3(3-0)

Dance history from its primitive beginning to the present. Relationships of dance forms to the societies in which they developed.

DAN 578 Special Topics in Dance 1-9(Spec)

Current topics in dance for each semester listed in Course Search and Registration. This course may be repeated for up to 9 credit hours. Prerequisite: Two undergraduate courses in Dance with a C or better.

DBI - Deafblind Intervener

See the College of Humanities and Social & Behavior Sciences or CMU Online for more information.

DBI 101 Introduction to Deafblindness and Intervention 3(3-1)

Covers the diversity of the population that is deafblind, introduces the role of the intervener, and the practice of intervention for students who are deafblind. This course will be offered only in an online format.

DBI 201 Building Communication and Language Skills 3(3-1)

An introduction to communication and language development, with an emphasis on strategies for increasing the communication repertoires of students who are deafblind. This course will be offered only in an online format. Prerequisite: DBI 101.

DBI 301 Intervention Strategies and Teaming 3(3-1)

A range of strategies that can be used by interveners in the field, including teaming and collaboration. This course will be offered only in an online format. Prerequisite: DBI 201.

DBI 302 Intervention Practicum 3(Spec)

Final class for the Intervener Certificate Program. Student portfolios demonstrating the Council for Exceptional Children (CEC) Competencies for interveners are completed. This course will be offered only in an online format. Prerequisite: DBI 301.

DHA - Degrees in Health Administration

See the School of Health Sciences for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

DHA 700 Leadership Strategies for Healthcare Policy and Organizations 3(3-0)**DHA 702 Probability and Statistics for the Health Professions 3(3-0)****DHA 704 Population Health 3(3-0)****DHA 705 Seminar in Public Health 1(1-0)****DHA 706 Quantitative Analysis in Health Organization 3(3-0)****DHA 708 Organizational Theory and Behavior for the Health Professions 3(3-0)****DHA 709 Seminar in Health Dynamics: Current Issues, Trends and Change 1(1-0)****DHA 710 Qualitative Analysis in Health Care 3(3-0)****DHA 712 Research Methods and Practice for the Health Professions 3(3-0)****DHA 713 Seminar in Health Services Research 1(1-0)****DHA 714 Health Systems Thinking and Practice 3(3-0)****DHA 716 Communication in Health Organizations 3(3-0)****DHA 717 Seminar in Healthcare Dynamics: Stakeholder Relations 1(1-0)****DHA 718 Healthcare Law, Regulations and Ethics 3(3-0)****DHA 720 Health Economics 3(3-0)****DHA 721 Seminar in Healthcare Policy and Politics 1(1-0)****DHA 722 Health Informatics 3(3-0)****DHA 724 Fiscal Responsibility and Accountability in Healthcare 3(3-0)****DHA 725 Seminar in Strategic Planning for Health Organizations 1(1-0)****DHA 726 Applied Leadership 3(3-0)****DHA 728 Comparative Health Systems 3(3-0)****DHA 898 Dissertation 1-12(Spec)****ECE - Early Childhood Education**

See the Department of Teacher Education and Professional Development for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

ECE 625 Foundations of Early Childhood Education 3(3-0)**ECE 628 Language and Literacy Development of Young Children 3(3-0)****ECE 629 Promoting Parent Involvement in Early Childhood Education 3(3-0)****ECE 630 Culturally Responsive Early Childhood Programs 3(3-0)****ECE 644 Early Childhood Concept Development and Creativity 3(3-0)****ECE 657 Cognitive and Psycho-Motor Development of Young Children: Theory & Practice 3(3-0)****ECE 777 Seminar: Current Issues in Early Childhood Education 3(3-0)****ECO - Economics**

See the Department of Economics for more information.

ECO 101 Economics as a Way of Thinking 3(3-0)

Introduction to the economic way of thinking and its applications to decision making in daily living. Emphasis on basic understanding of the economic aspects of current issues. Credit on the Economics major will be given only if this course is taken prior to the following courses: ECO 201, 202, 203.

ECO 110 Economics and Society 3(3-0)

An examination of the development of economic thought and institutions with emphasis on the application of this knowledge to the understanding of today's world. Credit on the economics major will not be given if this course is taken after ECO 201 or ECO 202 or ECO 203.

ECO 150 Current Economic Problems 3(3-0)

Economic topics of current national and international concern. Economic issues with which informed voters must deal. No credit if credit has been earned in ECO 201 or ECO 202 or ECO 203 or ECO 204. (University Program Group III-B: Studies in Social Structures)

ECO 201 Principles of Macroeconomics 3(3-0)

Provides understanding of basic principles of economics, methods of National Income accounting, inflation, unemployment, role of government, money and banking, monetary policy, and international economics. Credit may not be earned in more than one of ECO 201 and 204. ECO 201 may not be applied toward the University Program requirements if a student is earning the Bachelor of Science in Business Administration degree. This course may be offered in an online or hybrid format. (University Program Group III-B: Studies in Social Structures)

ECO 202 Principles of Microeconomics 3(3-0)

Introduction to scarcity, choice, and opportunity cost; supply and demand; welfare economics; household and firm behavior; competition and monopoly; resource markets. Credit may not be earned in more than one of ECO 202 and ECO 203. This course may be offered in an online format. (University Program Group III-B: Studies in Social Structures)

ECO 203 Microeconomic Principles for Business 3(3-0)

Introduction to economic decision-making by consumers and managers within a market system. Topics include supply, demand, elasticity, production, costs, price, market structure, and resource markets. Credit may not be earned in more than one of ECO 203 and ECO 202. Prerequisites: BUS 100, admission to Professional Business Studies.

ECO 204 Principles of Macro- and Global Economics 3(3-0)

Introduction to GDP, inflation, unemployment, business cycles, interest rates, money and banking, monetary and fiscal policy, economic growth, international trade for business students. Credit may not be earned in more than one of ECO 201 and ECO 204. This course may be offered in an online format. Prerequisites: ECO 203, Tier 1 continuing admission to Professional Business Studies.

ECO 211 Economics of Professional Team Sports 3(3-0)

Study of the economics and industrial relations systems of professional sports leagues in baseball, football, basketball, and hockey in North America.

ECO 222QR Behavioral Economics 3(3-0)

Examines the roles of self-interest, altruism, expectations and information in individual and group decision-making. In-class experiments simulate market behavior and test theoretical predictions. Quantitative Reasoning. (University Program Group III-A: Behavioral Sciences)

ECO 230 Women in the Economy 3(3-0)

A study of the past and present role of women in the economy, as workers, both inside and outside the labor market. Identical to WGS 230. Credit may not be earned in more than one of these courses.

ECO 266 Economics of Poverty and Discrimination 3(3-0)

Economic analysis of the causes of poverty and alternative government solutions. Discrimination in education, housing and labor markets and their relationship to other social problems.

ECO 281 Economic Development of the Pacific Rim 3(3-0)

Rapid development of Pacific Rim economies and its impact on our economy is studied. The roles of history and culture in economic policy are studied. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ECO 285 Statistical Methods in Economics 3(3-0)

Fundamental statistical techniques emphasizing application of statistical methods to economic analysis, index numbers, seasonal and cyclical variation in economic data. Prerequisites: ECO 201 or ECO 204 or ECO 213 or ENT 213; math competency.

ECO 301 Environmental Economics 3(3-0)

Basic economic understanding of environmental/ecological problems arising from a free enterprise system. Economists' solutions presented without advanced economic theory or mathematical computation. Recommended: ECO 202 or 203.

ECO 306 Money and Banking 3(3-0)

The nature of money and credit; history, structure, and functions of banking institutions, with emphasis upon Federal Reserve System and questions of appropriate public policy. Prerequisites: ECO 201 or 204; ECO 202 or 203.

ECO 310 American Economic Development 3(3-0)

Realistic interpretation, with emphasis on economic change and its significance in social, cultural, and political evolution. Recommended: ECO 201 or ECO 202 or ECO 203.

ECO 315 Economics of Immigration 3(3-0)

The economics of immigration: U.S. immigrant characteristics, impact of immigration on the U.S. economy, and public policies towards immigration. Prerequisite: ECO 202 or 203.

ECO 320 European and Asian Economic History 3(3-0)

Realistic introduction to the diverse economic experiences of advanced European and Asian nations from the British industrial revolution to the present. Recommended: ECO 201 or ECO 202 or ECO 203.

ECO 350 Law and Economics 3(3-0)

Theory and application of analytical tools of law and of economics in an integrative approach to both subjects. Identical to BLR 350. Credit may not be earned in more than one of these courses. Prerequisites: BLR 202 or 235, ECO 202 or 203.

ECO 360 Public Economics 3(3-0)

Appropriate and actual roles of government in market economies, and how government influences the use of resources and distribution of income. Prerequisites: ECO 202 or ECO 203.

ECO 365 Intermediate Microeconomic Theory 3(3-0)

An intensive treatment of the theories of supply and demand, consumer and producer behavior, market structure, and other micro theories and issues. Prerequisite: ECO 202 or 203.

ECO 370 Intermediate Macroeconomic Theory 3(3-0)

National income accounting; income, employment, interest rate and inflation theory and policy; theory and problems of economic growth. Prerequisites: ECO 201 or 204; ECO 202 or 203.

ECO 372 International Economics 3(3-0)

Basic background in international trade theory and practices, exchange rates and balance of payments, and international monetary arrangements. Prerequisites: ECO 201 or ECO 204; ECO 202 or ECO 203.

ECO 375 Economics of Cities and Regions 3(3-0)

Elementary theories of regional economic analysis used in solving specific problems such as pollution, housing, segregation, and conservation. Emphasizes urban regions. Prerequisites: ECO 201 or ECO 202 or ECO 203.

ECO 380 Comparative Economic Systems 3(3-0)

Comparative study of economic institutions in a world of politicoeconomic change. An analysis of capitalism, fascism, socialism, and communism. Recommended: ECO 201 or ECO 202 or ECO 203.

ECO 381 Patterns of Economic Development 3(3-0)

A study of the problems, processes, and theories of economic change in today's less developed countries. Recommended: ECO 201 or ECO 202 or ECO 203.

ECO 385 Introduction to Econometrics 3(3-0)

Introduction to the theory and practice of linear regression analysis in economics focusing on single equation methods. Extensive computer applications. Prerequisites: ECO 202 or 203; ECO 285 or STA 282 or STA 382.

ECO 397 Special Studies in Economics 1-6(Spec)

Experimental courses to cover materials of special interest not covered by courses in the regular curriculum. Prerequisite: permission of instructor.

ECO 410 Government and Business 3(3-0)

Relations of industry, especially corporations, to government, antitrust laws and their enforcement; public policy toward business; problems of unfair competition; patents and trademarks. Prerequisites: ECO 202 or ECO 203.

ECO 411 The Economics of Slavery in the U.S. 3(3-0)

The economic indictment of southern slavery; new challenges to this indictment; implications of the existence of southern slavery for present economic policy decisions. Recommended: ECO 201 or 202.

ECO 414 Labor Economics 3(3-0)

Labor market operations and wage determination; human capital investment; labor market discrimination; wage differentials; impact of unionization on wages; collective bargaining. Prerequisite: ECO 202 or 203.

ECO 425 The Economics of Industrial Organization 3(3-0)

Concepts, theories, and evidence which relate industry structure to behavior and performance of firms. Provides a basis for evaluating public policy. Prerequisites: ECO 202 or ECO 203. Recommended: ECO 201 or ECO 204.

ECO 440 Managerial Economics 3(3-0)

Application of microeconomic theory to a variety of management decisions such as internal resource allocation, pricing, market entry and the boundaries of the firm. Prerequisite: ECO 202 or ECO 203.

ECO 490 Economics Internship 1-3(Spec)

Provides a bridge between academic training and work experience. Allows application of principles of economics to a job and job experiences to classes. CR/NC only. Prerequisites: 56 semester hours completed; signed economics major or minor; 12 credit hours of economics (ECO 201 or ECO 204, ECO 202 or ECO 203 and at least one course 300 level or above); overall GPA of 2.75 or higher; prior approval of departmental supervisor.

ECO 503 Seminar in Urban Economics 3(3-0)

Economic aspects of urban regions; their growth; household location; pollution; poverty. Solutions-oriented discussion of urban problems. Complements ECO 504. Recommended: ECO 375.

ECO 508 Monetary Theory 3(3-0)

Further development of theories of money supply, money demand, the options of monetary policy, and the effects of monetary policy on the economy. Prerequisite: ECO 306 or ECO 370.

ECO 515 Collective Bargaining and Labor Law 3(3-0)

Development of various phases of labor law, especially under statutes such as the Wagner Act, Taft-Hartley Act, and Landrum-Griffin Act. Prerequisite: ECO 201 or ECO 204; ECO 202 or 203. CR/NC option available.

ECO 526 Research in Economic History Post 1870 3(3-0)

In-depth examination of specific topics in early- to mid-20th century economic history and instruction in how to conduct and read scholarly research in economics. Prerequisite: ECO 365, 370, MTH 132, STA 282, or graduate standing in economics.

ECO 532 Economic Forecasting 3(3-0)

Nature and causes of economic fluctuations. Methods of predicting price levels and economic activity. Prerequisites: ECO 201 or ECO 204; ECO 202 or ECO 203.

ECO 572 International Monetary Economics 3(3-0)

International monetary and financial markets are studied. Topics include exchange rate policy, international Capital Flow and purchasing power parity theory. Prerequisites: ECO 372.

ECO 585 Econometrics 3(3-0)

Thorough treatment of statistical estimation methods and their properties for simultaneous equation systems. Also includes discussions of types of systems, solution methods and identification. Prerequisites: STA 580 and MTH 132; or graduate standing in Economics.

ECO 586 Econometric Applications 3(3-0)

Economic applications and empirical implementation and interpretation of econometric techniques. Extensive computer applications. Prerequisites: BUS 300 or STA 382; or graduate standing in Economics.

ECO 590 Seminar Readings 1-3(Spec)

Elective honors course for majors or minors in economics. Recommended: 12 hours of economics with B average.

ECO 591 Seminar Research Studies 1-3(Spec)

Independent study on special problems for majors and minors in economics. Prerequisite: permission of instructor. Recommended: 9 hours of 300- to 500-level economics.

ECO 597 Special Studies in Economics 1-3(Spec)

Experimental courses to cover material of special interest to both undergraduates and graduates not covered by courses in the regular curriculum. Prerequisite: permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- ECO 600 Introduction to Advanced Economic Analysis 3(3-0)**
- ECO 601 Advanced Environmental Economics 3(3-0)**
- ECO 603 Economic Effects of Urbanization and Technology 3(3-0)**
- ECO 606 Seminar in Economic History 3(3-0)**
- ECO 610 Seminar in Economic Thought 3(3-0)**
- ECO 614 Seminar in Labor Economics 3(3-0)**
- ECO 616 Advanced Microeconomic Theory 3(3-0)**
- ECO 618 Seminar in Health Economics 3(3-0)**
- ECO 619 Continuing Registration for Final Research Project 1(1-0)**
- ECO 620 Advanced Macroeconomic Theory 3(3-0)**
- ECO 622 Seminar in Economic Growth and Development 3(3-0)**
- ECO 625 Firm Behavior and Game Theory 3(3-0)**
- ECO 630 Comparative Economic Systems 3(3-0)**
- ECO 635 Fundamentals of Mathematical Economics 3(3-0)**
- ECO 640 Special Topics in Economic Issues 3-6(Spec)**
- ECO 646 Advanced Topics in Microeconomic Theory 3(3-0)**
- ECO 650 American Financial Institutions 3(3-0)**
- ECO 655 Seminar in International Economics 3(3-0)**
- ECO 657 Advanced Investment Analysis 3(3-0)**
- ECO 660 Public Finance and Fiscal Policy 3(3-0)**
- ECO 670 Research Methods in Economics 3(3-0)**
- ECO 690 Independent Research 1-3(Spec)**
- ECO 798 Thesis 1-6(Spec)**

EDL - Educational Leadership

See the Department of Educational Leadership for more information.

- EDL 216 Race in Higher Education 3(3-0)**
Exploration of race in higher education. Emphasis on the social and cultural construction of race in higher education contexts. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)
 - EDL 274 Gender in Higher Education 3(3-0)**
Exploration of gender in higher education. Emphasis on the social and cultural construction of gender in higher education contexts. (University Program Group III-B: Studies in Social Structures)
 - EDL 325 Foundations of Higher Education 3(3-0)**
Students will examine the philosophy of history of higher education and student affairs. This course may be offered in an online format. Prerequisites: 24 completed credit hours.
 - EDL 360 Leading Diverse Teams 3(3-0)**
Exploration of the uniqueness of socially-constructed identities by learning the process of leading diverse teams within an educational setting. This course may be offered in an online or hybrid format. Prerequisite: LDR 200.
 - EDL 452 Immersive Leadership in Educational Settings 3(3-0)**
Examination of inclusion-based leadership tenets and efforts at an off-site educational institution. This course may be offered in an online or hybrid format. Prerequisites: LDR 200 and 56 earned semester hours.
 - EDL 476 Outcome-Based Learning 3(3-0)**
Development and assessment of learning outcomes within higher education settings. This course may be offered in an online or hybrid format. Prerequisite: LDR 200.
 - EDL 512 Assessment in Higher Education 3(3-0)**
This course will examine assessment in higher education settings. Students will conduct assessments used in evaluation and accreditation protocols. This course may be offered in an online or hybrid format. Prerequisites: LDR 200 and 80 earned semester credits or graduate standing.
 - EDL 516 Leadership for Social Justice 3(3-0)**
Examination of social justice perspectives and their application to complex relationships found in and around institutions of learning. This course may be offered in an online or hybrid format. Prerequisites: LDR 200 or graduate standing.
 - EDL 557 Helping Skills in Student Affairs 3(3-0)**
Examination of the role of student affairs professionals as helpers through theoretical explorations and practical simulations. This course may be offered in an online or hybrid format. Prerequisites: LDR 200 or graduate standing.
 - EDL 592 Professional Development in Educational Leadership 1-9(Spec)**
Identification and study of emerging problems of educational leadership. This course may be offered in an online or hybrid format.
 - EDL 598 College Student Development 3(3-0)**
Examination and application of relevant developmental theories and models for facilitating holistic student development. This course may be offered in an online or hybrid format. Prerequisites: LDR 200 and EDL 557 or graduate standing.
- For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.*
- EDL 600 Research in Educational Leadership 3(3-0)**
 - EDL 609 Administration of Volunteer Programs 3(3-0)**
 - EDL 610 Grants and Fund Procurement 3(3-0)**
 - EDL 612 Methods and Techniques of Training and Development 3(3-0)**
 - EDL 615 Educational Technology for Administrators 3(3-0)**
 - EDL 619 Continuing Registration for Final Research Project 1(1-0)**
 - EDL 620 Administration Within Diverse Populations 3(3-0)**
 - EDL 622 Adult Literacy and Society 3(3-0)**
 - EDL 624 Planning for Instruction in Nontraditional Settings 3(3-0)**
 - EDL 626 The Adult Learner 3(3-0)**
 - EDL 636 Higher Education Law 3(3-0)**
 - EDL 645 Charter School Leadership 3(3-0)**
 - EDL 650 Professional Studies: Special Topics 1-6(Spec)**
 - EDL 652 Global Education Studies 3-12(Spec)**
 - EDL 656 Public School Law 3(3-0)**
 - EDL 658 Teacher Leadership 3(3-0)**
 - EDL 660 Principles of Educational Administration 3(3-0)**
 - EDL 661 School and Community Relations 3(3-0)**
 - EDL 662 School Business Administration 3(3-0)**
 - EDL 663 Human Resources Administration 3(3-0)**
 - EDL 667 Administration of Community Education 3(3-0)**
 - EDL 669 Rural School Leadership 3(3-0)**
 - EDL 670 The Principalship 3(3-0)**
 - EDL 675 Administration of Special Education 3(3-0)**
 - EDL 676 Administration of Community Colleges 3(3-0)**
 - EDL 677 The American College Student 3(3-0)**
 - EDL 678 Emerging Issues and Reform Efforts in Educational Leadership 3(3-0)**
 - EDL 680 Foundation of Teaching in Higher Education Settings 3(3-0)**
 - EDL 681 Teaching with Technology in Higher Education Settings 3(3-0)**
 - EDL 682 Course Design and Assessment in Higher Education Settings 3(3-0)**
 - EDL 685 High-Impact Teaching Practices in Higher Education Settings 3(3-0)**
 - EDL 687 Independent Study 1-6(Spec)**
 - EDL 688 Independent Study 1-6(Spec)**
 - EDL 689 Independent Study 1-6(Spec)**
 - EDL 690 Administration of School Curriculum 3(3-0)**
 - EDL 694 Educational Leadership Capstone 3(3-0)**
 - EDL 695 Readings in Educational Leadership 1-3(Spec)**
 - EDL 696 Higher Education Practicum 3(3-6)**
 - EDL 697 College Teaching Internship 3(3-6)**
 - EDL 698 Master's Colloquium 3(3-0)**
 - EDL 699 Leadership Internship 1-15(Spec)**
 - EDL 700 Educational Research Design 3(3-0)**
 - EDL 705 The Ontario College System 3(3-0)**
 - EDL 710 Action Research 3(3-0)**
 - EDL 720 Survey Research Methods 3(3-0)**
 - EDL 731 Strategic Planning 3(3-0)**
 - EDL 745 Administration of the School District 3(3-0)**
 - EDL 750 Professional Studies: Special Topics 1-6(Spec)**
 - EDL 751 Program Evaluation and Review 3(3-0)**
 - EDL 752 Social Justice in Global Studies Education 1-12(Spec)**
 - EDL 757 Student Development Theory 3(3-0)**
 - EDL 760 Leadership Theory and Practice 3(3-0)**
 - EDL 761 School and Community Relations for the District Leader 3(3-0)**
 - EDL 763 The Academic Profession 3(3-0)**
 - EDL 764 Financing of Higher Education 3(3-0)**
 - EDL 765 Organizational Change in Educational Institutions 3(3-0)**
 - EDL 766 Advanced Educational Law 3(3-0)**
 - EDL 767 Public School Finance 3(3-0)**
 - EDL 768 Advanced Higher Education Law 3(3-0)**
 - EDL 769 Negotiations in Education 3(3-0)**
 - EDL 770 Advanced Elementary School Leadership 3(3-0)**
 - EDL 772 Advanced Administration of Secondary Schools 3(3-0)**
 - EDL 773 Instructional Supervision and Leadership 3(3-0)**
 - EDL 774 Women in Education 3(3-0)**
 - EDL 775 Educational Policy Analysis 3(3-0)**
 - EDL 776 Administration of Higher Education 3(3-0)**
 - EDL 777 Student Affairs Administration 3(3-0)**
 - EDL 778 Contemporary Issues in Higher Education 3(3-0)**
 - EDL 780 District Level Leader Internship 1-15(Spec)**
 - EDL 790 Critical Issues: Elementary School Leadership 3(3-0)**
 - EDL 792 Critical Issues: Administration of Secondary Schools 3(3-0)**

EDL 797 Field Study 1-6(Spec)
EDL 798 Thesis 1-6(Spec)
EDL 800 Qualitative Research in Educational Leadership 3(3-0)
EDL 801 Quantitative Analysis in Educational Leadership 3(3-0)
EDL 815 Ethical Leadership 3(3-0)
EDL 816 Social Justice in Education 3(3-0)
EDL 820 Critical Perspectives of Development Theory 3(3-0)
EDL 825 Culture of Educational Organizations 3(3-0)
EDL 830 Educational Foundations of Philosophy 3(3-0)
EDL 855 Organizational Culture and Change in Educational Institutions 3(3-0)
EDL 860 Organizational Theory in Educational Institutions 3(3-0)
EDL 864 Economics and Finance of Higher Education 3(3-0)
EDL 870 Issues in Educational Leadership 3(3-0)
EDL 876 Higher Education Policy 3(3-0)
EDL 880 Doctoral Internship 3-6(Spec)
EDL 886 Advanced Problem Solving in Educational Leadership 3(3-0)
EDL 890 Doctoral Proseminar: Writing and Inquiry 3(3-0)
EDL 897 Dissertation Colloquium 3(3-0)
EDL 898 Dissertation 1-15(Spec)
EDL 899 Doctoral Seminar 3-6(Spec)
EDL 900 Advanced Qualitative Analysis in Educational Leadership 3(3-0)
EDL 901 Advanced Quantitative Analysis in Educational Leadership 3(3-0)

EDU - Teacher Education

See the Department of Teacher Education and Professional Development for more information.

EDU 107 Introduction to Teaching 3(3-1)

An introductory course designed to provide prospective teacher education students with the opportunity to explore teaching, including a minimum of ten hours of clinical experience. May be offered as Writing Intensive. Students are required to receive a B or better in this course. This course may be offered in an online format.

EDU 280 Education of Children 3(3-0)

Growth and development of the child, prenatal to adolescent. Includes application to educational settings. Prerequisite: EDU 107. Recommended: Sophomore standing.

EDU 290 Technology in Education 3(3-0)

Students will examine technology issues that affect education, develop technological skills to organize, curate, collaborate, and communicate information, and create digital artifacts. This course may be offered in an online format. May be offered as Writing Intensive.

EDU 310 Psychological Foundations of Education 3(3-0)

Principles of learning, adolescent development and behavior, mental health; emphasis on application to teaching. Students are required to receive a C+ or better in this course. Prerequisites: Tier Two: Admission of Candidacy to Teacher Education.

EDU 320 Elementary Mathematics Methods 3(3-0)

Objectives, content, materials, organization, and methods of teaching mathematics in the elementary school. Students are required to receive a C+ or better in this course. Prerequisites: Admission to Teacher Education Program; EDU 280 or HDF 100 or PSY 220 [General Education Students take EDU 280 or HDF 100; Special Education Majors must take PSY 220]; EDU 290, 393; MTH 151. Co-requisites: EDU 330, 343, 345; EDU/MLE 361. Pre/Co-requisites: MTH 152.

EDU 325 Middle Level and High School Teaching Methods 3(3-0)

Prepares future secondary teachers to plan and deliver effective, learner-centered, developmentally-appropriate, and culturally-responsive instruction that provides a safe and caring classroom climate for all students. Students are required to receive a C+ or better in this course. Prerequisites: Tier Two: Admission of Candidacy to Teacher Education. Pre/Co-Requisite: EDU 310.

EDU 330 Foundations of Reading Instruction 3(3-0)

Materials, organization, and methods of teaching reading in the elementary and secondary school to address the Michigan and national literacy standards and benchmarks. Students are required to receive a C+ or better in this course. This course may be offered in an online format. Prerequisites: Tier One: Pre-Admission of Candidacy to Teacher Education.

EDU 341 Word Study and Fluency 3(3-0)

Research-based instructional approaches and strategies for explicit instruction in phonemic awareness, phonics, spelling, vocabulary, and reading fluency. This Course may be offered in an online format. Prerequisites: EDU 330.

EDU 343 Social Studies Methods in Elementary Education 3(3-0)

Objectives, content, materials, organization and methods of teaching social studies in the elementary school. Students are required to receive a C+ or better in this course. Prerequisites: Admission to Teacher Education; EDU 280 or HDF 100 or PSY 220 [General Education Students take EDU 280 or HDF 100; Special Education Majors must take PSY 220]; EDU 290, 393. Co-requisites: EDU 320, 330, 345; EDU/MLE 361.

EDU 345 Science Methods in Elementary Education 3(3-0)

Objectives, content, materials, organization, and methods of teaching science in the elementary school. Students are required to receive a C+ or better in this course. Prerequisites: Admission to Teacher Education; EDU 280 or HDF 100 or PSY 220 [General Education Students take EDU 280 or HDF 100; Special Education Majors must take PSY 220]; EDU 290, 393. Co-requisites: EDU 320, 330, 343; EDU/MLE 361.

EDU 361 Pre-Student Teaching Practicum 2(1-4)

Pre-service Teachers will gain practical experience through observing, interacting, collaborating, and teaching in a pre K-12 classroom setting. Identical to MLE 361. Credit may not be earned in more than one of these courses. Prerequisites: Admission to Teacher Education; EDU 280 or HDF 100 or PSY 220 [General Education Students take EDU 280 or HDF 100; Special Education Majors must take PSY 220]; EDU 290, 393. Co-requisites: EDU 320, 330, 343, 345.

EDU 362 Mathematics and Reading Practicum 1(0-2)

Pre-service teachers will gain practical experience through observation, interaction, collaboration, preparation, and delivery of reading and mathematics instruction in a pre K-8 classroom setting. Identical to MLE 362. Credit may not be earned in more than one of these courses. CR/NC only. Prerequisites: Admission to Teacher Education Program; EDU 280 or HDF 100 (students with a major in "teachers of students with emotional impairment" or a major in "teachers of students with cognitive impairment" are required to have SPE 126 and PSY 220); EDU 290, 330, 393. Co-requisites: EDU 320, 431.

EDU 363 Science and Social Studies Practicum 1(0-2)

Pre-service teachers will gain practical experience through observation, interaction, collaboration, preparation, and delivery of science and social studies instruction in a pre K-8 classroom setting. Identical to MLE 363. Credit may not be earned in more than one of these courses. CR/NC only. Prerequisites: Admission to Teacher Education Program; EDU 280 or HDF 100 (students with a major in "teachers of students with emotional impairment" or a major in "teachers of students with cognitive impairment" are required to have SPE 126 and PSY 220); EDU 290, 320, 330, 393, 431; EDU/MLE 362. Co-requisites: EDU 343, 345, 495.

EDU 380WI Interdisciplinary Methods and Pre-Student Teaching 10(Spec)

Consists of integrated coursework in pedagogy and teaching in K-8 classrooms. Course is required semester before student teaching. Students are required to receive a C+ or better in this course. Writing Intensive. Prerequisites: 86 credit hours, Tier Two: Admission of Candidacy to Teacher Education, EDU 393, ENG 315; Pre/Co-requisite: SPE 504.

EDU 393 Learning Theory in Elementary Education 3(3-0)

Principles of learning, cognitive development, behavior, social and emotional development, and evaluation in children as related to the practice of teaching. Students are required to receive a C+ or better in this course. Prerequisite: Tier Two: Admission of Candidacy to Teacher Education

EDU 431 Corrective Reading in the Classroom 3(3-0)

Classroom diagnosis of students' reading strengths and weaknesses. Analysis of corrective and remedial techniques. Students are required to receive a C+ or better in this course. Prerequisites: Admission to Teacher Education; EDU 280 or HDF 100 or PSY 220 [General Education Students take EDU 280 or HDF 100; Special Education Majors must take PSY 220]; EDU 290, 320, 330, 343, 345, 393; EDU/MLE 361. Co-requisite: EDU 495.

EDU 432 Student Teaching Seminar 3(3-0)

This course reinforces the components of the CLEAR Conceptual Framework as it pertains to transferring theory to practice while students are in student teaching. Students are required to receive a C+ or better in this course. Prerequisite: Tier Three: Full Admission of Candidacy to Teacher Education; Co-requisite: EDU 458.

EDU 433 Global Pre-Student Teaching Elementary Field Experience 1(1-0)

Preparation for global pre-student teaching elementary field experience. Co-requisites: EDU/MLE 361 or EDU/MLE 362.

EDU 434 Global Pre-Student Teaching Secondary Field Experience 1(1-0)

Preparation for global pre-student teaching secondary field experience. Co-requisites: EDU 310, or 325, or 450, or 495.

EDU 447 Literacy Engagement 3(3-0)

Understanding and applying literacy engagement theory, practice, and assessments in K-12 classrooms. This course may be offered in an online format. Prerequisite: EDU 330.

EDU 450 Disciplinary Literacy 3(3-0)

Study and development of strategies to improve literacy (reading, writing, and thinking for learning) in various disciplines. This course may be offered in an online format. Prerequisites: Tier Two: Admission of Candidacy to Teacher Education, EDU 310. Pre/Co-requisite: EDU 325 or a music pedagogy course appropriate to the program for students seeking the Bachelor of Music Education degree.

EDU 458 Student Teaching 10(Spec)

This experiential course in which students integrate theory into practice is the field-based culminating activity of the Pre K-12 regular education teacher education program. CR/NC only. Prerequisites: Tier Three: Full Admission of Candidacy to Teacher Education; Co-requisite: EDU 432.

EDU 490 Teaching with Distance Learning Technologies 3(3-0)

Methods and procedures of teaching PreK-12 students in asynchronous and synchronous classrooms. Prerequisites: Admission to Teacher Education; EDU 290; Elementary: EDU 320, 330, 343, 345; Secondary: EDU 325.

EDU 493 Learning and Evaluation in Elementary Education 3(3-0)

Theories, purposes, materials, and problems related to learning and the measurement and evaluation of learning. Includes a unit on mental health. Prerequisites: EDU 280 (students with a major in "teachers of students with emotional impairment" or major in "teachers of students with cognitive impairment" are required to have SPE 126 & PSY 220); and at least one of the following: EDU 320, 330. Requires admission to Teacher Education Program.

EDU 495 Foundations of Education 3(3-0)

Examines historical events and social bases of American education. Major emphasis is on political, judicial, and legislative activities; social issues; and current policy affecting schools. Students are required to receive a C+ or better in this course. Prerequisites: Tier Two: Admission of Candidacy to Teacher Education; EDU 290; Co-requisite: EDU 450.

EDU 505 Diagnostic Literacy Assessments & Instruction: K-3 3(3-0)

Diagnostic literacy assessments will be introduced including appropriate administration, data analysis, and related instructional practices. State literacy assessment certification: MLPP K-3. Prerequisites: EDU 330 or graduate status.

EDU 506 Principles and Techniques for Individualizing Instruction 3(3-0)

Examination of individualized instruction and its classroom implications. Prerequisite: EDU 330 or EDU 340.

EDU 508 Education Workshop 1-6(Spec)

Identification and study of educational theory, topics and/or issues in contemporary education. This course may be offered in an online format. Prerequisites: Senior Standing or Graduate Status.

EDU 515 Managing Classrooms and Learning Environments 3(Spec)

Engages students with theories and effective practices related to effectively managing classrooms and learning environments. This course may be offered in an online or hybrid format. Prerequisite: Admission to Teacher Education Program or graduate status.

EDU 525 Early Childhood Education 3(3-0)

Content, methods, materials, and curriculum planning for teaching pre-kindergarten through primary grades. Prerequisites: Junior Standing or Graduate Status.

EDU 528 Early Literacy and Struggling Readers 3(3-0)

Analysis of literacy development from preschool through primary grades and related instructional practices for struggling readers in K-12 classrooms. This course may be offered in an online format. Prerequisites: EDU 330 or graduate standing.

EDU 532 Reading in the Content Areas 3(3-0)

Emphasizes teaching of literacy strategies in the academic disciplines, focusing on grades 3-8. This course may be offered in an online format. Prerequisites: EDU 330 or graduate status.

EDU 533 Diagnosis and Treatment of Reading Difficulties 3(2-3)

Diagnostic procedures and use of remedial and developmental techniques. Exploration of the role of the specialist. This course may be offered in an online format. Prerequisites: EDU 341, 532; or graduate status; Pre/Co-Requisite: EDU 538.

EDU 538 Integrated Language Arts 3(3-0)

Integration of listening, speaking, enacting, writing, reading, viewing, and visually representing into a K-8 language arts program and instruction for diverse needs of all learners. This course may be offered in an online format. Prerequisite: EDU 330.

EDU 540 Literacy Education: Theory and Practice 3(3-0)

Emphasizes a broad view of literacy within a comprehensive approach and authentic contexts; effective literacy instruction across content, all learners, skill integration, and assessment. This course may be offered in an online format. Prerequisites: EDU 330 or graduate status.

EDU 542 Integrating Reading, Writing, and Thinking 3(3-0)

Reinforces the integration of disciplinary knowledge with reading, writing, and thinking strategies. This course may be offered in an online format. Prerequisites: EDU 330 or Graduate Standing.

EDU 545 Literacy for Culturally and Linguistically Diverse Learners 3(3-0)

Principles and best practices for teaching literacy skills to culturally and linguistically diverse learners in K-12 classrooms. This course may be offered in an online format. Prerequisites: EDU 330 or EDU 450 or graduate status.

EDU 550 Driver Education I: Driver Task Analysis 3(3-0)

First of four courses to prepare driver education instructors and provide them with the content knowledge and skills necessary to teach driver education. Prerequisites: Permission of instructor.

EDU 551 Driver Education II: Developing Classroom Instructional Knowledge 3(3-0)

Second of four courses to prepare driver education instructors; knowledge and skills needed to implement classroom instruction, classroom management, and appropriate student evaluation. Prerequisites: EDU 550.

EDU 552 Driver Education III: Developing Vehicle Operational Skills 3(2-1)

Third of four courses to prepare prospective driver education instructors to conduct instruction which develops vehicle operational skills for the novice driver. Prerequisites: EDU 551.

EDU 553 Driver Education IV: Practicum 3(1-2)

Fourth of four courses preparing driver education instructors; classroom and in-car instruction in approved driver education programs under mentoring of cooperating driver education teachers. Prerequisites: EDU 552.

EDU 566 Independent Study in Elementary Education 1-6(Spec)

Research or project. Prerequisites: 15 semester hours of professional education and approval of unit coordinator.

EDU 590 Advanced Technology in Education 3(2-3)

Students will study and practice the integration of technology in classroom instruction and management, with emphasis upon software evaluation and lesson design. Identical to SPE 510. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format. Prerequisites: EDU 290 or Graduate Status.

EDU 595 Telecommunication in Education 3(2-2)

The study and laboratory exploration of telecommunication as used in schools and classrooms: e-mail, educational and general networks, collaborative lessons. This course is approved for offering in a distance learning format. Prerequisites: EDU 590.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

EDU 602 Strategies and Techniques for Teaching 3(3-0)**EDU 603 Elementary Diagnosis, Remediation and Differentiation of Reading Instruction 3(3-0)****EDU 605 History and Trends in Elementary School Curriculum Development 3(3-0)****EDU 606 Secondary Advanced Reading Diagnosis and Instruction 3(3-0)****EDU 607 Communication and Collaboration Strategies for Teacher Leaders 3(3-0)****EDU 608 Projects in Education 1-6(Spec)****EDU 609 History of Education 3(3-0)****EDU 613 Current Educational Issues 3(3-0)****EDU 614 Advanced Educational Psychology 3(3-0)****EDU 615 Survey of Science Education 3(3-0)****EDU 618 The Nature of Science in Science Teaching 3(3-0)****EDU 619 Continuing Registration for Final Research Project 1(1-0)****EDU 620 Problems of Teaching Mathematics in the Elementary School 3(3-0)****EDU 622 Advanced Adolescent Psychology 3(3-0)****EDU 623 Understanding Literacy Research Methods 3(3-0)****EDU 624 Word Study and Vocabulary Development 3(3-0)****EDU 627 Using Digital Resources to Teach Literacy 3(3-0)****EDU 628 Secondary School Programs and Practices 3(3-0)****EDU 629 Reading and Writing Connections 3(3-0)****EDU 630 Organization and Implementation of School Literacy Programs 3(3-0)****EDU 632 Practicum in Literacy Assessment and Intervention 6(Spec)****EDU 633 Clinical Practice in Reading 3(1-4)****EDU 635 Advanced Language Arts Instruction 3(3-0)****EDU 636 Foundations of Classroom Reading and Writing Instruction 3(3-0)****EDU 640 History and Trends in Elementary Social Studies Education 3(3-0)****EDU 641 Literacy in the Disciplines 3(3-0)****EDU 642 Instructional Multimedia 3(3-0)****EDU 643 Instructional Design 3(3-0)****EDU 645 Advanced Science Teaching Methods 3(3-0)****EDU 651 Supervision of Student and Intern Teaching 3(3-0)****EDU 653 The Read/Write Web 3(3-1)****EDU 655 The Community College 3(3-0)****EDU 658 Practicum in the Community College 3-6(Spec)****EDU 660 Methods of Educational Research 3(3-0)****EDU 662 Applied Educational Measurement and Evaluation 3(3-0)****EDU 670 Reading in the Secondary School II 3(Spec)****EDU 682 Psychology of Child Development 3(3-0)****EDU 687 Independent Study 1-3(Spec)****EDU 688 Independent Study 1-3(Spec)****EDU 689 Independent Study 1-3(Spec)****EDU 698 Thesis 1-6(Spec)****EDU 705 Theory and Practice in Curriculum Development 3(3-0)****EDU 706 Theory and Practice of Instruction 3(3-0)****EDU 707 Seminar: Issues in Educational Technology 3(3-0)****EDU 708 Distance Education 3(3-0)****EDU 709 Innovative Uses of Technology 3(3-0)****EDU 710 Seminar: Terminal Project 3(3-0)****EDU 730 Seminar: Issues in Literacy 3(3-0)****EDU 755 Advanced Research Design and Interpretation 3(3-0)****EDU 765 Seminar in Curriculum Problems 3(3-0)****EDU 770 Practicum in Systematic Curriculum Development 3(3-0)****EDU 776 Seminar: Issues in Education 3(3-0)**

EDU 780 Master of Arts Capstone Experience 3(3-0)
EDU 800 Educational Technology Research 3(3-0)
EDU 801 Qualitative Research in Educational Technology 3(3-0)
EDU 802 Quantitative Research in Educational Technology 3(3-0)
EDU 807 Seminar: Learning Tools in Education Technology 3(3-0)
EDU 808 Blended and Online Learning 3(3-0)
EDU 810 Grant Writing 3(3-0)
EDU 811 Motivation in Online and Blended Learning 3(3-0)
EDU 814 Differentiated Instruction in Online Learning 3(3-0)
EDU 842 Mobile Learning 3(3-0)
EDU 853 Evolving Internet Learning 3(3-0)
EDU 862 Data Driven Decision Making 3(3-0)
EDU 870 Higher Order Learning and New Literacies 3(3-0)
EDU 898 Dissertation 1-18(Spec)

EES - Earth and Ecosystem Science

For more information, contact the College of Science and Engineering or see the Graduate Studies Bulletin.

EES 619 Continuing Registration for Final Research Project 1(1-0)
EES 701 Earth and Ecosystem Science Colloquium 3(3-0)
EES 703 Advances in Earth and Ecosystem Science 3(3-0)
EES 790 Special Topics in Earth and Ecosystem Science 1-6(Spec)
EES 796 Directed Research in Earth and Ecosystem Science 1-30(Spec)
EES 899 Dissertation 1-12(Spec)

EGR - Engineering

See the School of Engineering and Technology for more information.

EGR 120 Introduction to Engineering 3(2-2)
 A general introduction to engineering with an emphasis on problem solving, engineering tools, engineering design processes, and teamwork. Pre/Co-requisite: One of the following: MTH 130, 132, 133.

EGR 190QR Digital Circuits 3(3-0)
 Boolean algebra, logic functions, truth tables and Karnaugh maps, combinational circuits, sequential circuits, and finite state machines. Quantitative Reasoning. Prerequisites: One of the following with a grade of C- or better: MTH 130, 132, 133. Pre/Co-requisite: EGR 120.

EGR 200 Computer Aided Problem Solving for Engineers 3(2-2)
 Engineering problem solving involving circuit elements, batteries, one-link robot, two-link robots, springs, and cables using physical experiments, MATLAB and/or equivalent. Prerequisite: Cumulative GPA of 2.5 or higher. Pre-requisites/Co-requisites: MTH 132; permission of E&T advisor.

EGR 251 Engineering Statics 3(3-0)
 The course will cover free body diagrams and equilibrium of particles and rigid bodies, internal forces in machines, and beams, friction, and application to machines. Prerequisite: MTH 132 with a grade of C- or better; PHY 145 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co-Requisite: EGR 120.

EGR 253 Engineering Dynamics 3(3-0)
 Fundamentals of engineering dynamics covering kinematics and kinetics of particles and rigid bodies. Prerequisites: EGR 251 with grade of C- or better; MTH 133 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 255 Strength of Materials 3(3-0)
 Introductory course in mechanics of materials that covers mechanical stress and strain, deformations, torsion, bending and shearing stresses, and deflections of beams. Prerequisites: EGR 251 with grade of C- or better; MTH 133 with grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 290 Circuit Analysis I 3(3-0)
 Introduction to circuit elements, variables, resistive circuits, circuit analysis techniques, network theorems, inductance and capacitance, sinusoidal steady state analysis and power calculations. Prerequisites: MTH 133 with a grade of C- or better; PHY 145 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co-requisite: EGR 120; PHY 146.

EGR 292 Circuit Analysis II 3(3-0)
 First- and second-order circuits, Laplace circuit analysis, transfer function, step and impulse responses, Fourier series, Fourier transforms, and three-phase circuits. Prerequisite: EGR 290 with a grade of C- or better, permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co-requisite: MTH 232 or MTH 334.

EGR 298 Microelectronic Circuits I 3(3-0)
 Introduction to diode, bipolar and MOS transistors and their circuit models; analysis and design of bipolar, CMOS and Op-Amp based amplifier circuits. Prerequisites: EGR 290 with a grade of C- or better; permission of E&T advisor; signed engineering major; cumulative GPA of 2.5 or higher.

EGR 300 Engineering Economic Analysis 3(3-0)
 An introduction to financial and economic decision-making for engineering projects, with an emphasis on problem solving, life cycle costs, and the time value of money. Prerequisites: MTH 132 or 133; one of: STA 282, 382, 392; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 355 Engineering Materials 3(3-0)
 Covers fundamentals of engineering materials including metals, alloys, ceramics, polymers, and composites. Materials processing, properties and selection, and their role in design are also introduced. Prerequisites: CHM 131 or 161; EGR 251 with grade of C- or better; MTH 132 with grade of C- or better; PHY 146 with grade of C- or better; permission of E&T advisor; signed engineering major; cumulative GPA of 2.5 or higher.

EGR 356 Thermodynamics I 3(3-0)
 Fundamentals of engineering thermodynamics are covered which include: general energy concepts, first and second laws of thermodynamics, entropy, processes, power cycles and refrigeration cycles. Prerequisite: CHM 131 or 161; EGR 251 with grade of C- or better; MTH 133 with grade of C- or better; PHY 146 with grade of C- or better; permission of E&T advisor; signed engineering major; cumulative GPA of 2.5 or higher.

EGR 358 Fluid Mechanics 3(3-0)
 Study of the principles of fluid statics and dynamics including Bernoulli's equation, control volume analysis, similitude, dimensional analysis, viscous flow, and flow over immersed bodies. Prerequisites: EGR 253; MTH 133 with grade of C- or better; permission of E&T advisor; signed engineering major; cumulative GPA of 2.5 or higher.

EGR 359 Machine Design I 3(3-0)
 The study of relative motion of machine parts, forces acting on them, and motions resulting from these forces. Prerequisites: EGR 253; IET 154; signed engineering major; permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co-requisite: MTH 233.

EGR 360 Solid Mechanics Laboratory 3(1-4)
 Experimental skills and measurement techniques are developed in the areas of material behavior, static and dynamic stress and strain analysis. Prerequisites: EGR 253, 255; PHY 175 with grade of C- or better; permission of E&T advisor; signed engineering major; cumulative GPA of 2.5 or higher. Pre/Co-Requisite: EGR 355.

EGR 371 Robotics & Automation 3(2-2)
 An introduction to the theory and application of robotics including robot fundamentals, kinematics, trajectory planning, actuators, sensors, and industrial robot programming. Prerequisites: CPS 180 or EGR 200; EGR 251, 290; MTH 232 or MTH 223, 334; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 388 Introduction to Electromagnetics 3(3-0)
 A study of static and time-variant electric and magnetic fields, plane waves, guided waves, transmission line theory, radiation and antennas. Prerequisites: MTH 232 or MTH 223, 334; MTH 233 with a grade of C- or better; PHY 146 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 390 Computer System Design using HDL 3(3-0)
 Review of combinational and sequential circuits, digital functional units, micro-operations and register transfers. Memory organization. Datapath and control units. Verilog Hardware Description Language. Prerequisites: EGR 190 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre-requisite/Co-requisite: EGR 396.

EGR 391 Signal and System Theory 3(3-0)
 Continuous and discrete-time linear systems, time and frequency domain analysis of signals and systems, Laplace, Fourier and z-transforms. Applications to problems in electrical engineering. Prerequisites: EGR 290 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 392 Microelectronic Circuits II 3(3-0)
 Design and analysis of electronics circuits including current mirrors, cascode amplifiers, differential amplifiers, feedback amplifiers, amplifier frequency response, and analog filters. Prerequisites: EGR 298; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 393 Circuit Lab 3(1-4)
 Basic experimentation consistent with the theory in EGR 190, EGR 290 and EGR 292. Use laboratory equipment to investigate electrical and digital circuits. Prerequisites: EGR 190; permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co-Requisite: EGR 292.

EGR 394 Computer Circuit Simulation 3(2-2)
 This course reinforces basic circuit analysis principles using computer software and teaches students various computer circuit analysis and design techniques. Prerequisite: permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co- Requisite: EGR 392.

EGR 396 Microprocessor Fundamentals 3(3-0)
 Introduction to architecture, operation, and application of microprocessor systems and microcontrollers. Prerequisites: CPS 180 or EGR 200; EGR 190 with grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher.

EGR 397 Special Topics in Engineering 1-6(Spec)
 Intensive study of selected engineering topics not included in a regular course. Repeatable up to 6 hours when content previously studied is not duplicated. Prerequisite: Permission of instructor; cumulative GPA of 2.5 or higher.

EGR 398 Microelectronics and Computer Lab 3(2-2)

Laboratory exploration of semiconductor devices, discrete and integrated amplifiers; feedback; microcomputer systems including input/output, assembly language programming and interrupt processing. Prerequisite: permission of E&T advisor; cumulative GPA of 2.5 or higher. Pre/Co- Requisites: EGR 392, 396.

EGR 437 Directed Research in Engineering 1-3(Spec)

Project research under guidance of a faculty advisor to focus on a topic of current interest. Self-guided readings, analysis, computer simulations and/or experimental techniques. Prerequisite: Permission of instructor.

EGR 456 Thermodynamics II & Heat Transfer 3(3-0)

Continuation of engineering thermodynamics and fundamentals of heat transfer. Topics covered include combustion and gas mixing, steady state and transient heat conduction, convection, and radiation. Prerequisites: EGR 356, 358; MTH 233; permission of E&T advisor.

EGR 458 Measurement and Instrumentation Laboratory 3(1-4)

Theory and application of mechanical measurements, instrumentation, and computer-based data acquisition. Prerequisites: EGR 290, 355; EGR 360 or CHM 349; STA 392; permission of E&T advisor.

EGR 459 Machine Design II 3(3-0)

Theories of static and dynamic failure, fatigue design, and design of mechanical elements such as gears, shafts, bearings, fasteners, welded joints, and other mechanical elements. Prerequisites: EGR 255, 355, 359; permission of E&T advisor.

EGR 460 Thermal Fluids Laboratory 3(1-4)

Experimental skills and measurement techniques are reinforced in the areas of fluid flow, thermodynamics, and heat transfer using modern sensors, instrumentation, and data acquisition systems. Prerequisite: EGR 358; permission of E&T advisor. Pre/co-requisite: EGR 456.

EGR 477 Finite Element Analysis 3(3-0)

Mathematical modeling and formulation techniques of finite element equations. Solid modeling and meshing. Solution strategies with applications in solid mechanics, fluid flow, and heat transfer. Prerequisites: EGR 255, 355; IET 154; MTH 232 or MTH 223, 334; permission of E&T advisor.

EGR 479 Fracture and Fatigue Analysis 3(3-0)

Fracture mechanics and fatigue crack nucleation and propagation, stress intensity factors, fracture toughness and design philosophy concepts. Fracture and fatigue tests. Statistical and reliability analysis. Prerequisites: EGR 255, 355; MTH 233, STA 382; permission of E&T advisor.

EGR 480 Digital Integrated Circuit Design with FPGAs 3(3-0)

Design and application of digital integrated circuits using programmable logic devices and field programmable gate arrays (FPGAs). Prerequisites: EGR 390; permission of E&T advisor.

EGR 481 Embedded System Design 3(3-0)

Introduction to designing microcontroller-based embedded computer systems using assembly and C programs. Examination of real-time operating systems and their impact on performance. Prerequisites: CPS 180 or EGR 200; EGR 398; permission of E&T advisor.

EGR 482 Design and Organization of Computer Hardware Systems 3(3-0)

Structural organization and hardware design of digital computers. Processing and control units, arithmetic algorithms, input-output systems and memory systems. Prerequisites: EGR 396; permission of E&T advisor.

EGR 484 Digital Signal Processing 3(3-0)

Mathematical description of digital signals and systems via difference equations, discrete Fourier transform and z-transform. Examination of filter design techniques. Prerequisites: EGR 391; permission of E&T advisor.

EGR 487 Introduction to VLSI Systems 3(3-0)

CMOS process technologies, logic families, custom, and semi-custom design. Design of adders, counters, and arithmetic logic units. System design method and VLSI design tools. Prerequisites: EGR 392; permission of E&T advisor.

EGR 489WI Senior Design I 3(Spec)

First course in the senior capstone design sequence integrating design methods and engineering techniques in the context of a realistic engineering project. Writing Intensive. Labs to be arranged. Prerequisites: Senior standing with a passing grade in all required 200 and 300 level EGR courses in a declared engineering major; permission of E&T advisor.

EGR 490 Computer Data Acquisition & Instrumentation 3(3-0)

Introduction to data acquisition using A/D converters; fundamentals of transducers; dynamic response; amplifiers; theory of A/D and D/A converters; error analysis-statistics. Prerequisites: EGR 396, STA 382; permission of E&T advisor.

EGR 492 Automatic Control Systems 3(3-0)

Theory and design of automatic control systems including control system characteristics, system performance analysis, system stability analysis, frequency response analysis, and controller design. Prerequisites: EGR 391; permission of E&T advisor.

EGR 496 Communication Systems 3(3-0)

Overview of communication systems, Hilbert transform, analog AM/FM (de) modulation, probability and noise in analog communications, A/D conversion, digital pulse and carrier (de)modulation, introductory information theory. Prerequisites: EGR 391; STA 392; permission of E&T advisor.

EGR 497 Special Topics in Engineering 1-6(Spec)

Intensive study of selected engineering topics not included in a regular course. Repeatable up to 6 credits when content previously studied is not duplicated. Prerequisite: Permission of instructor.

EGR 499WI Senior Design II 3(Spec)

Second course in the senior capstone design sequence integrating design methods and engineering techniques in the context of a realistic engineering project. Writing Intensive. Must be taken in the semester immediately following EGR 489. Labs to be arranged. Prerequisites: EGR 489; permission of E&T advisor.

EGR 553 Mechanical Vibrations 3(3-0)

Modeling, design, and analysis of mechanical vibrations: natural frequency, damping, excitation, higher order systems, modal analysis, experimental testing, and continuous systems. Prerequisites: EGR 253; MTH 232; CPS 180; or EGR 200; permission of E&T advisor; or Graduate Student in Engineering.

EGR 554 Mechanical Controls 3(3-0)

Design and analysis of control for mechanical systems, including modeling, transient and steady-state, root locus, frequency response, PID control, and state space. Prerequisites: EGR 253; MTH 232; CPS 180 or EGR 200; permission of E&T advisor; or Graduate Student in Engineering.

EGR 555 Engineering Acoustics 3(3-0)

Fundamentals of engineering acoustics including use of the wave equation, reflection, transmission and attenuation processes, with introduction of various acoustic applications. Prerequisites: EGR 356, 358; MTH 232; permission of E&T advisor; or Graduate student in Engineering.

EGR 570 Engineering Biomechanics 3(3-0)

Fundamental mechanics and engineering principles applied to understand biological tissues and systems. Prerequisites: EGR 253, 255, 355; permission of E&T advisor; or graduate standing in Engineering.

EGR 576 Mechanics of Composite Materials 3(3-0)

Covers composite material mechanics with emphasis on selection, analysis, and use. Stiffness and strength theories Treats composite beams and plates for static and dynamic loads. Prerequisites: EGR 255, 355; MTH 232; or Graduate Student in Engineering; permission of E&T advisor.

EGR 578 Advanced Mechanics of Materials 3(3-0)

Stress and strain in three dimensions, constitutive laws, failure theories. Advanced beam theories, curved beams, shear deformation, beams on elastic foundations, plates and shells, energy methods. Prerequisites: EGR 255, 355; MTH 233; or Graduate Student in Engineering; permission of E&T advisor.

EGR 588 Photonics 3(3-0)

A study of optical phenomena and its application to engineering problems. Topics include ray optics, beam optics, guided wave optics, lasers and applications thereof. Prerequisite: EGR 388 or Graduate Student in Engineering; permission of E&T advisor.

EGR 591 CMOS Circuit Design 3(2-2)

Design and simulation of analog integrated circuits and systems using transistor level differential amplifiers, operational amplifiers, oscillators, and data converters. Prerequisites: EGR 292, 392; or Graduate Student in Engineering; permission of E&T advisor.

EGR 594 Power Electronics 3(3-0)

Fundamentals of power electronics including switch-mode DC-DC converters, feedback controllers, rectifiers, semiconductor switches and magnetic circuit in power electronics. Prerequisites: EGR 398 or Graduate Student in Engineering; permission of E&T advisor.

EGR 595 Nanoscale Transistors 3(3-0)

Conceptual framework that underlies the microscopic viewpoint using examples related to the emerging field of nanoscale transistors. Prerequisites: EGR 487 or 491 or graduate standing; permission of E&T advisor.

EGR 597 Special Topics in Engineering 1-6(Spec)

Intensive study of selected engineering topics not included in a regular course. Repeatable up to 6 credits when content previously studied is not duplicated. Prerequisite: Permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

EGR 600 Advanced Engineering Analysis 3(3-0)**EGR 601 Advanced Engineering Experimentation 3(2-2)****EGR 637 Directed Research in Engineering 1-6(Spec)****EGR 685 Seminar: Current Topics in Engineering 1-3(Spec)****EGR 697 Special Topics in Engineering 1-6(Spec)****EGR 791 Independent Research in Engineering 1-6(Spec)****EGR 798 Thesis Research 1-6(Spec)**

ELI - English Language Institute

See the English Language Institute in the Index for more information.

ELI 041 Basic Listening & Speaking 5(5-3)

An intensive beginning-level ESL listening and speaking class for non-native speakers enrolled in the English Language Institute at the low-beginning level. This course may be offered in an online format. CR/NC only. Prerequisite: English Language Institute approval.

ELI 042 Basic Reading & Writing 4(4-4)

A low-beginning course in composition and reading skills for international students with focus on sentence and short paragraph development. For intensive-level ELI students. This course may be offered in an online format. CR/NC only. Prerequisite: English Language Institute approval.

ELI 043 Basic Word Studies & Grammar 3(3-1)

Development of beginning-level ESL vocabulary and grammar through the study of basic survival themes. For intensive-level ELI students. This course may be offered in an online format. CR/NC only. Prerequisite: English Language Institute approval.

ELI 051 Listening, Speaking, and Note-taking I 5(5-3)

An intensive English listening, speaking, and note-taking class for non-native speakers enrolled in the English Language Institute at the high-beginning level. CR/NC only. This course may be offered in an online format. Prerequisites: English Language Institute Approval.

ELI 052 Reading and Writing I 4(4-4)

A high-beginning composition and reading skills course for international students, focusing on vocabulary development, reading and writing fluency, and paragraph development. This course may be offered in an online or hybrid format. CR/NC Only. Prerequisite: English Language Institute approval.

ELI 053 Grammar for International Students I 3(3-1)

An intensive English grammar class for non-native speakers enrolled in the English Language Institute at the high-beginning level. This course may be offered in an online or hybrid format. CR/NC Only. Prerequisite: English Language Institute approval.

ELI 061 Listening, Speaking, and Note-taking II 5(5-3)

An intensive English listening, speaking, and note-taking class for non-native speakers enrolled in the English Language Institute at the intermediate level. CR/NC only. This course may be offered in an online format. Prerequisites: English Language Institute approval.

ELI 062 Reading and Writing II 4(4-4)

An intermediate composition and reading skills course for international students, focusing on vocabulary development, reading and writing fluency, and writing paragraphs and basic essays. This course may be offered in an online or hybrid format. CR/NC Only. Prerequisite: English Language Institute approval.

ELI 063 Grammar for International Students II 3(3-1)

An intensive English grammar class for non-native speakers enrolled in the English Language Institute at the intermediate level. This course may be offered in an online or hybrid format. CR/NC Only. Prerequisite: English Language Institute approval.

ELI 071 Listening, Speaking, and Note-taking III 5(5-3)

An intensive English listening, speaking, and note-taking class for non-native speakers enrolled in the English Language Institute at the high-intermediate level. This course may be offered in an online format. CR/NC only. Prerequisite: English Language Institute Approval.

ELI 072 Reading and Writing III 4(4-4)

A high-intermediate composition and reading skills course for international students, focusing on development of reading and essay writing skills, including an introduction to integrating sources. This course may be offered in an online or hybrid format. CR/NC Only. Prerequisite: English Language Institute approval.

ELI 073 Grammar for International Students III 3(3-1)

An intensive English grammar class for non-native speakers enrolled in the English Language Institute at the high-intermediate level. This course may be offered in an online or hybrid format. CR/NC Only. Prerequisite: English Language Institute approval.

ELI 075 Academic Vocabulary for International Students 1(1-0)

A high-intermediate/advanced course for non-native speakers of English that focuses on building students' usable academic English vocabulary size and vocabulary-learning strategies. CR/NC Only. This course may be offered in an online format. Prerequisites: English Language Institute approval.

ELI 080 Basic ESL for International Students 1-12(Spec)

For non-native speakers of English, this course covers all basic skills of English as a Second Language: speaking, listening, reading, and writing. CR/NC only. Prerequisites: Department permission.

ELI 094 Writing Seminar for Graduate Students 3(3-0)

For non-native speakers of English at the graduate level, this course focuses on developing proficiency in the academic styles of writing encountered in graduate studies. CR/NC Only. Prerequisites: TOEFL score of 500-547 (173-210 computer-based TOEFL) and/or placement into ELI 094 on the CMU English Language Institute placement test, or successful completion of ELI 084, or permission of the ELI director.

ELI 099 ELI Writing Workshop 1-4(Spec)

Writing Center individualized writing workshop for English language learners to be taken with at least one other ELI class. Course may be taken more than once as long as course content is not duplicated; total credit not to exceed four hours. CR/NC Only. Co-requisite: Enrollment in at least one ELI course.

ELI 181 Listening and Speaking for International Students 4(4-0)

An advanced speaking and listening course for international undergraduate and graduate students who require further instruction in oral proficiency and aural comprehension skills. This course may be offered in an online or hybrid format. Prerequisite: ELI Department approval.

ELI 182 Academic Reading Skills for International Students 3(3-0)

This is a course for non-native speakers of English focusing on developing proficiency in reading for academic purposes through improving reading comprehension, strategies, speed and vocabulary development. This course may be offered in an online or hybrid format. Prerequisites: ELI Department approval.

ELI 183 Advanced Grammar for International Students 3(3-0)

An advanced course in English grammar for international students who require further instruction to alleviate problems associated with speaking, writing, reading, and listening tasks. This course may be offered in an online or hybrid format. Prerequisites: ELI Department approval.

ELI 184 Academic Writing for International Students 3(3-0)

This is a course for non-native speakers of English at the undergraduate and graduate levels which focuses on developing proficiency in writing English for academic purposes. This course may be offered in an online or hybrid format. Prerequisites: ELI Department approval.

ELI 198 American Language for International Students: Writing Component 3(3-0)

Development of nonfiction prose writing for non-native English speakers. Students prepare various texts by applying knowledge of composing processes, rhetorical strategies, and textual conventions. Alternative to ENG 101 or ENG 103/193. Prerequisites: Department approval.

ELI 199 American Language for International Students: Speech Component 3(3-0)

Instruction and practice in developing speech communication and listening skills for non-native speakers of English. Alternate to COM 101. Credit may not be earned in more than one of these courses. Prerequisites: ELI Department approval.

ENG - English Language and Literature

See the Department of English Language and Literature for more information.

ENG 101 Freshman Composition 3(3-0)

Development of nonfiction prose writing skills. Students prepare a variety of texts by applying knowledge of composing processes, rhetorical strategies, and textual conventions. This course may be offered in an online format. Grade for ENG 101 replaces existing grade in ENG 103 or ELI 198 and credit may only be earned in one of these courses. Recommended: Students with a Writing Placement Score above 57 should enroll in ENG 101 and may add ENG 299 if they feel they might need additional help with their writing.

ENG 103 First Year Writing 3(3-0)

Development of skills in nonfiction prose writing. Small class sizes and substantial individualized support help students gain knowledge of composing processes, strategies, and conventions. With ENG 193, meets university requirements for first-year writing competency; alternative to ENG 101 and ELI 198. Grade for ENG 103 replaces existing grade in ENG 101 or ELI 198 and credit may only be earned in one of these courses. Co-requisite: ENG 193 must be taken simultaneously with ENG 103. Recommended: Students with a Writing Placement score of 57 or lower are encouraged to enroll in ENG 103 and ENG 193.

ENG 134 Introduction to Literature 3(3-0)

Examination of the novel, short story, poetry, and drama in a range of cultural and historical contexts. May be offered as Writing Intensive. This course may be offered in an online or hybrid format. (University Program Group I-B: The Arts)

ENG 141 Comics, Graphic Novels, and Other Illustrated Texts 3(3-0)

Study of the history and meaning of comics, graphic novels, and other illustrated texts from a literary and cultural perspective. May be offered in an online or hybrid format. May be offered as Writing Intensive. (University Program Group I-B: The Arts)

ENG 142 Literary Interpretation of Sport 3(3-0)

Introduction to the art, history, and literary interpretation of sport. May be offered as Writing Intensive. (University Program Group I-B: The Arts)

ENG 143WI Laughing Matters: Comedy and Satire 3(3-0)

Survey of the history, theory, and cultural function of comedy and satire in literature, film, drama, and other media. Writing Intensive. (University Program Group I-B: The Arts)

ENG 144 Monsters and Their Meanings 3(3-0)

Examination of the significance of monsters in literature, film, and popular culture in a range of cultural and historical contexts. May be offered in an online format. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 145 Bestsellers and Prize Winners 3(3-0)

Uses a range of popular and prizewinning fiction, non-fiction, and poetry to investigate why one work may be a bestseller, and another a critical success. May be offered in an online format. May be offered as Writing Intensive. (University Program Group I-B: The Arts)

ENG 175 The Nature of Language 3(3-0)

Introduction to the study of language and social systems. Topics include linguistic structures, acquisition, varieties, and change. May be offered as Writing Intensive. This course may be offered in an online format. (University Program Group III-B: Studies in Social Structures)

ENG 193 Writing Workshop 1(Spec)

Individualized writing tutorial taken concurrently with ENG 103. Work may include grammar, mechanics, and spelling as well as finding, narrowing, and developing ideas for writing. CR/NC Only. Co-requisite: ENG 103.

ENG 201 Intermediate Composition 3(3-0)

An intensive writing course intended to prepare students for writing in their upper-level major courses and beyond. May be offered in an online or hybrid format. Prerequisite: Grade of C or better in ENG 101, ENG 103/193, or ELI 198. Recommended: Students who feel they might need additional help with their writing should consider enrolling in ENG 299 as a co-requisite.

ENG 211WI Introduction to English Education 3(3-0)

Introduction to foundational concepts and current topics in the field of English education. Includes a clinical experience. Writing Intensive. Prerequisites: ENG 101, 103, or ELI 198 with a grade of C or better.

ENG 234WI Introduction to Literary Analysis 3(3-0)

Introduction to analytical techniques for reading and writing about literary texts from a variety of genres and historical periods, including fiction, drama, and poetry. Writing Intensive. Recommended: ENG 101 or ENG 103/193 or ELI 198 with grade of C or better. (University Program Group I-B: The Arts)

ENG 235 English Literature: Beginning to Romantic Period 3(3-0)

Beginning to Romantic Period. Primarily for sophomores; open to freshmen. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 236 British Literature 3(3-0)

Examines British literature from the Romantic period to present day in light of literary, historical, and philosophical influences. Primarily for sophomores; open to freshmen. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 251 American Literature: Colonial Through the Romantic Period 3(3-0)

Survey of major American writers and literary trends. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 252 American Literature: Realistic Period to the Present 3(3-0)

Survey of major American writers and literary trends. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 261 Masterpieces of Ancient Literature 3(3-0)

Major world literature to the medieval period including Greek and Roman works. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 262 European Literatures 3(3-0)

Survey of significant European literature from the medieval through modern periods. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ENG 271 Modern Grammar 3(3-0)

Descriptive analysis of English syntax (sentence structure), syntactic variation across dialects, and social norms influencing what constitutes "Standard English." This course may be offered in an online format. Prerequisite: ENG 101 or 103/193 or ELI 198 with a grade of C or better.

ENG 294WI Introduction to Creative Writing 3(3-0)

The basic methods and techniques in creative writing, including, but not limited to, poetry and fiction. Writing Intensive. Recommended: ENG 101 or ENG 103/193 or ELI 198 with a grade of C or better.

ENG 299 Writing Workshop II 1-6(Spec)

Individualized writing workshop offering assistance in planning, drafting, and revising writing, grammar, and citations. May be repeated, one credit per semester. This course may be offered in an online format. CR/NC Only. Co-requisite: Enrollment in at least one other CMU course.

ENG 300 Study Abroad: Special Studies in English Studies 3-6(3-0)

Study abroad course in English Studies. Course may be repeated up to six hours when content does not duplicate previous topic. Prerequisites: ENG 201 with a grade of "C" or higher; permission of instructor. Recommended: ENG 234.

ENG 301WI Nonfiction Writing 3(3-0)

Development of nonfiction writing skills through individual projects in diverse genres. May be offered in an online or hybrid format. Writing Intensive. Prerequisites: ENG 201 with a grade of "C" or better.

ENG 303WI Technical Writing 3(3-0)

Writing technical documents common in business, industry, government agencies, and non-profit organizations, e.g., reports, proposals, and instructions. Emphasis on readability, accessibility, suitability, and usability. Writing Intensive. May be offered in an online or hybrid format. Prerequisites: ENG 201 with a C or better; 56 credit hours completed.

ENG 311 Teaching Literature in the Secondary School 3(3-0)

Methods of teaching literature and reading in middle and high schools. Includes clinical experience. Prerequisites: ENG 201 with a C or better; ENG 211 or 56 credit hours completed; ENG 234.

ENG 315WI Teaching Writing in Elementary and Middle Schools 4(3-1)

Introduction to theories and pedagogies on writing in elementary and middle schools. Pre-student teaching field experience. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. Prerequisites: ENG 201 with a grade of C or better; Tier Two - Admission of Candidacy to Teacher Education.

ENG 319 Teaching Composition in the Secondary School 3(3-0)

Methods of teaching writing and rhetoric in secondary English classrooms. Prerequisites: ENG 234, 211, and 56 credit hours completed.

ENG 323 Fantasy and Science Fiction 3(3-0)

History, meaning, and influence of fantasy and science fiction. Emphasis on 19th-21st century literature and film. May be offered in an online or hybrid format. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 324 Popular Culture in America 3(3-0)

A study of popular American art forms in relation to their historical, social, cultural, technological, critical, and/or theoretical contexts. Prerequisites: ENG 201 with a grade of C or better.

ENG 325 Stories, Spells, and Songs: Folklore and Folklife 3(3-0)

Discussion and comparison of folktales, songs, superstitions, and customs preserved in both oral and literary traditions. Prerequisites: ENG 201 with a C or better.

ENG 326 The Literary Dimensions of Film 3(2-2)

Study of film from the viewpoints of formal literary criticism and cultural history through analysis of original screen plays, genre movies, and adaptations. This course may be offered in an online or hybrid format. (University Program Group I-B: The Arts)

ENG 327 Women Writers: Gender, Sexuality, and Literature 3(3-0)

Examination of women writers in a variety of historical and cultural traditions, approached through the lenses of feminist and queer theory. Identical to WGS 327. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. Prerequisite: ENG 201 with a grade of C or better.

ENG 328 Native American Literature and Film 3(3-0)

A study of Native American literature and film within their cultural contexts. Prerequisites: ENG 201 with a grade of C or better. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

ENG 329 African American Literature 3(3-0)

Examines the literary and cultural contributions of African Americans from colonial times to present through written and oral forms of expression. Prerequisites: ENG 201 with a grade of C or better. (University Program Group IV-C: Studies in Racism and Cultural Diversity)

ENG 330 Gods, Monsters, and Immortality: Mythic Literature 3(3-0)

The origins and development of mythic patterns with major emphasis on the adaptation and interpretation of classical and Northern myths to literary usage. (University Program Group I-A: Human Events and Ideas)

ENG 333 Literatures of Non-Western Cultures 3(3-0)

Introduction to literatures of non-Western cultures, such as African, Asian, Middle Eastern, Aboriginal, Caribbean, or Latin American. Prerequisites: Grade of "C" or better in ENG 101, ENG 103/193 or ELI 198, Grade of "C" or better in ENG 201.

ENG 334 Literary and Cultural Theory 3(3-0)

Intensive survey of theories of literature, interpretation, and culture that have been of historical importance to literature and cultural studies. Prerequisites: ENG 201 with grade of C or better; ENG 234. Recommended: at least three hours of literature courses at the 300-level or above.

ENG 335 Topics in Ancient or Medieval Literature 3-6(3-0)

Topics that introduce key literary movements and historical contexts from antiquity to 1500 in one of the following traditions: B. British; C. World. Prerequisite: ENG 234.

ENG 336 Topics in Early Modern Literature 3-9(3-0)

Topics that introduce key literary movements and historical contexts from 1500-1800 in one of the following traditions: A. American; B. British; C. World. Prerequisite: ENG 234.

ENG 337 Topics in Romantic or Realist Literature 3-9(3-0)

Topics that introduce key literary movements and historical contexts from 1790-1910 in one of the following traditions: A. American; B. British; C. World. Prerequisite: ENG 234.

ENG 338 Topics in Modern or Contemporary Literature 3-9(3-0)

Topics that introduce key literary movements and historical contexts from 1890-present in one of the following traditions: A. American; B. British; C. World. Prerequisite: ENG 234.

ENG 349 Shakespeare 3(3-0)

A study of selected sonnets and a variety of comedies, histories, and tragedies with consideration of their historical and cultural contexts. May be offered as Writing Intensive. Prerequisites: ENG 201 with a grade of C or better. Recommended: ENG 234.

ENG 371 Teaching Grammar 3(3-0)

Links the study of college-level grammar and its application in the classroom. Focuses on both professionally written and student-generated texts. Prerequisites: ENG 101 or 103/193 or ELI 198 with a grade of C or better; ENG 201 with a grade of C or better. Recommended: ENG 271.

ENG 375 Introduction to Linguistics 3(3-0)

A survey of the field of linguistics, including discussion of sounds, word structure, sentence structure, meaning, acquisition, social use and historical change of language. Prerequisite: ENG 201 with a grade of C or better.

ENG 381WI Children's Literature 3(3-0)

Examination and analysis of contemporary prose and poetry suitable for children from literary, aesthetic, sociocultural and educational perspectives. Writing Intensive. (University Program Group I-A: Human Events and Ideas)

ENG 391WI Creative Writing: Fiction 3(3-0)

Discussion and critical evaluation of student fiction. Writing Intensive. Prerequisite: ENG 294 with a grade of B or better.

ENG 392WI Creative Writing: Poetry 3(3-0)

Discussion and critical evaluation of student poetry. Writing Intensive. Prerequisite: ENG 294 with a grade of B or better.

ENG 395 Special Topics 1-6(Spec)

Consideration of subjects not listed in the regular department offerings. May be repeated when content is not a duplication of a previous special topic offering. English majors and minors, see general statement. This course may be offered in an online or hybrid format. Prerequisite: ENG 201 with a grade of C or better.

ENG 397 Independent Study 1-9(Spec)

Explorations of special problems in language and literature individually agreed upon by student and instructor. Prerequisites: Approval of the instructor and department chairperson required before registration; ENG 201 with a grade of C or better; ENG 134 or 234.

ENG 402WI Argumentation and Expository Writing 3(3-0)

Study of and practice using modern theories and techniques of argumentation and persuasive writing in contemporary civic, disciplinary, and professional discourse, contexts, and media. May be offered in an online or hybrid format. Writing Intensive. Prerequisites: ENG 201 with a grade of C or better; senior standing. Recommended: ENG 301 or 303 or COM 352.

ENG 435WI Senior Seminar: Advanced Literary Analysis 3(3-0)

Intensive analysis of one or more complex literary texts, including an exploration of historical and critical contexts. Writing Intensive. Prerequisites: ENG 334, 21 hours of ENG courses, and senior standing.

ENG 439 English Romantic Poetry and Prose 3(3-0)

Emphasis on Blake, Wordsworth, Coleridge, Keats, Shelley, and Byron. Recommended: 6 hours of literature.

ENG 441 Contemporary English Prose 3(3-0)

Important novelists and dramatists in contemporary Britain. Prerequisites: Grade of "C" or better in ENG 101, ENG 103/193 or ELI 198; grade of "C" or better in ENG 201; ENG 134 or 234.

ENG 442 The British Novel 3(3-0)

The development of the British novel considered historically or thematically. Prerequisites: ENG 101 or 103/193 or ELI 198 with C or better; ENG 201 with C or better; ENG 134 or ENG 234.

ENG 444 In Her Own Words: Global Feminist Perspectives 3(3-0)

Theories, methodologies, and applications of Global Feminisms to women-authored texts in an international context. May include a study abroad component. Prerequisite: ENG 201 with a grade of C or better; ENG 234 or WGS 296.

ENG 454 Contemporary American Prose 3(3-0)

Important novelists and dramatists in contemporary United States. Prerequisites: ENG 101 or 103/193 or ELI 198 with a grade of C or better; ENG 201 with a grade of C or better; ENG 134 or 234.

ENG 455 The American Novel 3(3-0)

The development of the novel as seen in the works of representative authors. Prerequisites: Grade of "C" or better in ENG 101, ENG 103/193, or ELI 198; Grade of "C" or better in ENG 201; ENG 134 or 234.

ENG 460 Capstone in English Education 4(3-3)

Application of skills and knowledge for teaching secondary English in classrooms with diverse student populations. Includes a clinical experience. Prerequisites: ENG 311, 319.

ENG 481 International Literature for Children and Young Adults 3(3-0)

Exploration of the literary and cultural heritage of countries other than the U.S. through modern and folk literature suitable for today's youth. Prerequisites: ENG 201 with a grade of C or better; ENG 234 or 381.

ENG 482 Fantasy for Youth 3(3-0)

Examination of modern fantasy for youth, its traditional and contemporary presentations of archetypes and motifs, and its value, purpose, and significance within literary traditions. Prerequisites: ENG 201 with a grade of C or better; ENG 234 or 381.

ENG 485 Poetry for Children and Young Adults 3(3-0)

Study of the nature, purpose, and value of poetry for children and young adults; emphasis on interpretation and performance. Prerequisites: ENG 201 with a C or better; ENG 134 or 234 or 381.

ENG 491WI Advanced Fiction Writing 3-6(3-0)

Concentration upon individual projects in fiction. May be repeated up to 6 hours. Writing Intensive. Prerequisites: ENG 201 with a grade of C or better; ENG 134 or 234; ENG 391 with a grade of B or better.

ENG 492 Advanced Poetry Writing 3-6(3-0)

Concentration upon individual projects in poetry writing. May be repeated up to 6 hours. May be offered as Writing Intensive. Prerequisites: ENG 201 with a grade of C or better; ENG 234; 392.

ENG 493 Creative Nonfiction 3-6(3-0)

Concentration upon individual projects in creative nonfiction. Course may be repeated up to six hours. May be offered in an online or hybrid format. May be offered as Writing Intensive. Prerequisites: ENG 201 with a grade of C or better; ENG 294 or 301.

ENG 503 Document Design 3(3-0)

Theories and applications of information design and visual rhetoric for print and electronic documents. This course may be offered in an online or hybrid format. Prerequisites: Graduate standing or ENG 201 with a C or better. Recommended: ENG 303.

ENG 504 Technical Editing 3(3-0)

Methods and technologies used in editing and publishing technical documents in print and electronic media; publication management and production. This course may be offered in an online or hybrid format. Prerequisites: Graduate standing or ENG 201 with a B or better and 86 credit hours completed. Recommended: ENG 303.

ENG 510WI Writing Center Practicum 1-3(Spec)

Examines key issues in writing and teaching writing and provides a mediated, instructional experience for working one-on-one with writing. Writing Intensive. Prerequisites: Permission of Instructor.

ENG 513 Special Topics 1-6(Spec)

Subjects not part of regular department offerings. May not be a duplication of a previous section. This course may be offered in an online or hybrid format. Prerequisites: 86 credit hours completed; or graduate standing.

ENG 514 Language and Media Discourse 3(3-0)

Examination and application of rhetorical and discourse theory and techniques in media. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. Prerequisites: Graduate standing or completion of 56 credit hours. Recommended: ENG 301.

ENG 517 Reading and the English Classroom 3(3-0)

The relationship of reading to the teaching of English through an introduction to the reading process, the needs of reluctant readers, and K-12 and ESL literacy issues.

ENG 519 Teaching Composition 3(3-0)

Research and methodology in the teaching of composition. This course may be offered in an online format. Prerequisites: Graduate standing or completion of 56 hours.

ENG 520 Diachronic Linguistics and the History of English 3(3-0)

Theory and methodologies of diachronic linguistics, with a focus on the development of the English language. Prerequisite: Graduate standing or ENG 375.

ENG 535 History of Literary Criticism 3(3-0)

Review of critical attitudes and approaches of enduring significance. Prerequisite: 6 hours of literature.

ENG 539 Seminar in Major Nonfiction Writers 3-9(Spec)

Creative and critical approaches to the study of representative works by selected major nonfiction writers. May be repeated to a maximum of nine hours. May be offered in a hybrid or online format. May be offered as Writing Intensive. Prerequisites: ENG 201 with a C or better; ENG 134 or 234; or graduate standing.

ENG 545 Chaucer 3(3-0)

Middle English grammar and pronunciation. The life and works of Chaucer with emphasis on the Canterbury Tales and Troilus and Criseyde.

ENG 547 Seminar in Major British Writers 3-9(Spec)

A study of one or more British writers, selected by the instructor. May be repeated for a maximum of nine credit hours. Prerequisites: Graduate status or the following: Grade of "C" or better in ENG 101, ENG 103/193 or ELI 198; Grade of "C" or better in ENG 201; either ENG 134 or ENG 234.

ENG 549 Advanced Shakespeare 3(3-0)

Close study of a selection of Shakespearean texts. May be offered in an online or hybrid format. Prerequisites: Graduate standing or ENG 201 with a grade of C or better; ENG 234; ENG 349.

ENG 559 Seminar in Major American Writers 3-9(Spec)

A study of one or more American writers selected by the instructor. May be repeated a maximum of nine hours. Prerequisites: Graduate status or the following: ENG 201 with a grade of C or better; ENG 134 or 234. Recommended: Six hours of American Literature.

ENG 561 European Romanticism 3(3-0)

Comparative exploration of the Romantic movement in literature and philosophy with special attention to Germany and France. Prerequisites: ENG 234 and 6 hours of literature; or graduate standing.

ENG 566 Human Rights in Literature, Art, and Film 3(3-0)

Exploration of the history, development, and application of human rights as represented in literature, the arts, and film. Prerequisite: Admission to any of the English department's MA programs or ENG 201 with a grade of C or better; ENG 134 or 234.

ENG 569 Seminar in Major World Writers 3-9(Spec)

A study of one or more writers, selected by the instructor, from various regions of the world. May be repeated for a maximum of nine credit hours. Prerequisites: Graduate status or the following: ENG 101 or 103/193 or ELI 198 with a grade of C or better; ENG 201 with a grade of C or better; ENG 134 or ENG 234. Recommended: 6-9 hours of ENG 300 and/or ENG 400 level courses.

ENG 570 Old English 3(3-0)

Study of the grammar and pronunciation of Old English and analysis of Old English literary texts. Prerequisites: Graduate Status or ENG 201 with a grade of C or better; ENG 134 or 234.

ENG 571 Teaching of English to Speakers of Other Languages 3(3-0)

Principles and techniques for teaching English to students whose first language is not English. Prerequisite: ENG 375.

ENG 573 Linguistics and Reading 3(3-0)

The reading process, the effects of language on reading, the relation between language and writing, and the ways people process information. Prerequisite: ENG 375 or ENG 576.

ENG 574 TESOL Materials, Assessment, Curriculum 3(3-0)

Techniques for designing curricula, teaching materials, and tests and other assessment tools for ESL/EFL or bilingual/bicultural classrooms. Prerequisites: ENG 571; Graduate status or the following: ENG 101 or 103/193 or ELI 198 with a grade of C or better; ENG 201 with a grade of C or better.

ENG 577 Introduction to Second Language Acquisition 3(3-0)

An introduction to the principles and theories of second language acquisition, and their implications for language teaching. Recommended: ENG 375.

ENG 578 Applied Sociolinguistics 3(3-0)

Topics include cross cultural aspects of conversation, speech act theory, language and gender, nonverbal behavior and the role of socio cultural variables in language acquisitions. Prerequisites: Graduate status or the following: ENG 201 with a grade of C or better; ENG 375.

ENG 580 Young Adult Literature 3(3-0)

Examination of literary texts designed for and about adolescents and adolescence. Prerequisites: Graduate status or the following: ENG 201 with a grade of C or better; ENG 234 or 381.

ENG 581 The History of Children's Literature in English 3(3-0)

Study of the historical development of British and American Children's Literature (including colonial, multicultural, and European Fairy Tale traditions) with attention to socio-cultural influences. Prerequisites: Graduate status or the following: ENG 201 with a grade of C or better; ENG 234 or 381.

ENG 582 Cultural Pluralism in Young Adult and Children's Literature 3(3-0)

An exploration of the literature and heritage of diverse American cultures, primarily through folk literature, fiction, and biography. Prerequisite: Graduate status or the following: ENG 101 or 103/193 or ELI 198 with a grade of C or better; ENG 201 with a grade of C or better; ENG 134 or 234 or 381.

ENG 583 The Heroic Tradition in Children's Literature 3(3-0)

Study of the heroic tradition and its development in classic and contemporary Children's Literature as influenced by epic, myth, folktales, and legend. Prerequisites: ENG 201 with a grade of C or better; and one of ENG 234 or ENG 381; or graduate standing.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

ENG 601 Nonfiction Writing for Graduate Students 3(3-0)**ENG 602 Research Materials and Methods 3(3-0)****ENG 603 Seminar in Technical & Professional Communication 3-6(Spec)****ENG 614 Practicum in Teaching College Composition 3(3-0)****ENG 615 Problems in Teaching English 3(3-0)****ENG 616 The Teaching of Creative Writing 3(3-0)****ENG 618 Empirical Research Methods in English 3(3-0)****ENG 619 Continuing Registration for Final Research Project 1(1-0)****ENG 621 Seminar in Contemporary Poetry 3-6(3-0)****ENG 622 Seminar in Contemporary Fiction 3(3-0)****ENG 635 Seminar in English Literature 3-9(Spec)****ENG 636 Seminar in Critical Problems 3(3-0)****ENG 637 Seminar in Rhetoric and Composition 3-6(Spec)****ENG 638 Seminar in Textual Analysis and Editing 3(3-0)****ENG 656 Seminar in American Literature 3-9(Spec)****ENG 665 Seminar in World Literature 3-9(Spec)****ENG 672 Applied Linguistics for Written Communication 3(3-0)****ENG 673 English Phonology for Language Teachers 3(3-0)****ENG 674 English Grammar for Language Teachers 3(3-0)****ENG 675 Seminar in English Linguistics 3-9(3-0)****ENG 680 Chippewa River Writing Project Institute 3(3-0)****ENG 681 Seminar in Children's and Young Adult Literature 3-9(3-0)****ENG 690 Practicum in TESOL 1-3(Spec)****ENG 691 Seminar: Writing Fiction 3-6(3-0)****ENG 692 Seminar in Writing Poetry 3-6(Spec)****ENG 693 Seminar in Writing Creative Nonfiction 3-6(Spec)****ENG 694 The Craft of Fiction 3(3-0)****ENG 695 The Craft of Poetry 3(3-0)****ENG 696 The Craft of Creative Nonfiction 3(3-0)****ENG 697 Independent Study 3-6(Spec)****ENG 718 Internship: Teaching 6(Spec)****ENG 719 Internship: Professional Communication 6(Spec)****ENG 799 Thesis 1-6(Spec)****ENS - Environmental Science**

See the Department of Earth and Atmospheric Sciences for more information.

ENS 101QR Of Earth and Us: Introduction to Environmental Science 3(2-2)

Explore environmental systems through examination of major issues facing humanity today. Topics include water availability and quality, climate change, sustainable resource management, pollution, and biodiversity. Satisfies University Program Group II laboratory requirement. Quantitative Reasoning. (University Program Group II-B: Quantitative and Mathematical Sciences)

ENS 223 Biogeochemical Cycling in the Environment 4(4-0)

Earth systems approach to studying biogeochemical cycles from molecular to global scales. Topics include: climate, energy, water cycling, ecology, biosphere, carbon and nutrient cycles. Prerequisites: ENS 101; MTH 130 or higher; CHM 131.

ENS 307 Environmental Field Sampling and Laboratory Analytics 4(2-4)

Covers methods used for sample collection and preservation (including water, sediment, and soils) and explores the analytical techniques used to characterize these environmental samples. Prerequisites: ENS 223 with a C- or better; GEL 308; PHY 145.

ENS 401 Quantitative Environmental Data Analysis 3(2-2)

In-depth application of quantitative, statistical, and computational methods used in visualization and interpretation of environmental datasets. Emphasis on field and laboratory data analysis. Prerequisites: ENS 307 with a C- or better; MTH 133; STA 382QR.

ENS 491 Internship in Environmental Science 1-3(Spec)

Internship in the field of environmental science. Prerequisites: Three or more courses in ENS program (2 of which must be 300 level or higher), permission of instructor.

ENS 503WI Environmental Modeling 4(2-4)

Environmental models used to understand behaviors and interactions in complex systems. Includes design and building of environmental models, calibration, verification, and validation. Writing Intensive. Prerequisites: ENS 401 with a C- or better or graduate status in a CSE program.

ENS 597 Independent Study in Environmental Science 1-3(Spec)

Research in environmental science with topics agreed upon by student and instructor. May be taken only by arrangement prior to registration. Prerequisites: Three or more courses in ENS program (2 of which must be 300 level or higher) or graduate status in a CST program; permission of instructor.

ENT - Entrepreneurship

See the Department of Entrepreneurship for more information.

ENT 101 Discovering the Entrepreneur Within 3(3-0)

Introduction to entrepreneurship. Emphasis on business fundamentals, successful entrepreneurial characteristics, communications, ethics, leadership, and team work. Only one of ENT 101, BUS 100 or BIS 100 may be applied to the ENT major or minor. This course may be offered in an online or hybrid format.

ENT 201 Entrepreneurship Launch Pad 3(3-0)

Recognize, develop, and act on individual potential for creativity and innovation. Shape and evaluate business opportunities, perform market research, and "pitch" an idea. This course may be offered in an online or hybrid format. Prerequisites: ENT 101 or BUS 100 or BIS 100.

ENT 210 Accounting Information for Entrepreneurial Decision Making 3(2-1)

Introduction to principles of financial and managerial accounting, design of accounting systems, techniques of analysis and cost control. Interpretation of accounting information for decision making. Does not count for the School of Accounting major or minor. ENT 210 may not be used as a substitute for ACC 201 or ACC 250. This course may be offered in an online format.

ENT 213 Economics for Entrepreneurs 3(3-0)

Introduction to the economic way of thinking and its applications to decision making in the business world. Emphasis on understanding and applying economic concepts. Does not count as credit for the Economics major or minor.

ENT 221 Marketing Strategies for Entrepreneurs 3(3-0)

General marketing principles applied to the entrepreneurial venture including daily activities, long-term branding/position strategy, inexpensive ways to conduct research, and utilizing networks to identify/reach customers. This course may be offered in an online or hybrid format. Recommended: ENT 101, ENT 201.

ENT 300 Digital Entrepreneurship 3(3-0)

The use and management of information systems (IS) by entrepreneurs around the world, creating value from information systems and exploring digital entrepreneurship. Prerequisite: 56 semester hours completed.

ENT 320 Financial Management of the Entrepreneurial Venture 3(3-0)

Practical application of financial principles to the creation, growth, and management of an entrepreneurial venture. This course may be offered in an online or hybrid format. Prerequisites: 56 semester hours completed; ACC 201, 210, 250, or ENT 210; STA 282; signed major or minor in Entrepreneurship.

ENT 416 Entrepreneurship in the Global Economy 3(3-0)

Primary focus is on how individuals and small companies recognize and seek out business opportunities in a global economy leveraging the power of technology; hands-on assignment-based course with a major global team project component. Does not count on the Department of Management majors or minors. Prerequisites: ENT 213, 221; 56 semester hours completed; signed major in Entrepreneurship.

ENT 419 Running and Growing an Entrepreneurial Venture in a Global Economy 3(3-0)

This course emphasizes the acquisition of skills and knowledge necessary to successfully maintain and grow an established entrepreneurial venture within a global business environment. Prerequisites: 56 semester hours completed; signed major or minor in Entrepreneurship.

ENT 420 Legal Aspects of New Ventures 3(3-0)

Introduces entrepreneurs to legal requirements for forming a business. Prerequisites: 86 semester hours completed; signed major or minor in Entrepreneurship.

ENT 444 Internship in Entrepreneurship 3-6(Spec)

Student works full or part time in a business situation for educational experience. Must be arranged through Entrepreneurship Internship Supervisor. Prerequisites: ENT/ACC 210, ENT/ECO 213, and ENT/MKT 221. 56 semester hours completed; signed major or minor in Entrepreneurship, approval of Entrepreneurship Internship Supervisor. Recommended: ENT/FIN 320 and ENT/MGT 419.

ENT 492 Emerging Venture Consulting 3(3-0)

Work with local small business clients and entrepreneurs to conduct analysis and provide deliverables that enable the business to operate more effectively and to grow. Prerequisites: 86 semester hours completed; signed major or minor in Entrepreneurship; ENT/MKT 221; ENT/BIS 300; ENT/FIN 320. Recommended: ENT/MGT 419.

ENT 495 Launching a Venture 3(3-0)

Analyzing opportunities, writing a comprehensive business plan, "pitching" opportunities, and other advanced entrepreneurship topics. Capstone course for Entrepreneurship major. Prerequisites: 86 semester hours completed; ENT/MGT 201, ENT/MKT 221, ENT/BUS 300, ENT/FIN 320, and ENT/MGT 419. Pre/Co-requisite: ENT/BLR 420.

ENT 497 Special Topics in Entrepreneurship 1-12(Spec)

Selected topics not covered in existing courses with current topic listed in Course Search and Registration. Specific topics will be listed on the student's transcript. Repeatable up to 12 credits with different topics. Only 3 credits will count toward entrepreneurship major or minor. Prerequisite: See Course Search and Registration.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

ENT 600 Business Foundations for Entrepreneurs 3(3-0)**ENT 605 Foundations of Entrepreneurship 3(3-0)****ENT 620 New Venture Formation & Governance 3(3-0)****ENT 625 New Venture Hires, Filings & Reports 3(3-0)****ENT 630 Seed Financings & Securities Regulation 3(3-0)****ENT 640 Intellectual Property for Entrepreneurs 3(3-0)****ENT 650 Crowdfunding 3(3-0)****ENT 660 Technology for Entrepreneurs 3(3-0)****ENT 670 Venture Capital 3(3-0)****ENT 680 Growth & Risks at Emerging Ventures 3(3-0)****ENT 690 Entrepreneurial Acquisitions & Exits 3(3-0)****ENT 695 Entrepreneurial Transactions Capstone 3(3-0)****ENV - Environmental Studies**

See the Environmental Studies Major in the Index for more information.

ENV 101 Introduction to Environmental Studies 3(3-0)

An introduction to the interdisciplinary study of human/environmental relationships. Topics include the biosphere, ecosystems and how human socio-political factors interact with them. This course is approved for offering in a distance learning format.

ENV 197 Special Topics 1-6(Spec)**ENV 210QR Environmental Resource Use 3(3-0)**

This course uses quantitative reasoning and analyses to explore and evaluate critical environmental issues, such as resource utilization and sustainability, from an interdisciplinary perspective. Quantitative Reasoning.

ENV 310 Environmental Issues Management 3(3-0)

Review of regulatory requirements and application of scientific studies to managing environmental risk. Case studies of risk management by the targeted community and regulatory agencies. Prerequisites: BIO 101 or BIO 105; ENV 101; CHM 120 or CHM 161 or both CHM 131 and CHM 132.

ENV 397 Special Topics 1-6(Spec)**ENV 400WI Environmental Studies Capstone 3(3-0)**

Seminar format; discussion, analysis and written/oral presentation of research relevant to contemporary environmental issues. Writing Intensive. Prerequisites: Completion of at least 31 credits selected from the Core and Required courses of the Environmental Studies major.

ENV 497 Independent Study 1-3(Spec)

Students may explore topics of special interest with faculty members. Prerequisites: open to juniors and seniors with approval of the instructor and program director.

ENV 597 Special Topics 1-6(Spec)**ESC - Earth Science**

See the Interdisciplinary Earth Science Major and Minor for more information.

ESC 340 Micrometeorology 3(3-0)

Radiation balance, heat and moisture exchange, and wind structure near the ground; influences of topography, soil type, cultivation techniques, and vegetation. Applications of agriculture, forestry, cities, and air pollution. Prerequisites: GEO 105, MET 201 or MET 240. Co-requisite: ESC 341.

ESC 341 Micrometeorology Laboratory 1(0-2)

Field measurements of micrometeorological variables; examination of the impact of variations in the environment on the local climate. Co-requisite: ESC 340.

ESC 400 Earth Science Education 3(2-2)

Study of earth science in the K-12 science curriculum, including relevant teaching methods and preparation of lesson plans in accordance with the State Science Content Standards. Prerequisites: Junior standing as a declared major or minor in Integrated Science or Earth Science Education; GEL 100 or 130; 9 additional hours distributed among major requirements for Integrated Science or Earth Science; Tier Two - Admission of Candidacy to Teacher Education.

ESC 575 Special Studies in Earth Science 1-6(Spec)

Various special topics offered at an advanced undergraduate and graduate level. Topics announced in Course Search and Registration. Prerequisites: permission of instructor.

FIN - Finance

See the Department of Finance and Law for more information.

FIN 201 Personal Finance 3(3-0)

A survival course designed to help you cope with the financial aspects of your life such as taxes, budgeting, inflation, insurance of all kinds, savings, and investing. This course is approved for offering in a distance learning format.

FIN 297 Special Topics 1-3(Spec)

Special topics on finance. This course may be offered in an online format. Prerequisites: Vary with instructor.

FIN 302 Integrated Financial Analysis 3(3-0)

Applied methods, with relevant theories, for a corporation to make decisions on investments, financing, and to evaluate performance in an integrative framework. Credit may not be earned in both FIN 302 and FIN 332. This course may be taught in an online format. Prerequisites: Tier 2 Admission to Professional Business Studies; ACC 255, BIS 255, MGT 258. Co-requisites: MGT/MKT 303, MKT 304.

FIN 303 Financial Administration 3(3-0)

Financial administration of both profit and not-for-profit organizations including methods of asset procurement and raising capital. Credit can only be earned in FIN 302, 303, or 332. This course may be offered in an online format. Prerequisite: ACC 204.

FIN 307 Fundamentals of Personal Financial Planning 3(3-0)

A professional course with emphasis on the personal financial planning process and the roles of health, property and liability insurance in financial planning. May be offered in an online format. Prerequisites: ACC 201 or ACC 250.

FIN 310 Investment Strategies for Personal Financial Planners 3(3-0)

Investment strategies utilizing the Certified Financial Planner® learning objectives. Credit can be earned in only FIN 310 or FIN 315 but not both for the Personal Financial Planning major. May not be applied to Finance major or minor. This course may be offered in an online format. Prerequisites: 56 hours completed; FIN 302 or 332.

FIN 315 Principles of Investments 3(3-0)

Provides students with basic knowledge about different investments and sources of information to enable them to make wiser investments and prepare to build portfolios. Prerequisites: 56 hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 317 Insurance Planning 3(3-0)

This course introduces students to risk management and insurance decisions in personal financial planning, including health, disability, property, liability, and long-term care risks and insurance. Prerequisites: ACC 201 or 250; BLR 202 or 235; STA 282 or 382; admission to Professional Business Studies or listed on a signed major or minor.

FIN 325 Risk Management 3(3-0)

Identifying, analyzing, controlling, financing, and administering operational risks such as catastrophic loss exposures, third-party exposures, fiduciary exposures, employee injury exposures, juridical risks, and legal risks. This course may be offered in an online format. Prerequisites: 56 credit hours completed.

FIN 332 Managerial Finance 3(3-0)

Basic principles and techniques of the acquisition, management, and distribution of financial resources. Credit may not be earned in both FIN 302 and FIN 332. This course may be offered in an online format. Prerequisites: ACC 201 or 250; ACC 202 or 255; 56 semester hours completed.

FIN 335 Real Estate Principles 3(3-0)

An introduction to real estate practice, institutions and participants with a focus on investment decision making, valuation, and debt financing. Prerequisite: ECO 202 or ECO 203 or ECO 211 or ECO 213 or ENT 213.

FIN 336 Real Estate Finance & Investments 3(3-0)

Survey of the institutional landscape of real estate finance, including debt and equity, public securities and private financing modes. Prerequisites: FIN 302 or FIN 320 or FIN 332; and FIN 335.

FIN 337 Real Estate Valuation/Appraisal 3(3-0)

The application of valuation techniques to the appraisal of properties purchased by investors for their income potential. Prerequisites: FIN 302 or FIN 320 or FIN 332, and FIN 335.

FIN 347 Retirement Planning 3(3-0)

This course covers issues that individuals face in retirement (money needs, life-styles, medical) and develops an understanding of both public and private retirement plans. This course may be offered in an online format. Prerequisites: FIN 307, FIN 310 or 315, 56 hours completed. Pre/Co-requisite: ACC 311.

FIN 397 Special Topics 3-6(Spec)

Special topics on finance. This course may be offered in an online format. Prerequisite: 56 credit hours completed.

FIN 416 Institutional Operations 3(3-0)

Study of the management policies and procedures for profitable operation of institutions such as commercial banks, thrift institutions insurance companies, finance companies and pension funds. Prerequisites: FIN 302 or FIN 332, FIN 472; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 425 Options and Futures 3(3-0)

Survey of markets for futures and options on financial securities and commodities. Valuation of futures/options and application for hedging risk. Prerequisites: FIN 302 or FIN 332, FIN 315 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 438 Real Estate Development 3(3-0)

A case studies and applied learning approach to real estate development integrating urban dynamics, architecture, construction, law, public approvals, finance, marketing and management. Prerequisites: FIN 335, 336; admission to Professional Business Studies or a declared Real Estate Development and Finance minor.

FIN 442 Intermediate Financial Management 3(3-0)

In-depth examination of financial management building on introductory level course. Application of current theory and practices are discussed including simulation, comprehensive cases, and term project. This course may be offered in an online format. Prerequisites: FIN 302 or 332; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 445 Personal Estate Planning 3(3-0)

Fundamentals of estate planning for personal use and professional training. Professional topics target applications in trust administration, accounting, and personal financial planning. Identical to BLR 445. Credit may not be earned in more than one of these courses. This course may be offered in an online format. Prerequisites: FIN 302, 307; FIN 310 or FIN 315; 56 semester hours completed. Pre/Co-requisite: FIN 347.

FIN 446 Problems in Financial Institutions 3(3-0)

A case course to enable students to deal with problems affecting various financial intermediaries, with an emphasis on banking. Prerequisites: FIN 472; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

FIN 447 Cases in Personal Financial Planning 3(3-0)

Capstone personal financial planning course in client-centered personal financial planning. This course applies principles of personal financial planning in case studies. Prerequisites: FIN 317, FIN 347, completion or current enrollment in FIN 445; 56 semester hours completed; admission to Professional Business Studies.

FIN 448 Fundamental Financial Analysis 3(3-0)

Methods of fundamental financial analysis necessary for evaluating and forecasting firm financial and operating performance. This course may be offered in an online or hybrid format. Prerequisites: FIN 302 or FIN 332; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 455 Portfolio Management 3(3-0)

Learn advanced methods of analyzing and valuing both debt and equity securities, as well as theories and techniques for combining assets into efficient portfolios. Prerequisites: FIN 302 or FIN 332; FIN 315; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 472 Money and Capital Markets 3(3-0)

Survey of money and capital markets, strategies for growth, and timing of financial policy. Prerequisites: FIN 302 or FIN 332; ECO 201 or ECO 204, ECO 202 or ECO 203; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

FIN 490 Internship in Finance 1-3(Spec)

Enrollment confined to a limited number of students working in business situations for educational experience. Prerequisites: permission of the department chairperson; admission to Professional Business Studies or listed on signed major or minor.

FIN 491 Independent Studies 1-6(Spec)

Directed reading or research on an approved topic. Open to seniors in good academic standing. Prerequisites: prior permission of instructor and department chairperson; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

FIN 492 Practicum in Small Business 3(Spec)

Provides the student an opportunity to analyze the accounting, finance, marketing, management, and production systems of an ongoing small business. Identical to ACC/MGT/MKT/492. Credit may not be earned in more than one of these courses. Prerequisites: Permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

FIN 497 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcript. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

FIN 498 Seminar in Financial Theory 3(3-0)

Financial theories, such as utility and arbitrage pricing will be studied. The efficacy of the theory to the application of finance in the world will be discussed. Prerequisites: FIN 442; permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

FIN 499 Advanced Financial Management 3(3-0)

The capstone course in finance. Broad integrative topics within financial management are examined through cases, exams, and a written project. Required of finance majors. Prerequisites: FIN 302 or 332, 442, 448; 86 semester hours completed; Tier 2 admission to Professional Business Studies or listed on a signed major or minor. Recommended: FIN 472.

FIN 573 International Finance 3(3-0)

Role of financial manager in international corporations. Environmental problems of foreign exchange. Techniques for making investment decisions, financing marketing operations, long-term capital structure and flow of funds. Prerequisites: FIN 302 or FIN 332; 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

FIN 597 Special Topics 1-3(Spec)

Selected topics of interest to students which are not formally included in existing courses. Specific topic will be listed on student's transcript. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor, or permission of MBA director.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

FIN 648 Advanced Financial Statement Analysis 3(3-0)**FIN 671 Financial Derivatives 3(3-0)****FIN 673 Advanced International Financial Management 3(3-0)****FIN 676 Investment Strategy 3(3-0)****FIN 680 Financial Modeling 3(3-0)****FIN 791 Independent Studies 1-6(Spec)****FIN 797 Special Topics 3-6(Spec)****FIN 798 Thesis 1-6(Spec)****FLN - Foreign Language**

See the Department of World Languages and Cultures for more information.

FLN 197 Special Topics 1-8(Spec)

For students beginning the study of a language or topic not offered in the regular program of this department.

FLN 297 Special Topics 1-8(Spec)

For students continuing the study of a language or topic not offered in the regular program of this department.

FLN 397 Special Topics 1-12(Spec)

For students continuing at the 300 level the study of a language or topic not offered in the regular program of this department. Prerequisites: permission of instructor and department chairperson.

FLN 597 Special Topics 1-8(Spec)

The in-depth study of a topic under the direction of a faculty member who together with a student designs the format of the study. Prerequisites: permission of instructor and department chairperson; at least 6 hours on the 400 level.

FMD - Fashion Merchandising and Design

See the Department of Human Environmental Studies for more information.

FMD 140 Introduction to Clothing Construction & Design 3(0-6)

Fundamental construction techniques as a foundational basis for apparel design students.

FMD 141 Apparel Design Analysis 3(2-2)

Understanding fashion as design product and process. Application of elements and principles of design to fashion with emphasis on design communication using industry relevant skills. This course may be offered in an online format.

FMD 155 Introduction to Textiles 3(2-2)

Introductory course in textiles. Study of fiber, yarn, and fabric properties. This course may be offered in an online format. Credit may not be earned in both FMD 155 and IND 155.

FMD 200 Apparel Quality Analysis 3(2-2)

Comprehensive approach to assessing apparel quality including methods for integrating quality into the design and development stages of sewn products. This course may be offered in an online format. Prerequisite: FMD 141, 155.

FMD 241 Fashion Design: Illustration 3(0-4)

Principles of fashion illustration, drawing the fashion figure, garment sketching, technical flats, rendering of textures. Emphasis on portfolio development for the fashion designer. This course may be offered in an online format. Prerequisites: FMD 141, 155.

FMD 245 Fashion Design Methods 3(0-6)

Introduction to flat pattern as a method of fashion design. Effects of design method, fabric, construction and creativity on design products. Prerequisites: FMD 140; Pre/Co-requisite: FMD 241.

FMD 246 CAD for Fashion Design and Merchandising 3(0-4)

Use of the computer as a creative design and merchandising communication tool. Development of textile prints, color stories, line plan components, and apparel designs via Adobe Illustrator and Photoshop. This course may be offered in an online format. Prerequisite: FMD 141, 155.

FMD 250 History of Western Dress 3(3-0)

History of Western dress from ancient times to the 21st century. May be offered as Writing Intensive. This course may be offered in an online or hybrid format. (University Program Group I-B: The Arts)

FMD 252 Dress and Culture 3(3-0)

Appearance and dress, as a reflection of social, psychological and cultural environments of humans; examination of dress as an aspect of culture and individual expression. This course may be offered in an online format. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

FMD 256 Introduction to Fashion Industry 3(3-0)

Introduction to the fashion industry - the complex of enterprises concerned with the design, production, and distribution of men's, women's and children's apparel and accessories. This course may be offered in an online format. Prerequisites: FMD 141.

FMD 258 Fashion Retail Management 3(3-0)

A comprehensive study of fashion retail management in a global environment. Topics include retailing strategy, merchandise management, store management, distribution channel, and supply chain logistics. This course may be offered in an online format. Prerequisite: FMD 256.

FMD 280 Queer Fashion 3(3-0)

Examination of LGBTQ experiences via historical fashion analysis. Emphasis on LGBTQ identity fashioned through sartorial choice. Gay aesthetic, camp culture, and LGBTQ designer contributions. Identical to WGS 280. Credit may not be earned in more than one of these courses. This course may be offered in an online format. (University Program Group IB: The Arts)

FMD 330 Preprofessional Seminar in Fashion Merchandising & Design 2(2-0)

Seminar prior to a supervised internship in a fashion merchandising/design firm or related business. Prerequisites: FMD 246, 250, 258, 56 credit hours completed; Pre/Co-requisites: for Fashion Merchandising Concentration FMD 200, 332, 356; for Fashion Design concentration FMD 245.

FMD 332 Fashion Buying 3(3-0)

Fundamentals of the fashion buying function: practices, procedures, and techniques including merchandising calculations and buying simulation. Prerequisites: FMD 256, CPS 106, successful completion of math competency.

FMD 345 Draping Fundamentals 3(0-6)

Interpretation of fashion designs developed through draping on dress forms. Prerequisites: FMD 140, 241; Co-requisites: FMD 245.

FMD 346 Advanced CAD for Apparel 3(0-4)

Fashion product and textile line development for specified markets utilizing Lectra software. Electronic portfolio development. This course may be offered in an online format. Prerequisites: FMD 246.

FMD 347 Fashion Design Studio II 3(0-6)

Integrated design studio focused on complex design problems for a variety of consumer markets. Continued focus on intensive design critiques and aesthetic development. Prerequisite: FMD 247.

FMD 350 Professional Study Tour 3(Spec)

Faculty led experiential learning experience to sites relevant to the fashion merchandising and design industry such as manufacturers, design houses, retailers and trade shows. Prerequisite: FMD 256.

FMD 355QR Textile Analysis 3(2-2)

Relevance of standardized testing in quality control of textiles for end-use and serviceability. This course may be offered in an online format. Quantitative Reasoning. Prerequisite: FMD 155.

FMD 356 Visual Merchandising 3(1-3)

Visual Merchandising for fashion product promotion and branding. Techniques of styling and window display. Creation of merchandising directives. Professional practice via team-based project completion. This course may be offered in an online or hybrid format. Prerequisites: FMD 246, 256.

FMD 357 Fashion Show Production & Promotion 3-6(Spec)

Experiential course involving aspects of fashion show production. Event design, planning, staging, and promotion. This course may be offered in an online or hybrid format. Prerequisites: A minimum of 24 completed credits.

FMD 387 Digital Technologies and Craftsmanship for Apparel Design 3(0-6)

Exploration of the creative design process via digital technologies and craftsmanship. Analysis of design strategies for solving aesthetic, functional and technologically-related design problems. Prerequisites: FMD 245, 246; Co-requisites: FMD 347, 355.

FMD 397 Special Topics in Apparel Merchandising & Design 1-6(Spec)

Topics of special interest which are not normally included in existing courses. Prerequisites: See Course Search and Registration.

FMD 401 Internship in Fashion Merchandising & Design 3(Spec)

A structured internship experience that fosters transfer of knowledge and skill into competencies required for successful performance in a fashion merchandising or design career. Prerequisites: FMD 330.

FMD 410 Fashion Advertising and Promotion 3(3-0)

A study of key fashion media, cutting edge strategies, techniques for branding and advertising, and promoting fashion products. This course may be offered in an online format. Pre/Co-requisites: FMD 246 and FMD 330.

FMD 447 Collection Development 3(0-6)

Studio focused on fashion collection development; creation of an apparel line from concept through production. Prerequisite: FMD 347, 387.

FMD 456 CAD for Visual Merchandising & Presentation 3(0-4)

Software applications specific to visual merchandising in retail and virtual environments. Emphasis on creation of merchandising directives for product display. This course may be offered in an online format. Prerequisites: FMD 246, 356.

FMD 457 Creative Fashion Design Processes: Portfolio 2(0-4)

Comprehensive portfolio development for the fashion designer. Conceptual development of product for varied markets. Advanced layout, illustration and graphic design techniques. Focus on line development. Prerequisite: FMD 401; Pre/co-requisite: FMD 447.

FMD 490 Independent Study in Apparel Merchandising and Design 1-6(Spec)

A student-initiated learning activity focusing on a faculty approved topic in Apparel Merchandising and Design. Prerequisite: Permission of instructor.

FMD 497 Special Topics in Apparel Merchandising & Design 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Prerequisites: See Course Search and Registration.

FMD 510 Luxury Fashion Brand Management 3(3-0)

The course provides an in-depth understanding of the international luxury fashion industry and the unique aspects involved in managing luxury fashion brands. This course may be offered in an online or hybrid format. Prerequisite: FMD 410, or graduate status.

FMD 545 Introduction to Draping 3(2-2)

Interpretation of garment designs developed through the draping on dress forms. Prerequisites: FMD 241 and FMD 345 or graduate status.

FMD 546 Experimental CAD for Fashion 3-9(Spec)

Creative use of CAD software as applied to standards prevalent in the design, manufacture or presentation of fashion goods. May be taken for credit more than once if different software is being used, total credit not to exceed nine hours. This course may be offered in an online format.

FMD 547 Functional Apparel Design 3(2-2)

A systematic approach to apparel design integrating knowledge of the needs and functions of the wearer, the structural properties of textiles and apparel design. Prerequisites: FMD 241, FMD 345, FMD 355.

FMD 550 Global Apparel Supply Chain Management 3(3-0)

Global Textile and apparel trading systems from the perspective of their operational issues including global business process applications, apparel supply chain management and global logistics. This course may be offered in an online or hybrid format. Prerequisites: 56 semester hours with at least 12 hours in apparel merchandising and design courses including FMD 401.

FMD 556 Advanced Visual Merchandising 3(1-3)

Advanced practice of Visual Merchandising. Creative window and store interior display work. Use of 3D printing for prop and fixture design. Focus on portfolio development. This course may be offered in an online or hybrid format. Prerequisite: FMD 356, and 60 completed credit hours, or graduate standing.

FMD 560 Apparel Product Development 3(1-3)

Analysis of the apparel production process, including quality issues relative to development and production of ready-to-wear apparel. This course may be offered in an online format. Prerequisite: FMD 401; Pre/co-requisites: For Fashion Design Concentration: FMD 447; For Fashion Merchandising Concentration: FMD 332, 410, 510.

FMD 565 3D Printing and Fashion 3(1-3)

Creative exploration of 3D printing as a tool for fashion product innovation and development. Use of varied modeling software applications. This course may be offered in an online format. Prerequisite: FMD 346, or graduate standing.

FMD 570 The Business and Design of European Fashion 3(Spec)

A short term (three weeks) faculty led study abroad program examining the business and design of European fashion including haute couture. Prerequisites: FMD 141, 256, minimum GPA of 2.5, and permission of instructor. Recommended: FMD 140.

FMD 597 Special Topics in Apparel Merchandising & Design 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Specific topic will be listed on student's transcript. Prerequisite: See Course Search and Registration.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

FMD 604 Scholarship in Textiles and Clothing 3(3-0)**FMD 608 Historical Fashion Studies 3(3-0)****FMD 635 Advanced Internship in Textiles & Apparel 1-6(Spec)****FMD 640 Anthropometrics and Apparel 3(2-2)****FMD 641 Apparel Presentation Technology 3(2-2)****FMD 655 Textile Product Evaluation 3(2-2)****FMD 656 Apparel Retail Technology 3(3-0)****FMD 697 Special Topics in Apparel Merchandising & Design 1-15(Spec)****FMD 790 Independent Study in Apparel Merchandising & Design 2-6(Spec)****FMD 796 Creative Scholarship 1-6(Spec)****FMD 797 Special Topics in Apparel Merchandising & Design 1-15(Spec)****FMD 798 Thesis 1-6(Spec)****FNS - Foods and Nutrition**

See the Department of Human Environmental Studies for more information.

FNS 160 Introduction to Foods 3(2-2)

Basic principles and fundamental processes underlying food preparation.

FNS 261 Foodservice Catering for Events 3(3-0)

A comprehensive study of managing the foodservice component to an event including the safe service of food and beverage, as well as execution of events.

FNS 263 Beverages in Foodservice 3(3-0)

A comprehensive study covering the knowledge required for tending bar and the management skills necessary to ensure successful and profitable beverage service.

FNS 271 Food and Culture in the United States 3(3-0)

Characteristics and effects of food choices among culturally diverse groups within the United States.

FNS 361 Experimental Foods 3(2-2)

Experimental approach to the study of food: physical and chemical properties, food product development, sensory evaluation, food analyses, food engineering, and food biotechnology. Prerequisites: FNS 160; CHM 342; STA 282 or HSC 544; senior standing in Dietetics.

FNS 364 Foodservice Operations 3(3-0)

A systems approach to the production and preparation of food in quantity, including food safety and sanitation, purchasing, receiving, storage, service, and distribution. Prerequisite: FNS 160.

FNS 367 Institutional Food Production Laboratory 1(0-2)

Techniques of institutional food preparation and service using a wide variety of equipment. Service to the institution's target population will be emphasized. Prerequisites: FNS 160, FNS 364.

FNS 370 Nutrition 3(3-0)

Principles of normal nutrition as related to the health of all age groups. This course may be offered in an online format. May be offered as Writing Intensive. (University Program Group II-A: Descriptive Sciences)

FNS 371 Nutrition and Women's Health 3(3-0)

Study of women's health concerns and nutritional needs. This course focuses on basics of healthy living and common major conditions that affect women's health. Prerequisite: FNS 370.

FNS 373 Contemporary Nutritional Issues 3(3-0)

Contemporary nutritional issues, fads and myths reviewed under current research. This course focuses on current issues in nutrition research and proposes healthy behavioral lifestyle strategies. Prerequisite: FNS 370.

FNS 374 Nutrition in the Life Cycle 4(4-0)

Nutritional needs across the life span. Introduction to nutritional assessment methods, the physiological basis for nutritional recommendations, and evaluation of nutrition related research. Prerequisite: FNS 370.

FNS 375 Nutrition and Performance 3(3-0)

Focus is upon sports nutrition for athletes and individuals in recreation. Analysis of the interaction among energy expenditure, fuel needs and utilization, and all nutrients. Prerequisites: FNS 370.

FNS 377 Nutrition in Disabilities and Disease 3(3-0)

Principles of nutrition as related to individuals with developmental disabilities or disease. Prerequisite: FNS 370.

FNS 378 Maternal and Infant Nutrition 3(3-0)

This course covers the latest research related to women's nutritional requirements throughout their reproductive years including pre-conceptual, antenatal and postnatal period, and infant nutritional requirements. Prerequisite: FNS 370.

FNS 397 Special Topics in Foods and Nutrition 1-6(Spec)

Topics of special interest which are not normally included in existing courses. This course may be offered in an online format. Prerequisites: See Course Search and Registration.

FNS 420 Advanced Food Science and Chemistry 3(3-0)

Explains the chemical constituents of food and their relationship to food properties and quality. Discusses major issues in food processing and product development. Prerequisites: FNS 361; CHM 120, 127.

FNS 451 Food Safety and HACCP 3(3-0)

Studying food safety and microbiology. Developing/implementing Hazard Analysis Critical Control Point (HACCP) plan for food products. This course may be offered in an online format. Prerequisites: FNS 361, 364; BIO 208.

FNS 463 Menu Planning: Design and Service 3(3-0)

Concepts of menu design: copy, layout, types, design, nutrition, construction, pricing techniques and consistency of concept. Service styles and front-of-the-house management presented. Prerequisite: FNS 370.

FNS 465 Foodservice Facilities Design 3(3-0)

Creating a foodservice facility design including: concept development, market analysis, menu, equipment, building size and space, and marketing the operation to the target market. Prerequisites: FNS 365, 463.

FNS 467 Quantity Food Purchasing 3(3-0)

Interaction with intermediaries, buying methods, identification and specifications for food and non-food items presented. Prerequisites: FNS 160.

FNS 468 Foodservice Internship 3(Spec)

An internship of 240 hours in food production. FNS 566 may be a substitution for this course on the Foodservice major for students demonstrating one or more years of qualifying experience. Approval of instructor required. Prerequisites: FNS 365, FNS 366, FNS 465, FNS 467.

FNS 469 Foodservice Systems Administration 3(3-0)

Study of institutional foodservice systems including recipe analysis, purchasing, personnel selection and development, leadership, decision-making, budgeting, marketing, customer satisfaction and sustainability. Prerequisites: FNS 160, 364, admission into the professional phase of the Dietetics Major.

FNS 470 Applied Nutrition 3(3-0)

A detailed examination of human nutritional needs and how nutritional science can be applied to meet those needs in health and disease. Prerequisites: FNS 370.

FNS 471 Medical Nutrition Therapy I 3(3-0)

This course addresses the application of medical nutrition therapy in the treatment and management of injury, illness and other disease conditions. Prerequisites: FNS 370, CHM 421 or 521, BIO 392 or HSC 214 and 215; admission to the Professional Phase of the dietetics program. Pre/Co-requisite(s): FNS 473.

FNS 472 Medical Nutrition Therapy II 3(3-0)

The application of medical nutrition therapy in the treatment and management of injury, illness, and other disease conditions. Prerequisite(s): FNS 471, admission to the Professional Phase of the Dietetics Program.

FNS 473 Advanced Nutrition 4(4-0)

Biological needs in human nutrition based on current research and its applications. Prerequisites: FNS 370; BIO 392; CHM 421 or CHM 521.

FNS 475 Nutritional and Herbal Supplements 3(3-0)

The potential impact of non-nutrient components in food, nutritional supplements, and herbs in the prevention and treatment of disease via integrative and alternative medical approaches. Prerequisite: FNS 370.

FNS 477 Assessing Nutritional Status 2(1-2)

Introduces dietary, anthropometric, biochemical, and clinical approaches to assessing nutritional status. Prerequisite: FNS 370.

FNS 479 Professional Issues in Dietetics 1(1-0)

An analysis of the profession of dietetics and the pathway to dietetic registration. Issues and trends in dietetics are discussed. Prerequisites: Senior standing, signed Dietetics major.

FNS 480 Nutritional Education and Counseling 4(4-0)

Teaching strategies, advising techniques, resources, and motivational techniques as specifically applied to patients/clients in nutrition programs and patient/clients receiving nutrition services. Prerequisite: FNS 374; acceptance into the Professional Phase of the Dietetics program.

FNS 481 Community Nutrition: Field Work 3(Spec)

Consulting, teaching and supportive research experiences in the field with a nutritionally vulnerable group. Prerequisites: FNS 370, 480; acceptance into the Professional Phase of the Dietetics program.

FNS 490 Independent Study in Foods and Nutrition 1-6(Spec)

A student-initiated learning activity focusing on a faculty approved topic in Dietetics or Nutrition. Prerequisite: Permission of instructor.

FNS 497 Special Topics in Foods and Nutrition 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Specific topic will be listed on student's transcript. This course may be offered in an online format.

FNS 512 Global Nutrition 3(3-0)

Nutritional issues faced by populations around the world and in emergencies explored in depth including assessment, prevention, and relief. This course may be offered in an online format. Recommended: FNS 271, 370.

FNS 560 Field Experience in International Nutrition 3(Spec)

Faculty-led study abroad course to acquire learning experience in food, culture, and nutritional and public health problems in a host country. Recommended: FNS 271, 370, 512.

FNS 571 Clinical Nutrition 3(3-0)

This course provides an overview of medical nutrition therapy with a focus on the current evidence-based nutrition practice guidelines for prevention and treatment of diseases. Prerequisites: FNS 370 and 473 and BIO 392, or HSC 214 and 215; one of the following: CHM 421 or 425 or 522; or graduate status.

FNS 575 Geriatric Nutrition 3(3-0)

Nutrition for older adults, including food selection, nutritional status, food-drug interaction and disease prevention. Prerequisite: FNS 370.

FNS 577WI Advanced Topics in Nutrition: Eating Disorders 3(3-0)

Overview of the etiology, differential diagnosis, medical consequences, treatment, and prevention of eating disorders. Obesity in relation to eating disorders will also be addressed. May be offered in an online format. Writing Intensive. Prerequisite: FNS 370 or graduate status.

FNS 597 Special Topics in Foods and Nutrition 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Specific topic will be listed on student's transcript. This course is approved for offering in a distance learning format. Prerequisites: See Course Search and Registration.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

FNS 661 Macronutrients 3(3-0)**FNS 662 Micronutrients 3(3-0)****FNS 663 Advanced Eating Disorders and Nutrition 3(3-0)****FNS 664 Advanced Nutrition - Pharmacology 3(3-0)****FNS 665 Medical, Scientific and Proposal Writing 3(3-0)****FNS 667 Advanced Nutrition-End of Life Issues 3(3-0)****FNS 668 Advanced Nutrition-Pediatrics 3(3-0)****FNS 669 Advanced Nutrition-Sports 3(3-0)****FNS 670 Seminar: Nutrition 1-3(Spec)****FNS 671 Advanced Topics in Nutrition: Geriatrics 3(3-0)****FNS 672 Advanced Clinical Nutrition 3(3-0)****FNS 673 Advanced Nutritional Assessment 3(3-0)****FNS 674 Dietetic Internship: Clinical Experience 5(Spec)****FNS 675 Dietetic Internship: Foodservice Administration Experience 5(Spec)****FNS 676 Dietetic Internship: Summary Experience 2(Spec)****FNS 677 Nutritional Epidemiology 3(3-0)****FNS 678 Research Methods and Biostatistics 3(3-0)****FNS 679 Advanced Topics in Nutrition: Obesity 3(3-0)****FNS 697 Special Topics in Dietetics 1-15(Spec)****FNS 790 Independent Study in Dietetics 2-6(Spec)****FNS 797 Special Topics in Nutrition 1-15(Spec)****FNS 798 Thesis in Nutrition and Dietetics 1-6(Spec)****FNS 799 Capstone in Nutrition and Dietetics 3(3-0)****FRN - French**

See the Department of World Languages and Cultures for more information.

FRN 101 Elementary French I 4(4-0)

Designed for students who have had no French. Basic language skills. Introduction to the culture of the French-speaking countries. Students who have had previous preparation in French are required to take a placement test. Students who have had more than two years of high school French may not enroll without permission of instructor. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

FRN 102 Elementary French II 4(4-0)

Basic language skills. Continuation of FRN 101. Recommended: FRN 101. (University Program Group IV-B: Studies in Global Cultures)

FRN 105 Accelerated Elementary French 4(4-0)

Intended for students with high school or other preparation in French who are not ready to begin Intermediate French. Combines FRN 101 and 102. Students with previous preparation in French are required to take a placement exam. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

FRN 110 Study Abroad 1-8(Spec)

Intended for beginning students studying abroad. Prerequisite: permission of instructor.

FRN 201 Intermediate French I 4(4-0)

Review of grammar and further development of all language skills. May be offered as Writing Intensive. Recommended: FRN 102. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

FRN 202 Intermediate French II 4(4-0)

Review of grammar and further development of all language skills. May be offered as Writing Intensive. Recommended: FRN 201. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

FRN 210 Study Abroad 1-18(Spec)

Intended for intermediate students studying abroad. Prerequisites: FRN 102.

FRN 310 Study Abroad 1-18(Spec)

Intended for advanced students studying abroad. Prerequisites: FRN 202; permission of instructor.

FRN 315 Conversation & Composition I 3(3-0)

Building advanced communicative skills in French through practical composition and conversation. Refinement of grammar. Recommended: FRN 202.

FRN 316 Conversation & Composition II 3(3-0)

Building advanced communicative skills in French through practical composition and conversation. Refinement of grammar. Recommended: FRN 202.

FRN 320 French Civilization 3(3-0)

A study of various aspects of French culture from its beginnings through the nineteenth century. Recommended: FRN 202.

FRN 321WI France Today 3(3-0)

Various aspects of the political, social, economic, intellectual, artistic, and literary life of contemporary France. Writing Intensive. Recommended: FRN 202.

FRN 325 French Literature in Translation 3(3-0)

Interpretation and discussion of representative works of French-language literature from France and the Francophone world with a focus on their social and cultural context. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

FRN 330 Survey of French Literature (Beginning to 1800) 3(3-0)

Develops acquaintance with the literature of France from the Middle Ages to 1800 through selections from representative authors. Recommended: FRN 202.

FRN 331 Survey of French Literature (1800 to Present) 3(3-0)

General acquaintance with the literature of France from 1800 to the present. Selections from representative authors. Recommended: FRN 202.

FRN 333 Francophone Literature and Culture 3(3-0)

This course examines Francophone prose, poetry and film selections. May be offered as Writing Intensive. Recommended: FRN 202.

FRN 335 French for Business 3(3-0)

Designed for students interested in acquiring vocabulary related to business and in developing fluency in writing and reading business letters and reports. Recommended: FRN 202.

FRN 340 Foreigners in France in the 20th and 21st Centuries 3(3-0)

An examination of 20th and 21st century immigration waves in France as depicted in historical and literary texts as well as in films. May be offered as Writing Intensive. Recommended: FRN 202.

FRN 350 French and Francophone Film 3(3-0)

A study of French-language film within the context of French and francophone cultures. Recommended: FRN 202.

FRN 353 Youth Literature in French 3(3-0)

An examination of selected children's and young adult literature from France and the Francophone world. May be offered as Writing Intensive. Recommended: FRN 202.

FRN 360 Literature and Culture of Quebec 3(3-0)

A study of various aspects of Quebec society and a few of Quebec's major writers. May be offered as Writing Intensive. Recommended: FRN 202 or the equivalent.

FRN 370 French Pronunciation and Diction 3(3-0)

Study of phonetics and practice of intonation and pronunciation patterns. Recommended: FRN 202.

FRN 391 Topics in French and Francophone Cultures 1-12(Spec)

Topics of interest in French and francophone literature and civilization. Students may repeat the course as long as the topic differs. May be offered as Writing Intensive. Recommended: FRN 202.

FRN 410 Study Abroad 1-12(Spec)

Intended for advanced students studying abroad. Prerequisites: 6 hours of French at the 300 level; permission of instructor.

FRN 411 Practicum in Teaching French 3(2-1)

Techniques for teaching and testing foreign language skills, planning lessons and units, and selecting materials for secondary-level classrooms. Practical experience through mini-teaching situations. Prerequisites: Two 300-level courses; passing the competency test; departmental permission.

FRN 412 Practicum: Secondary Field Experience 1(Spec)

Pre-student teaching experience in middle or high school teaching situation. CR/NC only. Co-requisite: FRN 411.

FRN 421 Foreign Language in Elementary Schools 1(1-0)

Techniques for teaching and testing foreign language skills, planning lessons and units, and selecting materials for the elementary school classroom. Practical experience through mini-teaching situations. Co-requisites: FRN 411.

FRN 422 Practicum: Elementary Field Experience 1(Spec)

Pre-student teaching experience in elementary school teaching situation. CR/NC only. Co-requisite: FRN 421.

FRN 423WI France at War in the 20th Century 3(3-0)

From the late 19th-century roots of World War I through the aftermath of the Algerian War, this course examines representations of France's major 20th-century conflicts. Writing Intensive. Recommended: Two 300-level French courses.

FRN 460 Topics in Quebec Studies 3(3-0)

Advanced study of a specific theme or topic in French-language literature, culture, or society from Quebec. May include French-Canadian topics outside Quebec. Prerequisite: one 300-level FRN course.

FRN 510 Study Abroad 1-12(Spec)

Intended for advanced undergraduate and graduate students studying abroad. Prerequisites: 6 hours of French at the 400 level; permission of instructor.

FRN 531 Practicum in French Stylistics 3(3-0)

Study and analysis of composition and style. Recommended: FRN 315, FRN 316; 6 additional FRN credit hours in courses 300 or above.

FRN 591 Advanced Topics in French and Francophone Cultures 1-6(Spec)

Advanced study of topics of interest in French and francophone literatures and civilizations. Credit hours vary; may be repeated for different topics. Recommended: FRN 315 or 316.

FRN 597 Independent Study 1-6(Spec)

The in-depth study of a topic under the direction of a faculty member who together with a student designs the format of the study. Prerequisites: At least 6 FRN credit hours at the 300 level or above; permission of the instructor and department chairperson.

FYE - First Year Experience

See *First Year Experience under the Special Studies section for more information.*

FYE 101 First Year Experience 1(1-0)

Provides an understanding of the university environment, value of learning, career guidance and student responsibilities. This course is approved for offering in an online or hybrid format. Prerequisite: only open to students in their first year at CMU.

FYE 301 Mentor First-Year Experience 3(2-2)

This course provides a theoretical foundation, practical knowledge and skill development for the role of First-Year Experience (FYE 101) Mentor.

GEL - Geology

See the *Department of Earth and Atmospheric Sciences for more information.*

GEL 100 Introduction to Earth Systems 3(2-2)

A discovery-based introductory examination of the processes that shape our planet. Topics include the rock cycle, earthquakes, volcanoes, the Ice Age, and plate tectonics. Satisfies University Program Group II laboratory requirement. Credit may not be earned in both GEL 100 and GEL 101, 102, 105 or 130. (University Program Group II-A: Descriptive Sciences)

GEL 101 Physical Geology 3(3-0)

An introduction to the surficial and internal earth processes that shape our world. Topics include plate tectonics, minerals, rocks, volcanoes, earthquakes, and the Ice Age. Credit may not be earned in both GEL 101 and GEL 100, GEL 105, or GEL 130. This course is approved for offering in a distance learning format. (University Program Group II-A: Descriptive Sciences)

GEL 102 Physical Geology Laboratory 1(0-2)

Laboratory study of minerals, rocks, maps, and geologic processes. Satisfies University Program Group II laboratory requirement. Credit may not be earned in GEL 102 and 100 or 130. This course may be offered in an online or hybrid format. Pre/Co-Requisite: GEL 101 or 105. (University Program Group II-A: Descriptive Sciences)

GEL 105 Dangerous Planet 3(3-0)

A survey of the socially important geological topics that affect people and their environment with a focus on natural and anthropogenic geologic hazards. This course may be offered in an online or hybrid format. Credit may not be earned in both GEL 105 and 100, 101, or 130. (University Program Group II-A: Descriptive Sciences)

GEL 130QR Earth Processes 3(2-2)

Introduces geologic processes from a quantitative perspective. Students will investigate, graph, and calculate rates and scales of processes including earthquakes, volcanic eruptions, and groundwater flow. Satisfies University Program Group II laboratory requirement. Credit may not be earned in both GEL 130 and 100, 101, 102, or 105. Quantitative Reasoning. (University Program Group II-B: Quantitative and Mathematical Sciences)

GEL 201 Earth History 3(2-2)

The Earth's history as revealed in the rock record. Geologic processes and concepts are applied to the evolution of North America and life through geologic time. Prerequisites: One of: GEL 100; or GEL 101, 102; or GEL 105, 102; or GEL 130.

GEL 203 Geology of the National Parks 3(3-0)

Study of the geologic processes responsible for creating the areas set aside as National Parks and National Monuments. Recommended for the traveler, naturalist, or park administrator.

GEL 205 Oceanography 3(3-0)

Introduction to the properties and movements of ocean waters; to marine life, the ocean floors, and the effects of the oceans on humans. This course may be offered in an online or hybrid format. Identical to GEO 205, credit may not be earned in both courses. (University Program Group II-A: Descriptive Sciences)

GEL 230 Prehistoric Life 3(3-0)

An introduction to the history of life on Earth. Topics include geologic time, plate tectonics, evolution, origin of life, and the evolutionary history of vertebrates. (University Program Group II-A: Descriptive Sciences)

GEL 240 Stratigraphy and Sedimentology 3(2-3)

Study of how sediments are produced, transported, and deposited. Emphasis on fundamentals of fluid flow, transport, physical properties, formation of sedimentary structures, and formational environments. Field trip fee required. Prerequisites: One of: GEL 100; or GEL 101, 102; or GEL 105, 102; or GEL 130.

GEL 250 Geoscience Mapping and Resource Evaluation 3(3-0)

This course explores applications that aid in the analysis of geoscience data. Integration of various geospatial data sources and analysis pertinent to geoscientists. Identical to MET 250; credit may not be earned in both of these courses. Prerequisites: GEO 203; One of: ENS 101 or MET 101 or MET 140 or MET 260 or GEL 100 or GEL 101, 102 or GEL 105, 102 or GEL 130.

GEL 275 Special Problems in Geology 1(Spec)

A study of special topics presented on demand when sufficient students and interested faculty are available.

GEL 280 Geomath 2(0-4)

Students learn to solve geoscience-specific problems through application of quantitative methods, graphs, and spreadsheets. Prerequisites: MTH 132; One of: GEL 100 or GEL 101, 102 or GEL 105, 102 or GEL 130.

GEL 290 Introduction to Geologic Investigation 3(2-2)

An introduction to methods of geologic research and investigation. Topics include information gathering (library, Internet), field methods (observations, measurements, sampling, map-making), and report writing. Prerequisites: GEL 101 or GEL 105, and GEL 102; or GEL 100 or GEL 130.

GEL 301 Geology and Michigan 3(3-0)

An introduction to geological processes as they apply to the past and present geologic history of Michigan. Particularly recommended for students in education. Not recommended for students who have completed GEL 101. Recommended: GEL 102 co-registration.

GEL 303 Oceanography: Marine Geology 3(3-0)

Introduction to methods and equipment used to study the geology of ocean floors and the dynamic processes responsible for the formation of ocean basins. Prerequisites: one of: GEL 100, GEL 101, GEL 105, GEL 130, GEL 203, GEL 301, or GEO/GEL 205.

GEL 304 Earth Resources 3(3-0)

Mineral, energy, water, and soil resources, including geological origin, location, extraction, and environmental consequences of their usage. Prerequisites: GEL 101 or 105, and GEL 102; or GEL 100 or 130.

GEL 305 Engineering Geology 3(3-0)

Application of geologic processes and quantitative methods to analyze engineering problems involving soils, rocks, surface water and groundwater. Prerequisites: GEL 201; MTH 130; PHY 130 or 145. Recommended: MTH 132.

GEL 308 Water Resources and Hydrologic Processes 3(3-0)

Study of water on Earth; includes atmosphere, surface, and subsurface. Explore interactions between the hydrosphere, biosphere, earth system, and human processes. Prerequisites: GEL 101 or 105 or 100 or 130 or MET 140 or MET 260 or ENS 101; MTH 105 or higher; Recommended: GEL 280; familiarity with spreadsheet software (i.e., Microsoft Excel or similar) is expected.

GEL 310 Introductory Mineralogy 4(3-3)

Introduction to crystallography, Physical and chemical properties, and descriptions of basic groups and classifications of minerals. Field trip fee required. Prerequisites: GEL 101 or 105, and 102; or GEL 100 or 130. Pre/Co-requisites: CHM 131; GEL 280.

GEL 320 Earth Materials 3(2-3)

Origin, interpretation, and hand-specimen identification of natural materials including minerals, rocks, and various mineral and energy resources; for non-geology majors. Field trip fee required. Prerequisites: GEL 101 or 105, and 102; or GEL 100; or GEL 130.

GEL 321 Petrology 3(2-3)

Genesis and evolution of igneous and metamorphic rocks. Identification, description of hand samples and thin-sections emphasizing petrogenesis. Optical mineralogy of common rock-forming minerals. Field trip fee required. Prerequisites: GEL 290, 310; Pre/Co-requisite: CHM 132.

GEL 325 Glacial Morphology and Landforms 3(3-0)

Patterns and processes in the formation and distribution of selected glacial features. Prerequisite: GEL 290

GEL 331 Field Petrology 2(Spec)

Introduction to techniques of structural analyses and geochemical sampling in crystalline rock. Field descriptions and note-taking skills stressed during 1-3 week field excursion. Field trip fee required. Prerequisites: GEL 310, GEL 321.

GEL 370 Structural Geology 3(2-3)

Theoretical and applied study of structures developed by deformation of the Earth's crust and their tectonic environment. Field trip fee required. May be offered as Writing Intensive. Prerequisites: GEL 201, 280, 290.

GEL 372 Introduction to Geophysics 3(2-3)

A survey of the physical properties and structure of the earth, and the basic geophysical techniques by which they are known. Field trip fee required. Prerequisites: GEL 280 or ENS 401; PHY 145QR.

GEL 380WI Hydrogeology 3(2-3)

Introduction to the study of groundwater: groundwater occurrence and flow, groundwater in the hydrological cycle, groundwater quality and pollution, groundwater exploration, evaluation, and management. Field Trip Fee Required. Writing Intensive. Prerequisites: One of: GEL 100 or GEL 101, 102 or GEL 105, 102 or GEL 130 or ENS 101; MTH 132 with a C- or better. Recommended: GEL 280.

GEL 385 Introductory Petroleum Geology 3(2-2)

Petroleum deposits of the earth: location, origin, and occurrence. Technical aspects of exploration and production, emphasizing petroleum and natural gas formations of Michigan. Prerequisite: GEL 201.

GEL 397 Independent Study 1-3(Spec)

Qualified self-directed students may explore topics of special interest with faculty guidance. Prerequisites: One GEL course at 200 level or above; and permission of instructor.

GEL 403 Geochemistry Laboratory 1(0-3)

Fundamentals of research and problem solving utilizing geochemical analytical methods. Emphasizes project planning, sampling techniques, data collection and interpretation. Pre/Co-Requisites: GEL 402 or GEL 460.

GEL 406WI Senior Thesis 3(Spec)

The student conducts a senior-level research project, writes a thesis, and gives an oral presentation with guidance from a thesis advisor. Writing Intensive. Prerequisites: Senior standing; permission of instructor. Recommended: GEL 397 or 597.

GEL 413 Geomorphology 3(3-0)

Geologic approach to geomorphology with emphasis on quantitative analysis, dynamics of landform evolution, and use of geomorphology in solving geologic problems. Prerequisites: GEL 320 or GEL 321; ESC 210 and STA 282 recommended.

GEL 420 Applied Geostatistics 3(2-2)

Application of geostatistical methods to various scientific and engineering domains. Emphasis on analyzing and interpreting spatial data. Kriging, variography and simulation methods. Prerequisites: GEL 280, 290; GEL/MET 250. Recommended: MTH 223; STA 382.

GEL 430 Invertebrate Paleontology 3(2-3)

A general survey of the taxonomy, phylogeny, identification, stratigraphy, and paleoecology of the major fossil invertebrate groups. Field trip fee required. Prerequisites: GEL 201. Recommended: BIO 110, 218.

GEL 450 Geology Field Camp 5(Spec)

Actual field experience in mapping and interpreting various terrains. Student will construct a map and write a report based on observations. Field trip fee required. Prerequisite: GEL 320 or GEL 321; GEL 370, 440, and permission of department chair.

GEL 460 Geochemistry 3(3-0)

Basic principles of geochemistry, involving distribution and significance of elements in natural systems, as well as processes which affect this distribution. Prerequisites: one semester of chemistry. Pre/Co-Requisites: GEL 320 or GEL 321; CHM 131 or CHM 120 and 127.

GEL 502 Aqueous Geochemistry 3(3-0)

Biogeochemical processes governing the chemistry of water, with a focus on the distribution of natural and anthropogenic chemical species. Prerequisites: CHM 132; BIO 208 or CHM 211 or GEL 310; or graduate status in a CST program. Recommended: GEL 380.

GEL 505 Low Temperature Isotope Geochemistry 4(4-0)

Isotope geochemistry plays an important role in geological, biological, and environmental investigations. The isotopic geochemistry of carbon, oxygen, nitrogen and sulfur will be covered. Prerequisites: CHM 132; GEL 321 or GEL 380; or graduate status in a CST program.

GEL 550 Economic Geology 3(2-3)

Metallic and nonmetallic ore deposits, fossil fuels, and their tectonic settings; general principles of exploration for natural resources within the context of responsible environmental stewardship. Prerequisite: GEL 320 or 321 or graduate status in the College of Science and Technology.

GEL 597 Independent Study 1-6(Spec)

Qualified self-directed students may explore topics of special interest with faculty guidance. More than 3 credits permitted only rarely. Prerequisites: department chairperson and instructor approval.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

GEL 650 Geology for Science Teachers 3(2-2)**GEO - Geography**

See the Department of Geography and Environmental Studies for more information.

GEO 105 Physical Geography 3(2-2)

An introduction to the physical processes of the atmosphere, hydrosphere, lithosphere, and biosphere and the global distribution of climate, soils, and vegetation. This course may be offered in an online or hybrid format. Satisfies University Program laboratory requirement. (University Program Group II-A: Descriptive Sciences)

GEO 120QR Environmental Geography 3(3-0)

An introduction to the human use of earth resources and quantitative examination of select environmental issues resulting from the societal use/misuse of our planet. Quantitative Reasoning. This course may be offered in an online or hybrid format. (University Program Group II-A: Descriptive Sciences)

GEO 121 Human Geography and Globalization 3(3-0)

This course is an introduction to human geography that provides geographical perspectives on population, the economy, politics, urbanization, and culture. This course may be offered in an online or hybrid format. This course may be offered as writing intensive. (University Program Group III-B: Studies in Social Structures)

GEO 201 Weather and Climate 4(4-0)

Nature of atmospheric processes, weather, and climate - why and how they vary over the surface of the earth.

GEO 203QR Introduction to Geographic Information Science 3(2-2)

Fundamentals of geographic information science - including spatial data gathering, measurement, classification, analysis, display and map interpretation. Current computer mapping technologies are used in laboratory. This course may be offered in an online or hybrid format. Quantitative Reasoning. (University Program Group II-B: Quantitative and Mathematical Science)

GEO 205 Oceanography 3(3-0)

Introduction to the properties and movements of ocean waters; to marine life, the ocean floors, and the effects of the oceans on humans. This course may be offered in an online or hybrid format. Identical to GEL 205, credit may not be earned in both courses. (University Program Group II-A: Descriptive Sciences)

GEO 210 Landforms 3(2-2)

Study of geomorphic processes affecting the evolution and distribution of landforms; quantitative study of the regional physical landscape; analysis of human-landscape interactions. Prerequisite: GEO 105 or GEL 101 or 100 or 105 or 130.

GEO 300 Research Methods in Geography 3(3-0)

Introduction to skills geographers use to conduct research. Examines major methods geographers use for obtaining, analyzing, and interpreting data. Prerequisites: GEO 105, 120QR, 121, 203QR.

GEO 303 Geographic Information Systems 3(2-2)

Concepts and applications of geographic information systems (GIS). Acquiring, organizing, managing, and analyzing geographic data; visualizing and communicating geographic information. Prerequisite: GEO 203QR.

GEO 308 Fundamentals of Remote Sensing 3(2-2)

Introduction to the fundamental principles and applications of remote sensing of the Earth. Prerequisite: GEO 203QR. Pre/Co-requisites: One of the following: GEO 105, ENV 101, BIO 240, ENS 101, GEL 100.

GEO 310 Surface Hydrology 3(2-2)

The course deals with stream waters and their alteration of the landscape. Stresses the interaction of water, land and human activity. Prerequisite: GEO 210.

GEO 312 Geography of Contemporary Global Issues 3(3-0)

Geographical analysis of contemporary global issues, including trans-border migrations, regional impact of climate change, resource disputes, regional economic imbalances, and ethno-territorial conflicts. Prerequisites: GEO 120 or 121.

GEO 315 Food and Agriculture 3(3-0)

Study of world production, exchange, and consumption of agricultural commodities with emphasis upon the problems associated with food shortages and the areas most severely affected. This course is approved for offering in an online or hybrid format. Recommended: One of the following: GEO 120, GEO 121, GEO 105.

GEO 317 Economic Geography 3(3-0)

Principles and theories of economic geography, the global interrelationships of regional and local economic activities, and the effects of technology on spatial economic structures. Recommended: GEO 121, junior standing, or at least 3 credits in BUS, FIN, ECO, or MKT. (University Program Group III-B: Studies in Social Structures)

GEO 320 Population Geography 3(3-0)

Spatial patterns of fertility, mortality, and migration, and the processes underlying those patterns. Population growth, distribution, problems and policies. Recommended: One of the following: GEO 120, 121, junior standing.

GEO 325 Geography of Growth and Change 3(3-0)

Interrelated nature of the growth of human activity and the resulting spatial expression. Impact of growth on environment. Prerequisite: GEO 120.

GEO 330 Resource Perception and Utilization 3(3-0)

Quantitative analysis of modern resource utilization; systematic examination of U.S. water and power distribution infrastructure; sociometric analysis of attitude and perception data regarding natural resources. Prerequisite: GEO 105 or 120 or GEL 100 or 101 or 105 or 130 or PHS 151 or ENV 101. Recommended: STA 282 or MTH 107.

GEO 331 Land Use Planning 3(3-0)

Study of land use planning history, concepts and techniques. Analysis of federal, state, and local government roles in planning. Examination of specific land use programs. Prerequisites: GEO 203QR; 3 additional credit hours in GEO or PSC.

GEO 334 Soil Science 3(2-2)

A lecture/field course introducing the physical, chemical, and biotic properties of soils, soil classification and mapping, and soil resource issues. Identical to BIO 334. Credit may not be earned in more than one of these courses. Prerequisites: CHM 120 or 131; one of the following: GEO 105, GEL 100, 101, 105, 130QR; or BIO 212, 213 with a C- or better.

GEO 335 Biogeography 3(3-0)

Physical, biological and anthropogenic influences on the world distribution of plant and animal life. Prerequisites: BIO 111; One of GEO 105, 120QR, ENV 101 or ENS 101QR.

GEO 340 Urban Geography 3(3-0)

The rise of cities and urbanization. Human use of urban space. The city as environment. This course may be offered in an online or hybrid format. Recommended: GEO 121 or junior standing.

GEO 342 Historical Geography 3(3-0)

An overview of US and world history from geographic and ecological perspectives, focusing on the expansion/contraction of empires, spatial interactions, and technology/resources. Prerequisites: Junior standing, 12 hours of geography and/or history.

GEO 345 Political Geography 3(3-0)

Areal characteristics and territorial problems of states, including internal regional relations, border disputes, and colonial areas. Selected world problems. Recommended: GEO 121.

GEO 346 Geography of the Developing World 3(3-0)

A geographic analysis of the developing world focusing on processes of environmental, demographic, and socioeconomic change, particularly since World War II. This course may be offered in an online or hybrid format. Prerequisite: Junior standing. Recommended: 9 hours of social science courses.

GEO 350 United States and Canada 3(3-0)

Physical environment, resources, economic activities, population patterns, and inter-regional relationships of United States and Canada. Recommended: One of: GEO 105, 120, 121, junior standing.

GEO 355 Environmental Catastrophes 3(3-0)

Causes and societal impacts of natural and human-induced environmental catastrophes such as fires, explosions, infrastructure failures, industrial pollution, and interaction of natural disasters and human-environment. Prerequisite: One of following: ENV 101, ENS 101QR, GEO 120QR, SEP 300QR.

GEO 365 A Geography of Modern Europe 3(3-0)

Geographic characteristics of the continent, its regions, and economic and political systems since WWII. National characteristics of culture, human/land relationships and international involvements. Recommended: GEO 121; junior standing. Although no prerequisites are expected, students should be familiar with concepts common to geography, regional and social sciences.

GEO 373 Latin America 3(3-0)

Geographic characteristics of Latin America from colonization to present. Regions are interpreted by analysis of geographical elements and their interrelationships. This course may be offered in an online or hybrid format. Recommended: GEO 121 or at least 3 credits in a social science. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

GEO 375 Special Topics in Geography 1-9(Spec)

Various geography topics offered at an advanced undergraduate level. Prerequisite: permission of the instructor.

GEO 385 China: Environment and People 3(3-0)

Discussion of China's physical environment and the geographic patterns of social, political, and economic processes. China's dynamic roles in world geopolitics and global economy. Prerequisite: GEO 121 or junior standing.

GEO 395 Michigan 3(3-0)

Geographic analysis of the interrelationships between Michigan's geomorphology, biogeography, climate, resource use and protection, agriculture, land division, transportation, demography, economic and urban development. Prerequisite: Junior standing.

GEO 397 Independent Study 1-6(Spec)

Exploration of topics in geography agreed upon by student and instructor. Only 1-3 credits can be earned within one registration period. Prerequisites: Permission of instructor.

GEO 400 Geographic Education 3(2-2)

Study of Geography in the K-12 curriculum including relevant teaching methods, state content standards, and strategies for teaching diverse students. May be offered as Writing Intensive. Prerequisites: junior standing; 12 hours of geography or social sciences.

GEO 404 Global Positioning System 1(1-0)

Introduction to the Global Positioning System, system operation, data capture, mission planning and data import to Geographic Information Systems (GIS). Prerequisites: GEO 203, 303. CR/NC option available.

GEO 450WI Geography Capstone 3(3-0)

This capstone course solidifies advanced-level understanding of the discipline of Geography. Students apply geographic knowledge and methods to an advanced-level research project. Writing Intensive. Prerequisites: Senior standing with a minimum of 21 credits completed in the major.

GEO 500 Advanced Cartography 3(2-2)

Advanced methods and theories concerning the field of cartography including: cartographic communication and visualization, digital map compilation and multivariate data representation. Prerequisite: GEO 303.

GEO 501 Principles and Applications of Geographic Information System 3(2-2)

Fundamentals of GIS and its applications in environmental, social and economic analysis (for non-geography majors only). This course is approved for offering in a distance learning format. Prerequisites: GEO 203 or senior standing or graduate standing.

GEO 503 Advanced Geographic Information Systems 3(2-2)

Advanced techniques of geospatial analysis, with applications in social and environmental systems. Prerequisites: GEO 303, 308; or GEO 501; STA 282 or 382 or BIO 500.

GEO 505 Mapping and Surveying Technology: CAD, GPA, and UAS 3(2-2)

Concepts and practice of professional mapping technology including 2-dimensional Computer Aided Design (CAD), Global Positioning Systems (GPS), and Unmanned Aerial Systems (UAS), and integration between technologies. Prerequisites: GEO 203QR, 303, 308; or GEO 501.

GEO 508 Applications of Remote Sensing 3(2-2)

Applications of active and passive remote sensing to investigate patterns and processes of the environment. Prerequisites: GEO 303, 308; or GEO 501. Prerequisites/Co-requisites: STA 282 or 382 or BIO 500.

GEO 511 International Geographic Experience 3-6(Spec)

Experience in field research techniques and knowledge of regions outside the United States. International travel is required. May be repeated one time only. Prerequisites: 6 semester hours of 300 level or higher Geography course.

GEO 512 Quantitative Methods for Spatial Analysis 3(2-2)

Statistical techniques for solving spatial problems. Descriptive and inferential spatial statistics. Spatial pattern analysis. Regression modeling with spatial data. Prerequisites: GEO 303, STA 382.

GEO 513 Geographic Information Systems for Social Sciences 3(2-2)

Spatial data visualization and analysis using Geographic Information Systems (GIS) with emphasis on application to social sciences, planning, public policy, and business research. Prerequisite: GEO 303 or GEO 501.

GEO 515 Geography of the Great Lakes Region 3(3-0)

Topics include shoreline development, resource use, economic development strategies, social issues, and land use change through contemporary and historical perspectives in the Great Lakes region. Prerequisites: GEO 105 or GEO 120; GEO 350 or GEO 395.

GEO 516 Advanced Remote Sensing Systems 3(2-2)

Characteristics, processing, and applications based on advanced remote sensing systems including imaging radar, thermal and hyperspectral systems. Prerequisites: GEO 508 and STA 382.

GEO 528 Environmental Modeling with GIS 3(2-2)

GIS model design and implementation as directed towards environmental issues. Raster data models, concepts, structure, functions, examples, and modeling capabilities are explored. Prerequisites: GEO 203, 303 and 305; or GEO 501. Recommended: GEO 503.

GEO 531 Integrated Land Use Planning 3(3-0)

This course provides students comprehensive understanding of land use issues, processes and solutions. The course integrates innovative planning concepts with advanced analytic tools. May be offered as Writing Intensive. Prerequisite: GEO 530.

GEO 550 Geography for Teachers 3(3-0)

For teachers who want to upgrade their knowledge of geography, experiment with new teaching techniques, and learn how to make professional in-service presentations to teachers. Graduate credit only. Prerequisites: Three years teaching experience and/or permission of instructor.

GEO 553 GIS Operations and Practices 3(3-0)

Practices and procedures utilized by professionals in the implementation and maintenance of large-scale GIS operations. Prerequisites: GEO 503 or Graduate Status in the MS GISci Program.

GEO 575 Special Studies in Geography 1-6(Spec)

Various special topics offered at an advanced undergraduate and graduate level. Prerequisites: permission of instructor.

GEO 591 Internship 1-12(Spec)

Experiences in applying geographic techniques to environmental analysis, resource management, and business applications. Up to 3 hours of internship credit can be applied to the geography/earth science major. Identical to ESC 591. Credit may not be earned in more than one of these courses. A full-time internship position for one semester may qualify for 12 hours of credit. Prerequisite: permission of program advisor.

GEO 597 Independent Study 1-9(Spec)

Exploration of topics in geography agreed upon by student and instructor. Course may be taken for credit more than once, not to exceed nine hours. Prerequisites: At least 6 hours of Geography credit at the 400 level or above, permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

GEO 600 Dynamic Mapping and Visualization 3(2-2)**GEO 603 GIS Design and Programming 3(2-2)****GEO 608 Topics in Advanced Remote Sensing 3(2-2)****GEO 615 Research Design in Geographic Information Sciences 3(3-0)****GEO 619 Continuing Registration for Final Research Project 1(1-0)****GEO 701 Contemporary Spatial Data Management 3(2-2)****GEO 797 Directed Research in Geographic Information Sciences 1-6(Spec)****GEO 798 Thesis 1-6(Spec)****GER - German**

See the Department of World Languages and Cultures for more information.

GER 101 Elementary German I: Language and Culture 4(4-0)

Designed for students who have had no German. Basic language skills. Introduction to the culture of the German-speaking countries. Students who have had previous preparation in German are required to take a placement exam. Students who have had more than two years of high school German may enroll only with permission of instructor. May be offered in an online format. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

GER 102 Elementary German II: Language and Culture 4(4-0)

Continuation of GER 101. Basic language skills and introduction to the culture of the German-speaking countries. Students with high school preparation in German are required to take a placement test. May be offered in an online format. Recommended: GER 101. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

GER 105 Accelerated Elementary German 4(4-0)

Intended for students with high school or other preparation in German who are not ready to begin Intermediate German. Combines GER 101 and 102. Students with previous preparation in German are required to take a placement exam. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

GER 110 German Language Study Abroad 1-8(Spec)

Intended for beginning students studying abroad. Prerequisite: permission of instructor.

GER 201 Intermediate German I 4(4-0)

Further development of German language skills in reading, writing, listening and speaking. Review of German grammar, expansion of vocabulary and exploration of German cultural issues. Students who have had previous preparation in German are required to take a placement exam. Recommended: GER 102. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

GER 202 Intermediate German II 4(4-0)

Further development of German language skills in reading, writing, listening and speaking. Review of German grammar, expansion of vocabulary and exploration of German cultural issues. Students who have had previous preparation in German are required to take a placement exam. Recommended: GER 201. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

GER 210 German Language Study Abroad 1-12(Spec)

Intended for intermediate students studying abroad. Prerequisites: GER 102.

GER 310 German Language Study Abroad 1-12(Spec)

Intended for advanced students studying abroad. Prerequisites: GER 202.

GER 311 Advanced German I 3(3-0)

Study of standard High German using current conversational and literary sources. Designed to improve oral and written language skills. Required for majors and minors. Recommended: GER 202.

GER 312 Advanced German II 3(3-0)

Continuation of GER 311. Required for majors and minors. Recommended: GER 311.

GER 325 Modern German Literature in Translation 3(3-0)

Interpretation and discussion of representative works by modern German-speaking writers with a focus on their views of contemporary society. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

GER 335 The Culture of the German Economy 3(3-0)

Development of proficiency through readings, discussions, and translations dealing with the culture of the German economic system and Germany in world trade. Taught in German. Prerequisite: GER 312.

GER 336 The Culture of German Business 3(3-0)

Development of proficiency through readings, discussions, and translations dealing with key areas of the German business culture such as management, marketing and corporate hierarchies. Taught in German. Prerequisite: GER 312.

GER 341 German Cultural History I 3(3-0)

The civilization of Germany and German-speaking areas with emphasis on the social, artistic, philosophical, and literary aspects. May be offered as Writing Intensive. Recommended: GER 202.

GER 342 German Cultural History II 3(3-0)

Continuation of GER 341. May be offered as Writing Intensive. Recommended: GER 202.

GER 343 Survey of German Literature I 3(3-0)

Survey of the chief literary periods from the earliest texts through the Enlightenment, reading representative authors and works within their social contexts. May be offered as writing intensive. Recommended: GER 202.

GER 344 Survey of German Literature II 3(3-0)

Survey of the chief literary periods from the end of the eighteenth century until the early 1930's, reading representative authors and works within their social contexts. May be offered as Writing Intensive. Recommended: GER 202.

GER 345 Survey of German Literature III 3(3-0)

Survey of the chief literary periods from the 1930s until the present time, reading representative authors and works within their social contexts. Conducted in German. May be offered as Writing Intensive. Recommended: GER 202.

GER 347 German Cultural History III 3(3-0)

Investigation of the cultural history of 'Germany' from post-war division through reunification and after, as seen through a wide variety of texts and other media. May be offered as Writing Intensive. Recommended: GER 202.

GER 350 Highlights of German Film 3(3-0)

A survey of German film from the Weimar Republic through the present, with the focus on significant and representative feature films. Taught in German. Recommended: GER 202.

GER 370 Advanced Studies in German 1-12(Spec)

Special topics may include language, literature and/or culture. May be repeated when the content is not a duplication of a previous special topics offering. Recommended: GER 202.

GER 397 Directed Readings 1-3(Spec)

Offers insight into certain aspects of German literature and civilization, not normally included in regular courses. Prerequisites: 6 hours of 300-level courses; permission of instructor.

GER 398 Directed Writing 1-3(Spec)

Students will learn to write different text types (e.g., news articles, short stories, book reviews, etc.). They will improve their grammatical, linguistic, and stylistic skills in written German. Prerequisites: GER 311; permission of instructor.

GER 403 German Literature to 1776 3(3-0)

The Middle Ages, Renaissance, Baroque, and the Enlightenment. Modern German translations from Old High German and Middle High German periods. Prerequisite: 6 hours of 300-level courses.

GER 405 German Classicism 3(3-0)

The classical age culminating in the works of Goethe and Schiller. The authors' lives, thoughts, and impact on their contemporaries. Prerequisite: 6 hours of 300-level courses.

GER 407 German Literature of the Nineteenth Century 3(3-0)

Romanticism, Poetic Realism, and Naturalism through representative authors. Prerequisite: at least 6 hours of 300-level courses.

GER 409 German Literature of the Twentieth Century 3(3-0)

Impressionism, Expressionism, Neo-realism, and other current trends. Prerequisite: At least 6 hours of 300-level courses.

GER 410 Study Abroad 1-24(Spec)

Intended for students on the exchange program with the Federation of German-American Clubs. Prerequisites: 6 hours at the 300 level; permission of the instructor.

GER 411 Practicum in Teaching German 3(2-1)

Techniques for teaching and testing foreign language skills, planning lessons and units, and selecting materials for secondary-level classrooms. Practical experience through mini-teaching situations. Prerequisites: Two 300-level courses; passing the competency test; departmental permission.

GER 412 Practicum: Secondary Field Experience 1(Spec)

Pre-student teaching experience in middle or high school teaching situation. CR/NC only. Co-requisite: GER 411.

GER 421 Foreign Language in Elementary Schools 1(1-0)

Techniques for teaching and testing foreign language skills, planning lessons and units, and selecting materials for the elementary school classroom. Practical experience through mini-teaching situations. Co-requisites: GER 411.

GER 422 Practicum: Elementary Field Experience 1(Spec)

Pre-student teaching experience in elementary school teaching situation. CR/NC only. Co-requisite: GER 421.

GER 470 Advanced Studies in German 1-12(Spec)

To develop advanced proficiency in German. Special topics may include language, literature, and/or culture. May be repeated when the content is not a duplication of a previous special topics offering. Recommended: 6 hours at the 300 level.

GER 570 Advanced Grammar and Composition 3(3-0)

Analysis of grammatical structures, vocabulary expansion, and extensive practice in written expression. May be offered as Writing Intensive. Prerequisite: GER 312.

GER 597 Independent Study 1-6(Spec)

The in-depth study of a topic under the direction of a faculty member who together with a student designs the format of the study. Prerequisites: permission of instructor and department chairperson; at least 6 hours on the 400 level.

GRK - Greek

See the Department of World Languages and Cultures for more information.

GRK 101 Classical Greek 4(4-0)

Grammar of written Greek prose of the Attic period, reading Greek text aloud, translation and composition.

GRK 102 Classical Greek 4(4-0)

Continuation of GRK 101. Prerequisite: GRK 101.

GRK 201 Classical Greek 4(4-0)

Reading and translation of Greek prose, including Xenophon and the Greek Bible. Prerequisite: GRK 102.

GRK 202 Classical Greek 4(4-0)

Continued guidance of the student in reading Greek prose and in the analysis of connected texts. Prerequisite: GRK 201.

GRN - Gerontology

See the Department of Human Environmental Studies for more information.

GRN 590 Independent Study 1-6(Spec)

Student-initiated study (reading, research, and/or project development) on a topic not normally covered in existing courses. Prerequisite: permission of instructor.

GRN 597 Special Topics 1-4(Spec)

Selected topics/problems of interest that are not normally included in existing courses. May include conferences, workshops, and seminars sponsored by the Interdisciplinary Gerontology Program. Prerequisite: permission of instructor.

HDF - Human Development & Family Studies

See the Department of Human Environmental Studies for more information.

HDF 100 Lifespan Development 3(3-0)

Study of the basic principles of human development and their relation to family interactions throughout the lifespan. This course may be offered in an online format. May be offered as Writing Intensive. Recommended: Students who have taken EDU 280 or PSY 220 should seek departmental advice prior to enrollment. (University Program Group III-A: Behavioral Sciences)

HDF 110 Oppression: Roots and Impact on Human Development in the United States 3(3-0)

A study of the roots and impact of different forms of oppression on the development of individuals within the family context. This course may be offered in an online or hybrid format. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

HDF 200 Constructivism as a Tool for Learning 2(2-0)

Using Constructivist philosophy, students will establish their view of the young child, guiding adult, and environment as a lens to frame future teaching practices. This course may be offered in an online format.

HDF 211 Marriage and Close Relationships 3(3-0)

This course examines the cultural and historical factors and processes that affect the development of marital, familial, and other close relationships across the life course.

HDF 212 Families in Cultural Perspective 3(3-0)

The varieties of family forms and resulting patterns of interpersonal relations to be found throughout Western history and in selected Western and non-Western cultures. (University Program Group III-B: Studies in Social Structures)

HDF 213 Introduction to Human Sexuality 3(3-0)

Human sexual development throughout the life cycle. Emphasis on understanding and acceptance of self as a sexually functioning person. Identical to WGS 213. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format.

HDF 214QR Consumer Economics 3(3-0)

This course introduces financial and resource management skills using quantitative reasoning and mathematical calculations to enhance family financial well-being. This course may be offered in an online or hybrid format. Quantitative Reasoning.

HDF 219 Field Work 3(1-6)

This course examines service learning and potential career paths for professionals in Human Development and Family Studies. Field placements required. Prerequisites: A signed major in Child Development or Family Studies; HDF 100 or HDF 211 or PSY 220.

HDF 247 Introduction to Gerontology 3(3-0)

An interdisciplinary approach to the study of aging with a focus on the normal changes that occur as one ages physically, mentally and socially. May be offered as writing intensive. This course may be offered in an online format. (University Program Group III-A: Behavioral Sciences)

HDF 248 Service Learning in Gerontology 3(Spec)

A structured and supervised service learning experience in professional service settings specifically addressing the needs of older adults. Prerequisites: concurrent registration in or completion of HDF 247 or PSY 325.

HDF 291 Human Environmental Studies: Family Ecology 3(3-0)

Holistic approach to studying families: emphasis on the dynamic interaction of families with surrounding environments and career options associated with interaction of families and environments.

HDF 301 Infant Toddler Practicum Experience 1-3(Spec)

A structured observation experience that provides students with the opportunity to apply knowledge of typical infant/toddler development to observed behaviors. This course may be offered in an online format. Prerequisites: HDF 100 or PSY 220 or EDU 280. Co-requisite: HDF 302.

HDF 302 Infant and Toddler Development 3(3-0)

The study of pregnancy, prenatal development, childbirth, and the development of infants and toddlers (to 3 years) within the family and the larger social system. This course may be offered in an online format. Prerequisites: HDF 100 or EDU 280 or PSY 220.

HDF 303 Early Childhood Development 4(Spec)

Principles for growth and development of preschool and early elementary children (ages 3-8) from diverse backgrounds and observations of children in early education settings. This course may be offered in an online format. Prerequisite: HDF 100 or EDU 280 or PSY 220.

HDF 306 Adolescent Development 3(3-0)

Study of adolescence and issues relating to the family of a teenager. Prerequisite: HDF 100 or EDU 280 or PSY 220.

HDF 307 Parent-Child Relations 3(3-0)

The study of the parent-child relationship, and the impact of that relationship on the development of both children and parents. Prerequisite: one of: HDF 100, EDU 280, or PSY 220.

HDF 308 Theories of Child and Adolescent Development 3(3-0)

Survey of child and adolescent theories of development. Prerequisites: HDF 100 or EDU 280 or PSY 220; Signed major or minor in Child Development, or in Family Studies. This course may be offered in an online format. May be offered as Writing Intensive.

HDF 309 Families, Schools, and Communities 3(3-0)

Study of the child, family, community, and schools, including parent education and involvement in learning, family and community characteristics, child abuse, and family issues. This course may be offered in an online or hybrid format. Prerequisites: HDF 100 or EDU 280 or PSY 220; Pre/Co-requisites: HDF 200.

HDF 315 Family Management Theory 3(3-0)

Integrated nature of family management; values, goals as reflected in decision-making regarding family resources.

HDF 317 Child Development Skills and Methods 3(3-0)

An introduction to skills and methods for professional practice with children and adolescents. Prerequisites: HDF 219 with a grade of C+ or better; a signed major in Child Development; Recommended: HDF 307.

HDF 319 Family Studies Skills and Methods 3(3-0)

An introduction to the skills and methods essential for work with individuals and families in service fields. Prerequisites: HDF 219 with a grade of C+ or better; a signed major in Child Development or Family Studies.

HDF 320 HDFIS International Service Learning 3-6(Spec)

An international cultural immersion experience working on a service learning project under the supervision of a faculty member. Prerequisite: Permission of instructor; minimum of 2.5 GPA; minimum of 24 CMU credit hours; depending on the service project approved, prerequisites may include language credit or ability, completion of specialized courses, or demonstration of appropriate skills for the project. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition, Option 2)

HDF 321 International Reggio-Inspired Early Childhood Learning 3(Spec)

An international cultural immersion experience studying early childhood education as it is inspired by the early childhood centers of Reggio Emilia, Italy. Prerequisites: HDF 200 or 25 semester hours completed.

HDF 328 Programs, Policies and Services for Older Adults 3(3-0)

An examination of U.S. legislation and policies that undergird the aging services network. Prerequisite: HDF 247.

HDF 340 Men and Masculinities in Adulthood 3(3-0)

The course takes a social construction approach examining how a gendered society influences the way adult men perceive themselves, other men, women and social situations. Prerequisites: HDF 100 or HDF 247; one additional 3 credit HDF course.

HDF 381 Education for Family Life and Human Sexuality 3(3-0)

Course designed to familiarize human development and family studies students with the methods and materials necessary to teach and work as a family-helping professional. Prerequisites: HDF 100 or EDU 280 or PSY 220; HDF/SOC 213 or HSC 222; HDF 211; 3 other credits in the Family Studies major or Family Life and Human Sexuality minor.

HDF 397 Special Topics in Human Development & Family Studies 1-6(Spec)

Topics of special interest which are not normally included in existing courses. Specific topic will be listed on student's transcript. This course may be offered in an online format. Prerequisites: See Course Search and Registration.

HDF 400 Developmental Assessment of Children 3(3-0)

Focus on the purpose of assessment, with emphasis on methods and skills used in assessing young children's development. Collaboration with parents and professionals is emphasized. This course may be offered in an online or hybrid format. Prerequisites: Two of: HDF 302, 303, 306, 510.

HDF 402 Guidance for Young Children 3(Spec)

Methods and theories of guidance for working with children in early childhood settings. Supervised laboratory experiences. This course may be offered in an online format. Prerequisites: HDF 200; HDF 302, 303 with a grade of C+ or better; Junior Status; or ECDL Block. Recommended: HDF 403.

HDF 403 Best Practices in Early Childhood Settings 3(3-0)

Knowledge and application of evidence-based practices in early childhood settings. Opportunities to plan experiences in science, social studies, language, nutrition, movement and arts. This course may be offered in an online format. Prerequisites: HDF 200; HDF 302, 303 with a grade of C+ or better; or ECDL Block. Recommended: HDF 402.

HDF 404 Children and Hospitalization 3(3-0)

This course focuses on children and hospitalization from developmental and contextual perspectives. Coping challenges and strategies to assist coping with hospitalization are examined. This course may be offered in online or hybrid format. Prerequisite: HDF 100 or PSY 220 or EDU 280.

HDF 409 Lead Teaching in Early Childhood 8(Spec)

Development of professional skills for working with young children and families. Supervised lead teaching experience in the Child Development and Learning Laboratory. This course may be offered in an online format. Prerequisites: HDF 309, C+ or better in HDF 402 and 403. Pre/Co-requisite: HDF 400.

HDF 411 Families in Social, Legal, & Political Contexts 3(3-0)

This course examines how factors from social, legal, and political contexts influence family development and functioning over the life course. Prerequisites: HDF 211; senior standing.

HDF 413 Facilitating Discussion in Human Sexuality Groups 3(3-0)

The purpose, rationale, professional issues, planning, techniques and methods, learning objectives, evaluation, and guided experience in facilitating discussion in human sexuality groups. Prerequisites: permission of instructor; HDF 213 or SOC 213 or WGS 213.

HDF 414 Human Development and Family Studies Research Methods 3(3-0)

This course is an introduction to research methods within human development and family studies. Prerequisites: 9 HDF or GRN credits.

HDF 418 Family Development in Late Life 3(3-0)

This course examines individual development and aging within the context of the family: marriage, singlehood and widowhood; intergenerational relations and grandparenthood; sibling relations and friendships. This course may be offered in an online format. Prerequisites: One of the following: HDF 100, HDF 247, PSY 100, SOC 100.

HDF 419 HDFs Internship 1-12(Spec)

A structured internship that provides students with an opportunity to work in a professional setting serving the needs of individuals and families. No more than 6 credits may be taken each semester. Prerequisites: HDF 317 or 319 or 506 with a grade of C+ or better; a signed major in Child Development or Family Studies.

HDF 430 Women and Aging 3(3-0)

This course assumes multiple theoretical perspectives to examine older women's, psychological, social, and physical development, family and social roles, and policy implications. Identical to WGS 430. Credit may not be earned in more than one of these courses. This course may be offered online. Prerequisites: HDF 100 or 247 or PSY 325.

HDF 481 FCS/LME Teaching Methods 3(3-0)

Covers material designed to prepare students for an endorsement in Family and Consumer Sciences/Life Management Education. Prerequisites: completion of all courses in Family Studies/Life Management Education Major.

HDF 490 Independent Study in Human Development & Family Studies 1-6(Spec)

A student-initiated learning activity focusing on a faculty approved topic in Human Development and Family Studies. Prerequisite: Permission of Instructor.

HDF 497 Special Topics in Human Development & Family Studies 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Specific topic will be listed on student's transcript. This course may be offered in an online format. Prerequisites: See Course Search and Registration.

HDF 506 Practicum in Parent Involvement 3(2-2)

Analysis of goals, trends, methods and models of parent involvement with opportunities to plan programs for parents, and to work with parents in professional settings. Prerequisites: HDF 307; one of HDF 302, HDF 303, HDF 306; or Human Development and Family Studies graduate standing.

HDF 508 Early Childhood Program Administration and Leadership 3(3-0)

The role of the early childhood program director as leader and architect of the work environment and climate. This course may be offered in an online format. Prerequisites: HDF 302, 303, 309; or ECDL Block; or graduate status.

HDF 510 Child Development Seminar: Promoting Resilience 3(3-0)

Through integration of theory, research, and practice, this course focuses on encouraging positive developmental outcomes and resilience in children and adolescents facing stressful life circumstances. Prerequisites: Two of: HDF 302, 303, 306, 308; or Human Development and Family Studies graduate standing.

HDF 511 Seminar in Human Sexuality 3(3-0)

Survey of professional literature pertaining to human sexuality. Prerequisites: HDF 213 or HSC 222.

HDF 513 Readings in the Family 3(3-0)

Survey of professional literature related to the family. Prerequisites: HDF 211 or HDF 411 or SOC 411.

HDF 516 Family Development: Early Adulthood/Middle Age 3(3-0)

A study of the tasks and transitions of the periods of the family life cycle from early adulthood through middle age. Prerequisites: HDF 100 or PSY 220; HDF 211 or HDF 411 or SOC 411.

HDF 517 Readings in Marital Counseling and Divorce 3(3-0)

Analysis of changing philosophical conceptualizations of marriage and family, as reflected by emerging issues in marriage counseling and divorce. Prerequisites: HDF 211.

HDF 535 Dementia Care: Diagnosis, Treatment and Prevention 3(3-0)

This course provides a foundation in normal aging and then addresses the individual, family and institutional challenges of diagnosis, treatment and prevention of dementing illnesses. Prerequisites: HDF 247 or PSY 325 or HSC 390.

HDF 597 Special Topics in Human Development & Family Studies 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Specific topic will be listed on student's transcript. This course may be offered in an online format. Prerequisites: See Course Search and Registration.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

HDF 600 Professional Seminar I-Introduction to HDFs 1(1-0)**HDF 601 Human Growth and Development: 0-8 Years 3(3-0)****HDF 602 Professional Seminar II - Diversity in HDFs 1(1-0)****HDF 603 Human Diversity Within and Between Families 3(3-0)****HDF 604 Professional Seminar III - Grant Writing in HDFs 1(1-0)****HDF 606 Human Growth and Development: Issues in Adolescent Development 3(3-0)****HDF 609 Application of Theory and Research in Human Development 3(3-0)****HDF 615 Application of Theory and Research in Family Studies 3(3-0)****HDF 618 The Family Life Cycle: The Older Adult 3(3-0)****HDF 619 Continuing Registration for Final Research Project 1(1-0)****HDF 630 Applied Research Methods 3(3-0)****HDF 631 Gerontology: Theory and Practice 3(3-0)****HDF 632 Public Policy and Aging 3(3-0)****HDF 634 Statistical Applications in Human Services 3(3-0)****HDF 635 Skill Mentorship in HDFs: Teaching 1(Spec)****HDF 636 Skill Mentorship in HDFs: Research 1(Spec)****HDF 637 Skill Mentorship in HDFs: Practice 1(Spec)****HDF 640 Practice in Human Services 3(3-0)****HDF 642 Program Development and Evaluation in Human Services 3(3-0)****HDF 686 Practicum I in HDFs 3(Spec)****HDF 688 Practicum II in HDFs 3(Spec)**

HDF 697 Special Topics in Human Development & Family Studies 1-15(Spec)**HDF 786 Occupational Field Experience 3(Spec)****HDF 797 Special Topics in Human Development & Family Studies 1-15(Spec)****HDF 798 Thesis in Human Development & Family Studies 1-6(Spec)****HDF 799 Plan B Project in Human Development and Family Studies 3(3-0)****HNS - Environmental Health and Safety**

See the Department of Health Sciences for more information.

HNS 300 Special Topics in Environmental Health and Safety 1-3(Spec)

Selected topics/current issues of interest in Environmental Health and Safety not included in existing courses. Current course topic is listed in the semester Class Schedule. Repeatable up to 3 credits when content does not duplicate previous topics studied. This course may be offered in an online format. Prerequisite: At least one 100-level course on the Environmental Health and Safety major. See semester Class Schedule for specific course required for the Special Topic.

HNS 390 Independent Study 1-3(Spec)

Student-initiated study guided by a faculty member associated with the Environmental Health and Safety major. This course may be offered in an online format. Prerequisites: One course at the 200-level or above on the Environmental Health & Safety major; permission of instructor.

HNS 425 Hazardous Materials Technology 3(3-0)

Characterization of hazardous materials at waste or emergency sites and related health, safety, and regulatory issues for persons conducting, supervising, and managing field activities. Prerequisites: CHM 120 or 131; IET 327 or HSC 352; 55 credit hours completed.

HNS 452 Environmental Health & Safety Internship 3(Spec)

Application of knowledge and skills in environmental health and safety at an approved, supervised internship site. CR/NC only. Prerequisites: HSC 352 or IET 327; signed Environmental Health and Safety major; 85 credit hours completed; permission of instructor.

HOA - Hotel Administration

See the Department of Marketing and Hospitality Services Administration for more information. Courses taken at the University of Nevada, Las Vegas campus toward the Gaming Management and Entertainment Concentration on the Hospitality Services Administration Major.

HOA 334 Casino Operation and Management 3(3-0)

Practices and problems associated with casino management, including staffing, security and control, taxation and entertainment. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HOA 339 Protection of Casino Table Games 3(3-0)

An in-depth examination of the various methods used to protect casino table games. The course reviews blackjack, baccarat, poker, craps and roulette, examining possible ways that cheating can occur. Methods of detection and various internal controls used by the casino will be discussed. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HOA 426 Accounting for the Hotel Casino 3(3-0)

Examines the accounting systems, procedures and controls required by both management and government for internal auditing, financial reporting and government control. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HOA 436 Mathematics of Casino Games 3(3-0)

Develops the techniques and methods for computing the probabilities, expected values and house percentages of casino games and analyzes the effects of changes in playing rules and payoff odds. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HOA 437 Gaming Regulations and Control 3(3-0)

Nevada's system of gaming regulation and control will provide a model for studying the history, purpose, politics, methods, and limitations—both practical and legal—of governmental regulation and control of legal gambling. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HOA 439 Seminars in Casino Management 3(3-0)

Special topics in casino problems. Course open to experienced casino personnel. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HOA 442 Sociology of Gambling 3(3-0)

Analysis of patterns of participation in various forms of gambling, the political/economic background of gambling, and the effects of gambling on communities, lifestyles and value systems. Prerequisites: 56 semester hours completed and admission to Professional Business Studies or listed on signed major or minor.

HON - Honors

See the Honors Program for more information (see index for page number).

HON 100 Introduction to Honors 3(Spec)

Introduction to the mission, core values, and goals of the University Honors Program for first year Honors students. Credit cannot be earned in both HON 100 and HON 300. Prerequisite: Admission to the University Honors Program. Co-requisite: Enrollment in one Honors First Year Seminar: HON 201, 202, 203, 204, 205, 206, 207, 208.

HON 102 Honors Colloquium 1-3(Spec)

Colloquia are experimental or novel courses which are open to all Honors students. Colloquia intend to introduce new subjects or questions or to probe deeply into more narrowly defined areas. Repeatable up to 3 credits when content previously studied is not duplicated. Prerequisite: Honor students only.

HON 201WI Honors Studies in Human Events and Ideas: First Year Seminar 3(3-0)

Explores a complex issue through the lens of the Humanities and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group I-A: Human Events and Ideas)

HON 202WI Honors Studies in the Arts: First Year Seminar 3(3-0)

Explores a complex issue through the lens of the Humanities and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group I-B: The Arts)

HON 203WI Honors Descriptive Science: First Year Seminar 3(3-0)

Explores a complex issue through the lens of the descriptive sciences and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group II-A: Descriptive Sciences)

HON 204WI Honors Quantitative and Mathematical Science: First Year Seminar 3(3-0)

Explores a complex issue using approaches from the quantitative and mathematical sciences and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group II-B: Quantitative and Mathematical Science)

HON 205WI Honors Behavioral Sciences: First Year Seminar 3(3-0)

Explores a complex issue through the lens of the behavioral sciences and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group III-A: Behavioral Sciences)

HON 206WI Honors Studies in Social Structures: First Year Seminar 3(3-0)

Explores a complex issue through an analysis of social structures and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group III-B: Studies in Social Structures)

HON 207WI Honors Studies in Global Cultures: First Year Seminar 3(3-0)

Explores the complexity of global cultures and seeks solutions to the great challenges facing our world. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HON 208WI Honors Studies in Racism and Diversity in the U.S.: First Year Seminar 3(3-0)

Explores the complexity of racism as a great challenge facing our world and seeks solutions that promote diversity. Writing Intensive. Prerequisite: Admission to the Honors Program. Pre/Co-requisite: HON 100. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

HON 300 Introduction to Honors II 3(Spec)

Introduction to the mission, core values, and goals of the University Honors Program for first semester, Track II, Honors students. Credit cannot be earned in both HON 100 and HON 300. Prerequisite: Track II Admission to the University Honors Program.

HON 309 Honors Global Citizenship 1-6(Spec)

This course is designed to engage Honors students in global citizenship through study abroad experience. This course may be repeated when offered with a different focus of study. Prerequisites: Completion of HON 100 or 300, good standing in Honors. (University Program Group IV-B: Studies in Cultures Outside of the Anglo American Tradition)

HON 310 Honors Academic Service Learning 1-4(Spec)

This course offers an opportunity for honors students to perform targeted academic-based service work under the supervision of a CMU faculty member. This course may be repeated when offered with a different focus of study. This course may be offered in an online or hybrid format. Prerequisites: HON 100 or 300; good standing in Honors.

HON 315 Honors College Teaching Assistant 1-9(Spec)

Exposure to student development theory and practical skills for effective teaching/mentoring of Honors students. The course may be taken up to three times. Prerequisite: Successful completion of HON 100 or HON 300.

HON 319 Culture and Inequality in the U.S. 3(Spec)

This course is designed for Honors students to examine issues relevant to various cultural groups in the U.S., including the broader issues of racism and discrimination. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

HON 321 Seminar 1-12(Spec)

Honors seminars are more cognitively advanced courses addressing various topics, themes, and problems, and assuming experience and skill in analysis, synthesis, critical evaluation, and research. They are open primarily to sophomores, juniors, and transfer students.

HON 399 Independent Study 1-6(Spec)

Provides an opportunity for the student to investigate an approved topic which relates to her/his special needs and interests.

HON 401 Confrontation Colloquium 3(3-0)

These team-taught courses provide an opportunity for advanced multidisciplinary scholarship in which an integrating activity, project, or exhibit will be required.

HON 499 Senior Project 3-6(Spec)

An opportunity for senior honors students individually to design and execute multidisciplinary scholarship. May be offered as Writing Intensive.

HPS - Health Professions

See the *Herbert H. and Grace A. Dow College of Health Professions* for more information.

HPS 101WI Introduction to the Health Professions 3(3-0)

Provides an understanding of the university environment, value of learning, and student responsibilities while emphasizing health professions and exploring self-identification skills necessary for choosing careers. Writing Intensive.

HPS 350WI Readiness: College-to-Career Transition 3(3-0)

The exploration of the student's readiness for the transition from the undergraduate college experience to professional work or graduate education. Writing Intensive. Prerequisites: Signed Major; 62 credit hours completed.

HSA - Hospitality Services Administration

See the *Department of Marketing and Hospitality Services Administration* for more information.

HSA 120 Introduction to the Gaming Industry 3(3-0)

Overview of gaming industry; including scope, staffing, security, control, taxation, government regulations, and social, economic, and cultural impacts of gaming on host community.

HSA 210 Effective Supervision: Principles and Practices 3(3-0)

Prepares students to be effective first-line supervisors in a variety of organizational settings by using sound principles and practices applied to basic managerial processes. Identical to MGT 210. Credit may not be earned in more than one of these courses.

HSA 240 Introduction to Hospitality Services Administration 3(3-0)

Lectures and travel giving a broad introduction to the services industry in the United States and the world. Additional fee required.

HSA 245 Wines of the World 1(1-0)

This is an introduction to the subject of wine, its history, variety, production, commercial and social role. Course participants gain experience in identifying wines, appraising value, serving, and discussing wines intelligently and constructively in today's era of social responsibility.

HSA 297 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topics will be listed on students' transcripts.

HSA 331 Hospitality Industry Information Systems 3(3-0)

Concepts and design of information systems and the role of the computer in hotels, restaurants and travel-related industries. Prerequisites: ACC 202; BIS 221; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 341 Services Marketing 3(3-0)

Planning and implementation of marketing strategy and application of the marketing mix to services including hospitality, banking and health services. Identical to MKT 341. Credit may not be earned in more than one of these courses. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 343 Tourism 3(3-0)

An examination of where and why the hospitality services industry client travels domestically and abroad, and the economic impact of tourism expenditures. Identical to RPL 343. Credit may not be earned in more than one of these courses.

HSA 344 Legal Aspects of Hospitality Services 3(3-0)

An analysis of the legal and labor environments of the hospitality services industry. Prerequisites: BLR 202; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 348 Franchising 3(3-0)

This course explores the major functional areas of franchising, franchising agreements, characteristics of the franchisor and franchisee, franchising opportunities, legal concerns, and franchising strategies. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 350 Lodging Operations 3(3-0)

A detailed look at the multi-dimensional lodging operations from a manager's perspective. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

HSA 390 Field Studies in Hospitality Services Administration 3(3-0)

Activities which may include industrial visitations and work study in conference with supervision of cooperating organization, professor and student. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 397 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcript. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 445 Advanced Food and Beverage Systems Management 3(3-0)

Studies in advanced management requirements in food and beverage systems. Prerequisites: Completion of FNS 365/366 encouraged; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 447 Financial Management in the Hospitality Service Sector 3(3-0)

Acquaints the student with current and anticipated financial environment for lodging and food services organizations and develops skills in managing financial resources in the industry. Prerequisites: MGT 258 or 312; ACC 201 or 250, ACC 202 or 255; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 490 Hospitality Internship 3(Spec)

Full-time summer designed work experience in hospitality operations agreed to by student and faculty coordinator. Detailed written report required. Prerequisites: 56 semester hours completed; HSA major or concentration; admission to Professional Business Studies or listed on signed major or minor.

HSA 491 Independent Studies 1-6(Spec)

Directed reading or research on an approved topic. Open to seniors in good academic standing. Prerequisites: prior permission of instructor and department chairperson; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 492 Practicum in Small Business 3(Spec)

Provides the student an opportunity to analyze the accounting, finance, marketing, management, and production system of an ongoing small business. Identical with ACC/FIN/MGT/MKT/BIS 492. Prerequisites: 56 semester hours completed; permission of instructor; admission to Professional Business Studies or listed on signed major or minor.

HSA 542 International Tourism 3(3-0)

This course focuses on the strategic management of international tourism in hospitality organizations, associations, and government agencies. Prerequisites: 86 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

HSA 546 Management in the Hospitality Service Sector 3(3-0)

Management and personnel functions as they relate to the hospitality industry; skills necessary to manage hotels, clubs, resorts; role of food service in these operations. Prerequisites: HSA 350, 447; 86 semester hours completed; admission to Professional Business Studies, listed on signed major or minor.

HSA 597 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcript. Prerequisites: admission to Professional Business Studies and senior standing; 86 hours completed.

For graduate level course descriptions above 600, consult the current *College of Graduate Studies Bulletin*.

HSA 791 Independent Studies 1-6(Spec)**HSA 797 Special Topics 3-6(Spec)****HSA 798 Thesis 1-6(Spec)****HSC - Health Science**

See the *School of Health Sciences* for more information.

HSC 106QR Healthy Lifestyles 3(2-1)

Focus on individual health and wellness concepts using quantitative reasoning. Designed to assist the individual in striving for lifelong learning about healthier lifestyles. Quantitative Reasoning.

HSC 107 Drugs and the Athlete 1(1-0)

An orientation in basic chemical substances and nutrition as an ergogenic aid as they affect athletic performance. This course may be offered in an online hybrid format.

HSC 110 Introduction to Public Health 2(2-0)

Introduction to Public Health focusing on current and emerging issues in the community. The course addresses appropriate responses to problems related to current health issues. This course may be offered in an online format.

HSC 190 Introduction to Exercise Science 1(1-0)

Introduction to the field of exercise science, including elements from the basic and clinical sciences and other allied health professions that integrate with exercise science.

HSC 201 Medical Terminology 3(3-0)

A self-study module course for learning anatomical directions, planes, comprehensive clinical vocabulary, words made from word parts, and imaging terms used in health care. Recommended: Successful completion of at least two semesters of coursework at the college level.

HSC 203WI Leadership for the Health Professions 3(3-0)

Engages the student in exploring, understanding and applying leadership concepts, skills, and behaviors in personal and professional development for leading in the healthcare field. Writing Intensive.

HSC 205 Responding to Emergencies 2(1-2)

Includes CPR and first aid care. American Red Cross certification for first aid and CPR can be earned.

HSC 211 Human Anatomy and Physiology 3(3-0)

Covers basic structure and function of the human body. Prepares non-science majors and health profession students to take advanced human anatomy and physiology courses. Recommended: Successful completion of a college level science course or a strong background in basic sciences, i.e. high school biology or chemistry.

HSC 212 Applied Physiology and Kinesiology 3(3-1)

Functional aspects of human anatomy and application to physical activity, exercise, and human performance. Prerequisites: HSC 211 or 214.

HSC 213 Anatomy & Physiology Laboratory 1(0-2)

A learning experience using laboratory techniques and procedures to develop an understanding of the human body structure and function. Prerequisite: HSC 211 or concurrent enrollment.

HSC 214 Human Anatomy 4(3-3)

A comprehensive course in the structure of the human body organized by systems. Laboratory work includes identification of fundamental anatomical structures on models and cadavers. Prerequisites: HSC 211 or 12 credit hours completed with one course in BIO or CHM or PHY.

HSC 215 Human Physiology 4(3-2)

A comprehensive course that studies the function of the organ systems of the human body. Laboratory work in fundamental physiological principles is included. Pre/Co-Requisite: HSC 214.

HSC 216 Biomechanics and Kinesiology 3(2-2)

The study of functional aspects of human movement, including basic biomechanics and structural kinesiology. Prerequisites: HSC 214, HSC 215.

HSC 219 Exercise Conditioning for Health Fitness Professionals 2(1-2)

Students will learn to assess and perform various exercises utilized in personal training and strength and conditioning, and achieve a standard of fitness competence themselves. Prerequisites: HSC 214, 215.

HSC 220 Health-related Components of Fitness 3(2-2)

Theory and practice related to exercise testing and administration for the health-related components of fitness. Practical experience in fitness evaluation, exercise technique and program design. Prerequisites: HSC 214, 215.

HSC 221 Public Health Theory 2(2-0)

The course builds on basic public health concepts and theory and how they are incorporated into intervention, design and evaluation of individual, group and communities. This course may be offered in an online format. Prerequisite: HSC 110.

HSC 222 Sexuality in Health Education 3(3-0)

Theory and practice in sexuality education within communities and schools. Emphasis is on legal implications, program requirements and implementation to meet national and state guidelines.

HSC 223 Basic Health Concepts I 3(3-0)

One of two introductory content courses covering: tobacco, alcohol and drug use and prevention; growth and development; disease prevention; nutrition; and physical activity. Pre/Co-Requisite: HSC 106.

HSC 224 Basic Health Concepts II 3(3-0)

One of two introductory health content courses covering: violence prevention/safety; emotional/mental health; character education; intentional/unintentional injuries; community, environmental and consumer health. Pre/Co-Requisites: HSC 106.

HSC 235 Psychoactive Drugs 3(3-0)

The study of psychoactive drugs: what they are; how they work; and why people use and/or abuse them. Not open to students with credit in HSC 528, 529, or 530. This course may be offered in an online or hybrid format.

HSC 236 Substance Abuse Intervention Programming 3(3-0)

Investigate substance abuse programs and explore substance abuse intervention. Prerequisite: HSC 235.

HSC 297 Special Topics 1-12(Spec)

Contains subject matter not included in courses currently listed in the Bulletin. Prerequisite: Permission of Instructor.

HSC 308 Physiology of Sport and Exercise 3(3-0)

Lectures on basic principles of physiology of exercise. The basics of exercise, performance conditioning, and the human organism response to these conditions. Prerequisites: HSC 211; or HSC 214, 215.

HSC 310 ECG Assessment 2(2-1)

Emphasis is placed on the recognition and interpretation of normal and abnormal resting and exercise ECG's. Includes lab experience in resting and exercise ECG monitoring. Prerequisites: A grade of C or higher in HSC 214, 215; a signed Exercise Science Major: Clinical Exercise Science Option or a signed Health Fitness in Preventive and Rehabilitative Major.

HSC 313 Field Experience in School Health Education 1(Spec)

A 30-hour field experience of on-site observation and participation under the supervision of the department and a secondary school health education teacher. CR/NC only. Prerequisites: EDU 107; HSC 205, HSC 211, HSC 222, HSC 235; HSC 503 or FNS 370.

HSC 315WI Critical Analysis of Contemporary Issues in Exercise and Health Science 3(3-0)

Topics in exercise and health sciences will be researched and analyzed to substantiate and critique widely held beliefs and theories in the field. Writing Intensive. Prerequisites: Previous WI course; HSC 190.

HSC 317 Community Health 3(3-0)

Introduction to public health, and services provided to citizens and educators by official and voluntary health agencies. This course may be offered in an online or hybrid format.

HSC 319 Methods and Materials in Community Health Education 3(3-0)

Skills and techniques in writing, developing health education materials, public speaking, and group dynamics as they relate to community programs. Prerequisite: A signed Community Health Major or minor.

HSC 323 Community Organization Methods 3(3-0)

The course examines the principles of community organization practice for health education. Community organization models, concepts, skills, strategies, and theories will be addressed.

HSC 325 Public Health Policy 3(3-0)

The course presents an overview of public health policy issues, interventions, and the influence of the political, bureaucratic and social environments. This course may be offered in an online delivery format. Prerequisite: HSC 110; Pre/Co-requisites: HSC 221.

HSC 333 Managing the Health of Populations 3(3-0)

This course provides the foundation for exploring health of populations and communities within the context of applied epidemiology and sound healthcare delivery administration.

HSC 340 Curriculum & Planning School Health Programs 3(3-0)

This course will enable health education students to develop planning skills for health programs in the school setting. Pre/Co-requisites: HSC 222 or 223 or 224.

HSC 343 Health Education in the Elementary School 2(2-0)

A study of health education programs and practices for teachers at the elementary school level. Prerequisite: Tier One: Pre-Admission of Candidacy to Teacher Education.

HSC 346 Methods in School Health Education 3(3-0)

Methods in teaching school health education. Prerequisites: HSC 340.

HSC 350 Community Service in the Health Educators 2(2-0)

A service-learning experience where the student is engaged in a hands-on service project. Academic coverage includes the philosophy, objectives, and methods of community service. Prerequisite: HSC 317.

HSC 352 Environmental Health 3(3-0)

Investigates today's environmental problems related to health, air, water, radiation, housing, urbanization, disease, weapons, and humans' responsibilities for and remedial actions to these problems. This course may be offered in an online format.

HSC 390 Health and Aging 3(3-0)

A study of age-related changes of the body, health concerns, healthy lifestyles and health care for older adults.

HSC 404 Epidemiology 3(3-0)

Introduction to basic principles and methods of epidemiology including: determinants of disease distribution, measures of disease frequency and association, study design, and data sources. Prerequisites: Math competency; 56 credits.

HSC 411 Pathophysiology 3(3-0)

Study of body's physiological responses to disease states. Emphasis is placed on the interactions among body systems and deviations from homeostasis. Prerequisite: HSC 211 or HSC 215 or BIO 392.

HSC 413 Professional Aspects in School Health 3(2-1)

Course addresses competencies, professionalism, and issues in school health education, including a 60-hour onsite field experience. Pre/Co-requisite: HSC 346.

HSC 414 Decision Technologies in Health Care 3(3-0)

This course surveys two computer-based tools, simulation and geographical information systems, commonly used to market and manage the delivery of health services. Prerequisite: an introductory probability or statistics course.

HSC 418 Professional Aspects of Health Education 2(2-0)

This course will address professional issues relating to the history, philosophy, ethics, practice, settings, and competencies of health education. Prerequisites: HSC 317 or concurrent enrollment.

HSC 419WI Community Health Assessment, Planning and Program Evaluation 3(3-0)

Models, theories, methodologies, interventions, and evaluation of community health assessments and programs will be discussed, along with other health education responsibilities and initiatives. Writing Intensive. Prerequisite: HSC 319, 323.

HSC 420 Fitness and Performance Assessment 3(2-3)

Practical course on testing fitness and performance including tests of cardiovascular fitness, muscular strength and endurance, flexibility, and body composition. Prerequisites: HSC 308; signed exercise science major.

HSC 421 Training for Fitness and Performance 3(2-3)

Practical course to instruct students in leading safe and effective exercise programs in a variety of environments for athletes to sedentary individuals. Prerequisites: HSC 219, 420; signed Exercise Science major: Health Fitness option or Health Fitness minor.

HSC 423 Practicum in Personal Training 2(1-3)

This course is designed for students to obtain experience leading safe and effective exercise programs with clients one-on-one. CR/NC Only. Prerequisites: HSC 205, 308, 420, 421.

HSC 424 Practicum in Health Fitness 2(0-6)

Practical experience with fitness appraisals/exercise prescriptions for adults; and staff functions in various campus facilities. CR/NC only. Prerequisites: HSC 205, 308 and permission of instructor.

HSC 425 Health Fitness Program Administration/Management 3(3-0)

This course will prepare students to work in health fitness settings organizing, administering and supervising programs for apparently healthy individuals or those with controlled risks. Prerequisites: HSC 420, HSC 421.

HSC 454 International Health Systems, Organizations and Policy 3(3-0)

Overview of health systems structure, service delivery, administrative processes and policy dimensions from an international perspective. This course may be offered in an online format. Prerequisite: HSC 333 and 48 credit hours completed.

HSC 500 Health Informatics 3(3-0)

Overview of the broad spectrum of healthcare informatics issues, challenges and opportunities faced by healthcare managers. Emphasis is on managing healthcare information as a corporate asset and on the relationship of health informatics to the quality, accessibility and cost of healthcare. Prerequisites: HSC 317.

HSC 503 Health Implications of Obesity 3(3-0)

Obesity will be studied with special emphasis on prevalence and etiology. Modes of prevention and treatment including diet and exercise will also be discussed. Prerequisites: 56 hours completed or graduate standing.

HSC 504 International Health Education 3(3-0)

Examines major issues in international health education, exploring the health education opportunities and challenges of addressing specific health problems of countries throughout the world. This course is approved for offering in a distance learning format. Prerequisites: Admission to the College of Graduate Studies, or junior or senior undergraduate standing.

HSC 505 Work Injury Prevention 3(3-0)

The study of the etiology, epidemiology, treatment, assessment, and prevention of work-related neuromuscular and musculoskeletal conditions in the workplace. Prerequisites: HSC 211 or 214 or graduate standing.

HSC 506 Health and Physical Development in Late Life 3(3-0)

This course examines in depth the processes of normal aging as well as important issues affecting the health of older adults. Prerequisites: BIO 101.

HSC 507 Introduction to Health Service Organizations and Systems 3(3-0)

Macro level study of healthcare systems including delivery, integration, reimbursement mechanisms, multi-organizational and inter-organizational arrangements, health policies, and future solutions. This course may be offered in an online or hybrid format.

HSC 508 Education on Sexual Aggression for School/Community 3(Spec)

This course addresses the realities of sexual aggression, and how schools, corporations, and communities can educate their respective populations on these topics. Identical to PES 508. Credit may not be earned in more than one of these courses.

HSC 510 Independent Reading Experience 1-4(Spec)

Individual reading-an experience designed for professional enrichment. 4-hour maximum. CR/NC only. Prerequisite: Permission of Instructor.

HSC 512 Special Topics in Health Education 1-12(Spec)

In-depth consideration of relevant, pertinent health issues.

HSC 516 Travel Course in Health Education 1-15(Spec)

Topics scheduled to study health education, private and voluntary health care programs, museums, hospitals, health clinics, city and school health programs. Prerequisite: Permission of instructor.

HSC 517 Drugs and the Elderly 2(2-0)

An introduction to medication practices and problems among the elderly, and study of selected drugs and their effects on the aging individual. Prerequisites: HSC 390.

HSC 519 Death Education and Suicide Prevention 3(3-0)

A holistic study of the cultural, spiritual, legal, ethical, psychological and controversial aspects of death. Emphasis will also be placed on suicide prevention. Prerequisites: must have completed a minimum of 60 semester hours of coursework.

HSC 520 Health Services Administration 3(3-0)

Analysis of organizational patterns, planning procedures, fiscal management, personnel management, and other administrative concerns. This course may be offered in an online or hybrid format.

HSC 522 Consumer Health Education 2(2-0)

Issues of consumer health related to the individual, the community, and society.

HSC 523 AIDS Education 1(1-0)

A concentrated study of Acquired Immune Deficiency Syndrome including the origin, prevalence, spread, disease process, psychosocial aspects and implications for society. This course may be offered in an online or hybrid format. Prerequisite: HSC 106 or teaching certificate.

HSC 524 Workshop on Health Fitness 2(Spec)

Guidelines for fitness appraisals and exercise prescription for healthy and high risk adults.

HSC 525 Sexually Transmitted Disease Workshop 1(Spec)

Concentrated study of sexually transmitted diseases, modes of transmission, and role of public health agencies and schools in coping with the problem.

HSC 526 Behavioral Health 3(3-0)

Concentrated study of mental health and illness as related to home, school, and community. This course may be offered in an online or hybrid format.

HSC 527 Sex Education Workshop 1(Spec)

Concentrated study of sex education and roles of home, school, and community. Not open to students with credit in HSC 222.

HSC 528 Smoking and Health Education Workshop 1(Spec)

Concentrated study of physiological, psychological, sociological, and educational aspects of smoking. Not open to students with credit in HSC 235.

HSC 529 Alcohol Education Workshop 1(1-0)

Concentrated study of physiological, psychological, and sociological aspects of alcohol education. Not open to students with credit in HSC 235. This course is approved for offering in a distance learning format.

HSC 530 Drug Abuse Workshop 1(Spec)

Concentrated study of the effects of drugs and narcotics. Roles of home, school, and community in drug education. Not open to students with credit in HSC 235. This course is approved for offering in a distance learning format.

HSC 532 Diversity Issues in the Health Professions 3(3-0)

This course covers diversity issues in order to help students become effective, multiculturally competent health practitioners. This course may be offered in an online format. Prerequisites: ATR 383 or HSC 317; or graduate standing.

HSC 534 Workshop in Principles of Cardiovascular Health and Disease 1(Spec)

Concentrated study of the physiological aspects of the cardiovascular system and its adaptation to stress.

HSC 536 Health Education Assessment 3(3-0)

Content, skills and application to develop and use assessment and evaluation strategies for health education. Prerequisites: HSC 222, 223, 224 Co-requisites: HSC 340, 346.

HSC 537 Stress Reduction Workshop 1(Spec)

Systematic evaluation of stress and methods used to effectively reduce stress to promote and maintain health and wellness. Prerequisite: 50 credit hours completed or graduate standing.

HSC 538WI Development of Proposals and Reports in Health Administration 3(3-0)

Emphasize format, content, and writing skills necessary for administration of health programs to prepare grant applications, proposals, reports, and written communications. Writing Intensive. Prerequisites: 56 credit hours completed or graduate standing. Recommended: Signed major in Health Administration or Public Health Education.

HSC 544 Biostatistics 3(2-1)

This class presents applied statistical concepts, principles and methods in the health services industry. Statistical procedures are applied to health, administrative, and medical data. Prerequisites: STA 282 or PSY 211 or graduate standing.

HSC 545 Health Planning 3(3-0)

Capstone course that brings together major aspects of managing healthcare organizations and programs into the strategic planning process and methodologies. This course may be offered in an online or hybrid format. Prerequisites: HSC 500, 507, 520, 544. Pre/Co-requisites: HSC 570. Recommended: MKT 300; HSC 333, 538.

HSC 546 Microcomputer Applications to the Health Sciences 3(3-0)

Microcomputer applications in school and community health, health services administration, health promotion and exercise science, application of current software utilized by the health fields. Prerequisite: CPS 100 or BIS 104.

HSC 547 Health Risk Identification and Management 3(3-0)

Examine cardiovascular and chronic disease risk factors and management of those risk factors with emphasis on current clinical guidelines and lifestyle interventions (e.g., physical activity/exercise). Prerequisites: 56 credit hours completed or graduate standing.

HSC 550 Stress Test Administration 3(2-2)

Course in theory and methods of administering exercise stress tests using different modes of exercise and consideration of different populations. Includes classroom and practical experience. Prerequisites: A grade of C or higher in HSC 220 or 420, 308, 310; a signed Exercise Science Major: Clinical Exercise Science Option or a signed Health Fitness in Preventive and Rehabilitative Programs Major; or Exercise Science Graduate Status.

HSC 551 Stress Testing Interpretation 3(3-1)

Course in analysis of information gained from exercise testing, studying deviations from normal, and applications of exercise test information in adult fitness and cardiac rehabilitation programs. Prerequisites: HSC 550 with a grade of C or higher.

HSC 553 Cardiac Medications 2(2-0)

An examination of classifications, mechanisms of action, indications and names of medications used in treatment of cardiovascular diseases and associated disorders (pulmonary and metabolic diseases). Prerequisites: Admission to the Exercise Science Major: Clinical Exercise Science option or graduate standing.

HSC 555 Health Education in the Elementary School 3(3-0)

Various components of the elementary school program: instruction, curriculum, services, and administration.

HSC 570 Financial Aspects of Health Services Organizations 3(3-0)

This course addresses the main issues surrounding financial administration of health services organizations, particularly hospitals. Prerequisite: ACC 201.

HSC 571 Legal Aspects of Health Services Organizations 3(3-0)

The issues studied are hospital liability, informed consent, medical staff appointments, tort and health services, ethical issues related to health care.

HSC 572 Quality Improvement in Health Services 3(3-0)

Basics, implementation and application of quality management and improvements specific to health care. Statistical principles and illustrative cases are presented. Recommended: HSC 520.

HSC 575 Exercise Science Clinical Internship 8(Spec)

Application of knowledge and skills in an approved, supervised clinical exercise program internship; minimum of 480 hours required. CR/NC only. Prerequisites: Undergraduate students must have completed all courses in the Exercise Science Major: Clinical Option. Graduate students must have completed HSC 310, 411, 547, 550, 551, 553 with grades of C or higher.

HSC 576 Exercise Science Fitness Internship 8(Spec)

Application of knowledge and skills in an approved, supervised fitness internship; minimum of 480 hours required. CR/NC only. Prerequisites: Undergraduate students must have completed all courses in the Exercise Science Major: Health Fitness Option. Graduate students must have completed HSC 219, 420, 421, 423, 425 with grades of C or higher.

HSC 580 Teaching Sexuality and Reproductive Health in Schools 2(2-0)

A workshop designed to meet PA 226 guidelines for teacher qualifications in sex education and reproductive health by providing insight into the content of quality K-12 sex education programs. Prerequisites: A teaching certificate or approval of the instructor.

HSC 581 Managed Care: Origins, Organizations, and Operations 3(3-0)

Covers managed care programs, including Accountable Care Organizations, structures, and practice models, role of physicians and other clinicians, capitation and forms of reimbursement. This course may be offered in an online or hybrid format. Prerequisite: HSC 507. Recommended: HSC 520.

HSC 586 Cardiovascular Disease Risk Factors in Children 3(1-4)

Course reviews the major cardiovascular disease risk factors of children. This service learning course requires 45 hours of screening and education of children. Prerequisite: HSC 220.

HSC 591 Legal & Regulatory Aspects of Long-Term Care 3(3-0)

This course covers the legal and regulatory issues inherent to the long-term care industry in the United States. In addition, this course serves as preparation for individuals wishing to sit for the National Association of Board of Examiners Exam ("National Exam"). Prerequisites: undergraduate students must have completed 56 credit hours; HSC 571 recommended.

HSC 592 Administration Issues in Long-Term Care 3(3-0)

This course covers the facility management issues of long-term care administration, including aspects of business, regulation and human resources. Prerequisites: undergraduate students must have completed 56 credit hours; HSC 570 recommended.

HSC 593 Resident Care Issues in Long-Term Care Administration 3(3-0)

This course covers the residential and clinical aspects of long-term care administration. Prerequisites: undergraduate students must have completed 56 credit hours.

HSC 595 Health Administration Internship 6(6-0)

This course is the capstone professional experience conducted at a health-care organization where the professional skills, knowledge and behaviors learned in the classroom are applied. CR/NC only. Prerequisites: HSC 507, 520, 545, 570, 571, and 572 and permission of internship coordinator; Recommended: HSC 333, 500, 538, 544; or Graduate Status and permission of internship coordinator.

HSC 596 Substance Abuse Field Experience 3(Spec)

Application of substance abuse prevention and substance abuse counseling principles in a licensed substance abuse agency. Experience supervised by a qualified substance abuse professional. CR/NC only. Prerequisites: Completion of all the required courses for the substance abuse minor. Permission of the substance abuse advisor.

HSC 598 Nature and Dynamics of Destructive Health Habits 3(3-0)

Etiologies and recovery strategies of substance abuse, eating and sexual disorders and the detrimental health habits which undermine healthy lifestyles. Prerequisites: HSC 235 or graduate standing.

HSC 599 Internship - Public Health 6(Spec)

Application of health education and health promotion principles in a community health agency. Experience supervised by a qualified health educator. CR/NC only. Prerequisites: Signed Community Health Education or Public Health Education Major; completion of required courses on the major; permission of instructor; or graduate status; permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

HSC 612 Individualized Learning Experiences 1-10(Spec)**HSC 617 Community and Public Health 3(3-0)****HSC 619 Continuing Registration for Final Research Project 1(1-0)****HSC 620 Adult Health Education Theory and Practice 3(3-0)****HSC 630 Regional Human Anatomy 5(3-4)****HSC 631 Physiology of Exercise 4(3-2)****HSC 632 Cardiopulmonary Exercise Physiology 3(3-0)****HSC 633 Neuromuscular Physiology of Exercise 3(3-0)****HSC 634 Experimental Design in Exercise Science 3(3-0)****HSC 635 Biomechanics of the Musculoskeletal System 3(3-0)****HSC 637 Advanced Exercise Physiology 3(2-2)****HSC 638 Endocrine and Metabolic Responses to Exercise 3(3-0)****HSC 640 Curriculum Design in Health Education 3(3-0)****HSC 646 Methods of Instruction and Allied Health Profession 3(3-0)****HSC 670 Research Methods for Health, Physical Education and Sport, Health and Recreation 3(3-0)****HSC 700 Program Evaluation in the Health Fields 3(3-0)****HSC 727 Professional Seminar 3(3-0)****HSC 791 Independent Study 2-3(Spec)****HSC 797 Directed Research in Exercise Physiology 1-6(Spec)****HSC 798 Thesis 1-6(Spec)****HSL 611 Healthcare Administration and Ethical Compliance 3(3-0)****HSL 621 Healthcare Operations and Structures 3(3-0)****HSL 631 Healthcare Law, Compliance and Risk Management 3(3-0)****HSL 641 Health Economics and Policy Implication 3(3-0)****HSL 651 Fundamentals of Healthcare Finance 3(3-0)****HSL 661 Healthcare Planning & Marketing 3(3-0)****HSL - Health Systems Leadership**

See the School of Health Sciences for more information.

HSL 611 Healthcare Administration and Ethical Compliance 3(3-0)**HSL 621 Healthcare Operations and Structures 3(3-0)****HSL 631 Healthcare Law, Compliance and Risk Management 3(3-0)****HSL 641 Health Economics and Policy Implication 3(3-0)****HSL 651 Fundamentals of Healthcare Finance 3(3-0)****HSL 661 Healthcare Planning & Marketing 3(3-0)****HST - History**

See the Department of History for more information.

HST 100WI Reconstructing the Past: An Introduction to the Study of History 3(3-0)

How do historians interpret the past? This course focuses on historical research and writing, including locating and assessing sources such as letters, diaries, and documents. Writing Intensive.

HST 101 The Development of Western Civilization: From Ancient Times to 1700 A.D. 3(3-0)

The people, empires, and ideas that forged the history of Europe and the Western world, from the first cities to the Scientific Revolution. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 102 The Development of Western Civilization: From 1700 to the Present 3(3-0)

The modern world was made in Europe between 1700 and 1950. Find out how and why in this survey of events, personalities, and ideas. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 106 Twentieth Century: Western World Issues 3(3-0)

Analyzes issues of contemporary importance in the Western world, such as world wars, women's rights, the rise of dictatorships, and the threat of nuclear war. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

HST 110 The American Experience 3(3-0)

Thematic survey of American history. Possible topics include: changing concepts of American democracy, the role of the frontier, immigration, labor and business in America. May be offered as Writing Intensive (University Program Group I-A: Human Events and Ideas.)

HST 111 The Quest for Liberty: The United States to 1865 3(3-0)

Explores the U.S.'s emergence from imperial colonies into a nation "dedicated to the proposition that all men are created equal," and antebellum struggles toward equality. May be offered as Writing Intensive. (University Program III-B: Studies in Social Structures)

HST 112 The Struggle for Equality: The United States, 1865-Present 3(3-0)

A broad and interpretative study of the United States since the Civil War. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

HST 120 Unlikely Princesses: Women of World History 3(3-0)

An examination of "dangerous" women in world history who would not make good cartoon princesses. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 163 The Latin American Experience 3(3-0)

Latin American history and cultures from the Inca and Aztec empires to the Columbian and Mexican Drug Wars. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 168 Modern East Asia 3(3-0)

Explores the history of China, Japan, and Korea from the age of the samurai to the Beijing Olympics (1600-present). May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 176 The African Experience 3(3-0)

A survey of the history of the continent from prehistoric hominids to the Arab Spring of North Africa. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 200 Medieval Civilization 3(3-0)

Explores the events and cultural developments of the Middle Ages, the period in European history satirized so brilliantly in "Monty Python and the Holy Grail." May be offered as Writing Intensive. May be offered in an online format. (University Program Group I-A: Human Events and Ideas)

HST 201 World History to 1500 3(3-0)

A survey of selected political, economic, social, religious, intellectual, and cultural elements in the history of the world from ancient times to 1500 CE.

HST 202 World History since 1400 3(3-0)

A survey of selected political, economic, social, religious, intellectual, and cultural elements in the history of the world since 1400 CE.

HST 210WI United States History through Michigan Eyes 3(3-0)

Explores how people living in Michigan shared with others in North America the changes introduced by the colonization, expansion, and development of the United States. Writing Intensive. (University Program Group III-B: Studies in Social Structures)

HST 221 Growing Up in America 3(3-0)

Learn how childrearing, family life, education, and the transition to adulthood have changed from colonial times to the present. May be offered as Writing Intensive. May be offered in an online format. (University Program Group III-B: Studies in Social Structures)

HST 222WI Cherokees, Slaves and the Struggle for Racial Justice 3(3-0)

This course uses case studies involving Cherokee Indian Removal and the abolition of slavery as a way to explore American ideas about race, citizenship and individual rights in the years before the Civil War. Writing Intensive. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

HST 228 American Business: A History 3(3-0)

A history of American business with primary emphasis on the role of individuals and the evolution of institutions-partnerships, corporations, and conglomerates.

HST 236 Babylon and Beyond: Ancient Civilizations of the Near/Middle East 3(3-0)

The origins and florescence of the earliest civilizations of the Near/Middle East from the Neolithic to the death of Alexander the Great (323 BCE). May be offered as Writing Intensive. May be offered in an online format. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 237 Baghdad and Beyond: The Middle East from 600 C.E. 3(3-0)

An examination of the history and cultures of the Middle East from the origins and expansion of Islam until modern times. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 238 Ancient Greece and Rome 3(3-0)

Political, social, intellectual, and cultural developments in the history of ancient Greece and Rome to AD 565. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 261 Indigenous Peoples of Latin America: Precontact to 1821 3(3-0)

This course explores continuity and change in the culture and society of the indigenous peoples of Latin America from the precontact period to 1821. Recommended: Any Latin American and/or Native American history course.

HST 280 Nazi Germany and the Holocaust 3(3-0)

An examination of the events and ideas in Germany and elsewhere that produced the Nazi state and the Holocaust.

HST 292 Global Perspectives on Non-Western History 3(3-0)

Variable content, examining one non-Western area in the context of world historical patterns and current Michigan social studies requirements.

HST 297 Special Studies 1-6(Spec)

Each offering studies a selected historical topic using readings, discussion, lecture, and research as appropriate. May be repeated when the content is not a duplication of a previous special topics offering.

HST 300 A Mid-tier Experience for History Majors: Teaching History in Secondary Schools 2(1-2)

The Mid-tier Experience provides observations and small-group instructional opportunities for students seeking secondary certification in history. Course includes both campus instruction and field work. CR/NC only. Prerequisites: completion of a minimum of 15 hours of history on a signed major; Tier Two - Admission of Candidacy to Teacher Education; junior standing.

HST 301 The Craft of History 4(4-0)

Study of history as a scholarly discipline with emphasis given to historical theory, concepts, methodology, fields, and the history of historical thinking and writing. Specific topics and materials will vary from semester to semester. Prerequisites: Nine hours of history and a signed major or minor in history.

HST 302 Comparative Environmental History 3(3-0)

Investigate complex relationships between humans and nature, considering such questions as why weeds, pigs, and germs were more important in colonial expansion than military campaigns. Prerequisites: 9 hours of history. Recommended: At least 2 of HST 111, 112, 201, 202.

HST 303 The American Revolution 3(3-0)

Explores the Revolutionary War's causes and course; political, social, and cultural changes of the period; and the formation of the Constitution. May be offered as Writing Intensive.

HST 312 American Military Experience 3(3-0)

The role of American armed forces in peace and war. As social institutions the armed forces reflect political, social, and economic developments of the time. This course is approved for offering in a distance learning format.

HST 315 The Vietnam War 3(3-0)

Examines the modern conflicts in Vietnam, the American experience in Indochina from 1945 to 1975, and the war's implications for the United States.

HST 319 The United States since World War II 3(3-0)

An analysis of post World War II political, economic, and social developments in America.

HST 320 United States Social History to 1865 3(3-0)

Examines social structures in early America-including family life, religion, and slavery - and analyzes the nineteenth-century origins of modern socio-economic institutions. This course may be offered in an online or hybrid format. May be offered as Writing Intensive.

HST 321 United States Social History since 1865 3(3-0)

Examines the experiences of different class, age, gender and ethnic groups in America; stresses the historical roots of current social problems. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

HST 322 Westward Movement in America 3(3-0)

The impact of territorial expansion in the United States upon economics, culture, and politics.

HST 323 History of Native Americans 3(3-0)

This course analyzes the study of Native peoples of North America before Columbus and the inter-relationships between the Native peoples and European immigrants after Columbus. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

HST 324 "Death is Better than Slavery": African American History to 1877 3(3-0)

Explores African American social, cultural, and political life from the origins of the transatlantic slave trade to the late nineteenth century. May be offered as Writing Intensive. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

HST 325 "By Any Means Necessary": African American History, 1877-Present 3(3-0)

Explores African American social, cultural, and political life from the late nineteenth century to the present, including the modern civil rights movement. May be offered as Writing Intensive. (University Program Group IV-C; Studies in Racism and Cultural Diversity in the United States)

HST 326 Women in America 3(3-0)

Study of the traditional position of women in American society as documented in historical, literary, and biographical sources. Identical to WGS 328. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 328 Technology in American History 3(3-0)

Examines the role of technology in the economic, social and cultural history of the United States from the colonial era to the early 21st century. Recommended: At least 12 hours of humanities or social science courses.

HST 329 Film and the Politics of Gender, 1960-Present 3(3-0)

This course uses top-grossing films and written texts as primary sources to trace the popular debate over feminism from the early 1960's until the present. Prerequisite: HST 112 or 326 or WGS 328.

HST 330 "We the People": U.S. Constitutional History 3(3-0)

Historical overview of the critical events and ideologies that shaped the U.S. Constitution and the judicial interpretation of it since 1787. May be offered as Writing Intensive.

HST 333 History of Michigan 3(3-0)

A study of the development of Michigan from earliest settlement by Native Americans to the present, focusing on economic, social, and political history.

HST 335 History of the Rock and Roll Era 3(3-0)

The historical origins and evolution of rock music, from "Rock Around the Clock" to "Smells Like Teen Spirit." History like you've never heard it before. Prerequisite: at least sophomore standing. (University Program Group I-B: The Arts)

HST 336 Iran and Iraq in History 3(3-0)

An examination of the interrelated histories of Iran and Iraq from the emergence of the first cities and states around 4000 BCE to the present.

HST 338 The Decline and Fall of the Roman Empire 3(3-0)

War, politics, society, religion, and culture in the Mediterranean world of the later Roman empire (c. 250-650 AD).

HST 340 The High Middle Ages 3(3-0)

Investigates intellectual, cultural, political, and social developments of the High Middle Ages (ca. 1000-ca.1300), focusing on interactions among Classical, Germanic, Jewish, Christian, and Islamic cultures. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 341 Renaissance and Reformation 3(3-0)

Social, cultural, intellectual, and political history of the Renaissance and Reformation movements in Europe from ca. 1350 to ca. 1650. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HST 342 The Culture of Renaissance Italy (Study Abroad) 3(Spec)

Renaissance Italy (4 weeks on site) as it survives in texts, churches and museums of the five major Renaissance cultural centers: Milan, Venice, Florence, Rome and Naples.

HST 343 History of Paris 3(3-0)

This course addresses key moments in the history of France's capital from an interdisciplinary perspective. Recommended: Any European history and/or French literature/culture courses.

HST 344 Modern Europe, 1815-1918 3(3-0)

The economic, political, social, cultural, and diplomatic developments in Europe from the close of the Napoleonic era to the end of World War I.

HST 346 The World of Versailles: Power and the Politics of Splendor in 17th- Century France 3(3-0)

Examines how Louis XIV of France employed "the politics of splendor," that is using the arts as a means to acquire and legitimize political power. Recommended: 9-12 hours of course work in the humanities. (University Program Group I-B: The Arts)

HST 347 The French Revolution and Napoleonic Period 3(3-0)

Origin and development of the French Revolution and the role of Napoleon in European history, 1787-1815.

HST 348 Russia through the Reign of Catherine the Great 3(3-0)

A social, cultural, and political study of Russia from the ninth to the eighteenth century.

HST 349 Russia in the Nineteenth and Twentieth Centuries 3(3-0)

A social, cultural, and political study of Russia in the nineteenth and twentieth centuries.

HST 350 English History to 1688: From Stonehenge to the Glorious Revolution 3(3-0)

Explores over two thousand years of history from prehistoric times to the revolutions of the 1600s, including the reigns of the Tudor and Stuart monarchs.

HST 351 Britain since 1689 3(3-0)

Political, economic, social, and religious history of early modern and modern Britain (England, Scotland, Ireland, and Wales) from the later Stuarts to the present.

HST 352 British Imperialism 3(3-0)

A study of the key themes, events, and personalities of British imperialism from the 16th century through the 20th century.

HST 353 Germany since 1870 3(3-0)

The German experience since the formation of the Empire, including the processes, problems, and aftereffects of wars, revolutions, constitutions, totalitarianism, and peace.

HST 354 Women in European History 3(3-0)

Surveys and analyzes the traditional and nontraditional roles of women in European history, using new historical research. Identical to WGS 354. Credit may not be earned in more than one of these courses.

HST 356 Europe Since 1945 3(3-0)

A study of political, social, economic and cultural change in Europe from the end of the Second World War to the present. Identical to EUR 302. Credit may not be earned in more than one of these courses.

HST 361 Sinners and Saints of Colonial Latin America 3(3-0)

Examines the interaction of European, African, and Native American religions and the "heresies" that developed as a result of their interaction during the colonial period. Identical to REL 361. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 362 Latin American Revolutions: Mexico, Cuba and Central America 3(3-0)

The Circum-Caribbean in the Twentieth Century with primary emphasis on the origin and development of the Mexican, Cuban, and Central American Revolutions.

HST 369 Traditional China 3(3-0)

A study of the political, social, and cultural history of China from earliest times to the nineteenth century.

HST 370 Modern China 3(3-0)

The political and social history of China from the Opium War to the present.

HST 375 Continuity and Change in Contemporary Africa, 1960s to the Present 3(3-0)

This course covers contemporary Africa from independence through military dictatorship, globalization, and democratization. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 376 East/Central Africa: Issues 3(3-0)

Explores a varying selection of issues concerning historic and contemporary patterns of political and economic organizations, international relations in Ethiopia, Somalia, Rwanda, Zaire, Uganda, Kenya.

HST 377 West Africa 3(3-0)

An overview of West African history emphasizing the post-1800 period and especially developments since independence.

HST 378 South Africa 3(3-0)

The conflict between European immigrants and indigenous Africans; the effects of white minority rule, including apartheid; successful African efforts to achieve majority rule.

HST 379 Race, Class and Power: South Africa in the 20th Century 3(3-0)

The course explores the apartheid system and the challenges it faced from liberalism, Black Nationalism, and Marxism. It also examines post-apartheid South Africa. Identical to HUM 340. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HST 382 History of Israel 3(3-0)

Israel and Palestine from ancient times to the present, including background to contemporary Zionism and the conflict with Arab nationalism. Identical to REL 382. Credit may not be earned in more than one of these courses.

HST 397 Special Studies 1-6(Spec)

Each offering studies a selected historical topic using readings, discussion, lecture, and research as appropriate.

HST 400 Teaching History in Secondary Schools 3(3-0)

Translates the study and methodology of history into teaching practices appropriate for secondary schools, and evaluates recent proposals for improving history instruction. Prerequisites: Tier Two: Admission of Candidacy to Teacher Education; 18 hours of history or current enrollment in 18th hour; 3.0 GPA in history major or minor or elementary social studies major (history concentration).

HST 491 Independent Research 3(Spec)

Research and writing on a topic selected in consultation with an instructor. HST 491 may not be used as a substitute for HST 496. Prerequisites: junior or senior standing with B average in 12 hours of history; permission of instructor and the department chairperson.

HST 496WI Research Seminar 3(3-0)

Historical research and writing. This course or an arranged substitute required on all majors. Writing Intensive. Prerequisite: HST 301.

HST 497 Special Studies 1-6(Spec)

Each offering studies a selected historical topic using readings, discussion, lecture, and research as appropriate. Prerequisite: permission of instructor.

HST 498 Honors Thesis 3(Spec)

The student, with guidance from a thesis advisor, researches and writes an undergraduate thesis. Prior written approval by thesis advisor and chairperson required. Prerequisites: completion of 90 credit hours, including 24 credit hours in History.

HST 505 Tudor England 3(3-0)

The political, religious, socio-economic and cultural life of England under the Tudors, focusing on the reigns of Henry VIII and Elizabeth I. May be offered as Writing Intensive. Prerequisites: One of HST 101, 102, 350, 351; or graduate status.

HST 511 Colonial British America 3(3-0)

Explores the social, cultural and political development of British America in the seventeenth and eighteenth centuries. May be offered as Writing Intensive. Prerequisite: One of the following: HST 111, 323, 324, 326, 351; or graduate status.

HST 513 Era of the Early Republic, 1789-1825 3(3-0)

An investigation of nation-building, the formation of new institutions, ideologies, decision-making, and personalities during the precarious decades following the American Revolution. May be offered as Writing Intensive. Prerequisites: One of HST 110, 111, 301; or graduate status.

HST 514 Democracy, Expansion, and Reform in America, 1824-1848 3(3-0)

America changed dramatically between 1824 and 1848. This course explores relations with Native Americans, political democracy, industrialization, women's roles, reform, westward expansion, and slavery. May be offered as Writing Intensive. Prerequisite: One of HST 111, 320; or graduate status. Recommended: While this course does not require or expect detailed knowledge of the Jacksonian Era, students should be broadly familiar with basic periods and developments in nineteenth century America.

HST 515 Civil War and Reconstruction 3(3-0)

Causes and process of secession, the conduct of war, and the reconstruction of the South to 1877. May be offered as Writing Intensive. Prerequisite: One of HST 111, 320; or graduate status. Recommended: While this course does not require or expect detailed knowledge of the Civil War, students should be broadly familiar with basic periods and developments in nineteenth century America.

HST 516 Emergence of Modern America, 1877-1920 3(3-0)

Social, political, cultural, and economic developments from the end of Reconstruction through the Progressive era. May be offered as Writing Intensive. Prerequisite: HST 112 or 321; or graduate status.

HST 517 U.S. Rise in World Leadership, 1917-1945 3(3-0)

The United States as a world power after World War I, the decade of the 1920s, the depression era, the impact of modern global war.

HST 518 African Americans and the Law: From Slavery to Civil Rights 3(3-0)

Course examines the unique relationship between African Americans and the American legal system from Colonial times to the present. May be offered as Writing Intensive. Recommended: one of HST 111, 320, 324; one of 112, 321, 325; or graduate standing.

HST 522 Indians of the Great Lakes Region 3(3-0)

This course focuses on the American Indian people in the Great Lakes Region, from early European contact through the nineteenth century. May be offered as Writing Intensive. Prerequisites: One of the following: HST 111, 323, or graduate standing.

HST 523 American Diplomatic History, 1775-1898 3(3-0)

The major issues in American diplomacy, beginning with the birth of the Republic and continuing to the Spanish-American War. Prerequisites: HST 110, HST 111.

HST 524 American Diplomatic History Since 1898 3(3-0)

The major issues of United States diplomacy, beginning with the Spanish-American War and continuing to the present.

HST 525 The Industrialization of America 3(3-0)

This course analyzes how industrialization transformed America and how it altered living standards, culture, lab, business, and politics. This course may be offered in an online format. May be offered as Writing Intensive. Recommended: At least 12 hours of humanities and social science.

HST 526 Modern American Political Culture, 1865-Present 3(3-0)

Using cultural texts such as films, novels, monographs and lectures, this course examines American politics and political culture from 1865 to the present. Recommended: HST 112 or PSC 105 and 9 additional hours of history or political science; or graduate standing.

HST 532 Michigan History Studies 1-3(Spec)

Individual and group studies in regional and local Michigan history.

HST 535 The Middle East in the Modern Era 3(3-0)

An examination of the history of the Middle East and its relations with Europe and the United States from the 17th century to the present. May be offered as Writing Intensive. Prerequisites: HST 237 or graduate standing.

HST 537 The Age of Cicero 3(3-0)

Political, economic, social, and cultural history of the late Roman republic (c. 133-27 BC), emphasizing modern historiography and ancient sources in English translation. May be offered as Writing Intensive. Prerequisite: One of HST 101, 238, 338; or graduate status. Recommended: While this course does not require or expect detailed knowledge of Roman history, students should be broadly familiar with basic periods and developments in the ancient Mediterranean world.

HST 538 Athens: Classical Period 3(3-0)

Athenian political and social change in the sixth and fifth centuries B.C. relying primarily on contemporary or near contemporary documents in translation. Recommended: HST 238.

HST 542 The Enlightenment in Europe 3(3-0)

The social, cultural, political and intellectual history of Europe in the late seventeenth and eighteenth centuries. Recommended: 6 hours of European history before 1815.

HST 543 Napoleon 3(3-0)

This course will examine the period dominated by Napoleon Bonaparte (1795-1815) and its political, social, and cultural impact on European and transnational history. May be offered as Writing Intensive. Recommended: 9 hours of history coursework or graduate standing.

HST 548 Russian Thought 3(3-0)

Currents of Russian thought. Emphasis on the nineteenth century.

HST 558 Europe, 1914-1945 3(3-0)

Political, social, and economic change in Europe from the First World War through the Second; emphasis on fascism and the failure of democracy. May be offered as Writing Intensive. Prerequisite: HST 102 or 106 or graduate status.

HST 560 Mind Games 3(3-0)

Students propose, design, and develop role-playing and other face-to-face games for use in the history classroom. Prerequisite: Advanced undergraduate or graduate standing.

HST 562 The Atlantic World in the Age of Empire 3(3-0)

Study of the political, social, cultural and economic interactions of Europe, Africa, and the Americas from the fifteenth to the nineteenth century. Recommended: One of: HST 111, HST 163, HST 176, HST 324, HST 341, HST 377, HST 511.

HST 576 Colonialism in Africa, 1880s-1960s 3(3-0)

Africa on the eve of European colonization, the colonization of Africa, the struggle for independence, the post-independence period, neo-colonialism, the Cold War and globalization. May be offered as Writing Intensive. Prerequisites: HST 176, 201 or 202, or graduate standing.

HST 580 Public History 3(3-0)

Discover why public historians are on the cutting edge, preserving and interpreting our heritage as writers, researchers, curators, media personalities, policy analysts, archivists, and more. May be offered as Writing Intensive. Prerequisites: HST 301 and MST 310; or graduate status.

HST 583 Archival Administration 3(3-0)

A practical introduction to archives theory, management, and issues; hands-on learning experience with primary source materials. Prerequisites: HST 301 and MST 310; or graduate standing.

HST 585 Oral History 3(3-0)

An introduction to the methodology and use of Oral History in historical research, interpretation, and documentation. May be offered as Writing Intensive. Prerequisites: HST 301 and MST 310; or graduate status.

HST 590 Readings in History 1-6(Spec)

Focused readings on a special topic to be arranged with the instructor. Prerequisite: Junior standing with a 3.0 average in 12 hours of history or graduate standing, plus the consent of the instructor and the Director of Graduate Studies.

HST 595 Internship in Public History 1-6(Spec)

Enter the growing field of applied history through a supervised hands-on experience chosen to match your interests. Prerequisites: Permission of academic advisor and work supervisor.

HST 597 Special Studies 1-6(Spec)

Study of a selected historical topic at a level suitable for advanced undergraduates or graduate students. Recommended: 12 hours of HST.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

HST 600 Historiography 3-6(3-0)**HST 601 Colloquium in Transnational and Comparative History 3(3-0)****HST 602 Colloquium in U.S. History to 1865 3-6(3-0)****HST 603 Colloquium in U.S. History Since 1865 3-6(3-0)****HST 619 Continuing Registration for Final Research Project 1(1-0)****HST 624 Colloquium in African American History 3-6(3-0)****HST 636 Colloquium in Ancient History 3-6(3-0)****HST 637 Colloquium in the Modern Middle East 3-6(3-0)****HST 650 Colloquium in European History to 1450 3(3-0)****HST 651 Colloquium in Early Modern European History 3-6(3-0)****HST 652 Colloquium in Modern European History 3-6(3-0)****HST 663 Colloquium in Colonial Latin American History 3-6(3-0)****HST 676 Comparative History of Slavery 3-6(3-0)****HST 681 Historic Preservation 3(3-0)****HST 690 Advanced Readings 1-9(Spec)****HST 695 Special Studies Abroad 3-15(Spec)****HST 697 Special Studies Colloquium 3-6(3-0)****HST 700 Practicum in College Teaching 1-6(Spec)****HST 710 Seminar in Intellectual and Cultural History 3-6(3-0)****HST 711 Seminar in Colonial and Revolutionary America 3-6(3-0)****HST 713 Seminar in the History of Nineteenth Century America 3-6(3-0)****HST 715 Seminar in the Civil War and Reconstruction 3(3-0)**

HST 717 Seminar in the History of Twentieth Century America 3-6(3-0)
HST 723 Seminar in American Diplomatic History 3(3-0)
HST 724 Seminar in African American History 3-6(3-0)
HST 738 Seminar in Ancient History 3-6(3-0)
HST 740 Seminar in Medieval History 3-6(3-0)
HST 741 Seminar in Early Modern Europe 3-6(3-0)
HST 742 Seminar in Eighteenth-Century European History 3(3-0)
HST 744 Seminar in Nineteenth-Century European History 3-6(3-0)
HST 758 Seminar in Twentieth-Century European History 3-6(3-0)
HST 763 Seminar in Latin American History 3(3-0)
HST 766 Seminar in Asian History 3(3-0)
HST 776 Seminar on African Diaspora History 3-6(3-0)
HST 791 Graduate Research 3-6(Spec)
HST 795 Seminar Abroad 3-15(Spec)
HST 798 Thesis 1-12(Spec)
HST 890 Doctoral Readings 1-9(Spec)
HST 898 Dissertation 1-36(Spec)

HUM - Humanities

See the College of Humanities and Social & Behavioral Sciences for more information.

HUM 101 Introduction to the Humanities 3(3-0)

Introduction to the study of selected topics in the humanities from various perspectives (historical, literary, religious, philosophical) in small group discussion (seminar) format.

HUM 197 Special Studies in Humanities 1-12(Spec)

HUM 197 is primarily for freshman and sophomores; 397 is primarily for juniors and seniors; 597 is primarily for graduate students. Prerequisite: Permission of instructor.

HUM 202 Age of Charlemagne 3(3-0)

Artistic, cultural, economic, and political study of the Carolingian period of the Middle Ages. Special emphasis placed on the reign of Charlemagne and the Carolingian Renaissance. Prerequisites: ART 185; HST 200.

HUM 301 Medieval Synthesis: Love in the Middle Ages 3(3-0)

An integrative, interdisciplinary seminar (employing history and literary criticism) examining love in its many medieval guises, e.g., love of God, of family, erotic love, and illicit love. Pre/Co-Requisites: ENG 362; HST 200 or HST 340.

HUM 303 Law and Society: Great Trials 3(3-0)

Interdisciplinary study of law, from the classical world to modern times, focusing on ethical, jurisprudential, political and legal components of trials of major historical figures. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

HUM 340 Race, Class and Power: South Africa in the Twentieth Century 3(3-0)

The course explores the apartheid system and the challenges it faced from liberalism, Black Nationalism, and Marxism. It also examines post-apartheid South Africa. Identical to HST 379. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

HUM 370 The Age of Augustus 3(3-0)

Literature, history, art, and culture of the Roman world under its first emperor.

HUM 397 Special Studies in Humanities 1-12(Spec)

HUM 197 is primarily for freshman and sophomores; 397 is primarily for juniors and seniors; 597 is primarily for graduate students. Prerequisite: Permission of instructor.

HUM 430 Self and Identity in American Life 3(3-0)

This interdisciplinary honors seminar explores identity formation in American life. Students explore major theories of identity formation and apply them to different dimensions of identity. Prerequisite: Junior or senior status.

HUM 510 Words and Music: A Theatrical Partnership 4(4-0)

The course considers musical theater as a unique art form, combining music, literature, and stagecraft into a whole greater than the sum of its parts. Prerequisites: Junior standing or above; any 300-level course in music, English, foreign language, or theater and interpretation.

HUM 597 Special Studies in Humanities 1-12(Spec)

Prerequisite: permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

HUM 610 Seminar in American Individualism 3(3-0)

HUM 619 Continuing Registration for Final Research Project 1(1-0)

HUM 697 Independent Study 3-6(Spec)

HUM 797 Special Topics in Humanities 1-12(Spec)

HUM 799 Thesis 1-6(Spec)

IET - Industrial and Engineering Technology

See the School of Engineering and Technology for more information.

IET 116 General Drafting 3(2-2)

An introduction to the language of industry; includes lettering, sketching, pictorials, multiview projection, dimensioning, auxiliaries, sections, developments, and computer-assisted drafting. Requires no previous experience.

IET 120 Introduction to Engineering Technology 3(3-0)

A survey of the engineering world with a technologist's perspective to provide the skills and knowledge required to pursue an engineering technology career. Recommended: MTH 105.

IET 130 Industrial Materials and Testing 3(2-2)

An overview of industrial materials including metals, plastics, composites and ceramics. Topics include material properties, material selection, and material testing.

IET 143 Introduction to Graphic Arts 3(2-2)

Letterpress, gravure, screen printing, bookbinding, and basic principles and processes of graphic reproduction.

IET 154 Engineering Design Graphics 3(2-2)

Focus on engineering design fundamentals, design processes, and the utilization of graphics within design. Computer-Aided design and product data management techniques are covered.

IET 160 Wood Technology 3(1-4)

Design, development, and construction of wood prototypes, utilizing appropriate wood materials and supplies, involving efficient and safe use of tools, machines, and industrial processes.

IET 170 Manufacturing Processes 3(1-4)

Introduction to the processing of metal materials through casting, fabricating, machining, and basic welding.

IET 180 Power and Energy Technology 3(2-2)

An introductory study of operational and scientific principles related to energy sources used as prime movers. To include gasoline, diesel, rotary, turbine, and jet engines.

IET 181QR Alternative Energy Analysis 3(2-2)

A quantitative comparison and analysis of current alternative energy technologies and systems. Quantitative Reasoning.

IET 182 Automobile Ownership and Maintenance 2(1-2)

Consumer protection course designed to provide fundamental mechanical understanding of the automobile. Lab activities include light repair and essential maintenance procedures.

IET 223QR Lean Six Sigma for Process Improvement 3(3-0)

The utilization of mathematical and statistical tools to improve product and process quality. This course may be offered in an online or hybrid format. Quantitative Reasoning. Prerequisite: MTH 105; permission of E&T advisor; cumulative GPA of 2.5 or higher. Recommended: STA 282.

IET 226 Parametric Design and Modeling 3(2-2)

Development and production of engineering and technical models with a mechanical computer-aided design system. An introduction to parametric design and modeling. Prerequisite: IET 154; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 261 Construction Surveying 3(2-2)

A study of basic surveying applications in the planning, design, layout, and construction of our physical environment and infrastructure. Prerequisite: MTH 106 or 130; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 279 Applied Statics 3(3-0)

This course will cover force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams. Prerequisites: One of the following: MTH 130, 132, 133; PHY 130 or 145; PHY 170 or 175; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 281 Dynamics 3(3-0)

Study and engineering application of relationship between the forces acting on a body, the mass of the body, and the motion of the body. Prerequisites: IET 279 or EGR 251 with a C- or better; EGR 200 with a C- or better; MTH 132 or 133; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 284 Fluid Power Technology 3(2-2)

A study of hydraulic and pneumatic technologies related to the generation, transmission, and control of fluid power in fluid power systems. Prerequisites: MTH 130 or IET 180; permission of E&T advisor; cumulative GPA of 2.5 or higher. Recommended: IET 120 or MTH 105.

IET 291 Applied Circuits 3(2-2)

A study of the fundamentals of applied circuits including Direct Current (DC) circuits, Alternating Current (AC) circuits, and basic electronics. Prerequisites: One of the followings: MTH 130, 132, 133; PHY 131 or 146; PHY 171 or 176; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 324WI Product Design and Development 3(2-2)

Ideation, conceptualization, and development of consumer products. Utilization of freestyle and NURBS based computer-aided design tools to solve product design problems. Writing Intensive. Prerequisite: IET 226; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 326 Manufacturing Methods Analysis 3(3-0)

Study of methods, materials, tools, and equipment for productivity measurements and improvement. Prerequisites: IET 170; one of: STA 282, 382, 392; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 327 Industrial Safety 3(3-0)

A study of the principles and practices of safety management with emphasis on occupational safety standards and loss control. Prerequisite: CHM 120 or CHM 131; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 350 Mechanism Design 3(3-0)

Study of mechanisms with graphical and analytical analysis of displacement, velocity, acceleration, motion, gearing, gear trains, linkages, and cams. Prerequisite: IET 279 or EGR 251 with a grade of C- or better; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 352 Applied Fluid Mechanics 3(3-0)

Introduction to principal concepts and methods of fluid mechanics. Topics include pressure, hydrostatics, buoyancy; mass and momentum conservation; flow through pipes; and pumps. Prerequisites: IET 281 or EGR 253; EGR 200 with a C- or better; Permission of E&T Advisor; cumulative GPA of 2.5 or higher.

IET 356 Thermodynamics 3(3-0)

Study of thermodynamics and basic tools necessary to obtain quantitative solutions to common engineering applications involving energy and its conservation, conservation and transfer. Prerequisites: PHY 145, PHY 175; or PHY 130, PHY 170; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 357 Residential Architectural Graphics 3(1-4)

Modern house planning resulting in a complete set of plans and specifications. This course is approved for offering in a distance learning format. Prerequisites: permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 358 Light Commercial Architectural Graphics 3(2-2)

Development of the architectural drawing techniques, basic construction methods and materials, details, and planning for light commercial building. Prerequisite: Permission of E&T advisor; cumulative GPA of 2.5 or higher. Recommended: IET 357.

IET 360 Advanced Wood Technology 3(2-2)

Design, development and construction of wood prototypes in an advanced area of specialization including: bending, veneering, furniture construction, and use of jigs and fixtures. Prerequisites: IET 116, 160; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 361 Construction Technology 3(1-4)

Laboratory and classroom experience designed to develop skills and knowledge relating to noncommercial construction. Field experiences are used when applicable. Prerequisite: permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 363 Building Code Enforcement 3(3-0)

A comprehensive study of construction building code enforcement. Topics will include the permit process, inspection process, and the legal aspects of building code enforcement. This course is approved for offering in a distance learning format. Prerequisite: permission of E&T advisor; cumulative GPA of 2.5 or higher. Recommended: IET 361

IET 365 Manufacturing Processes II 3(2-2)

Introduces basic polymer formulation, properties of plastics materials, methods of molding plastics, and the fabrication and decoration of plastic articles. Prerequisites: CHM 120 or 131; IET 130, 170; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 367 International Building Codes 3(3-0)

Comprehensive study of the International Building Codes. Topics include International Building, Electrical, Plumbing, Mechanical, and Fire Codes. This course is approved for offering in a distance learning format. Prerequisite: permission of E&T advisor; cumulative GPA of 2.5 or higher. Recommended: IET 361.

IET 368 International Residential Code 3(3-0)

Comprehensive study of International Residential Code for One and Two-Family Dwellings. Topics include all residence code requirements for building a home according to IRC 2000. This course is approved for offering in a distance learning format. Prerequisites: permission of E&T advisor; cumulative GPA of 2.5 or higher. Recommended: IET 361.

IET 375 Robotics 3(2-2)

Introduction to industrial robotics including robot classifications, components and functions, programming, and applications. Prerequisites: CPS 180 or EGR 200; IET 291 or EGR 290; One of the following: MTH 132, 133, 217; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 377 Computer Numerical Control Programming 3(2-2)

Programming and operation of CNC machines, including CNC vertical milling center and turning center. Emphasis on manual programming, CAM design, and machine setup and operation. Prerequisites: IET 154, 170; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 379 Mechanics of Materials 3(3-0)

Introduction to methods of determining the internal stresses and deflections of basic load-carrying members of construction and machine applications. Prerequisites: IET 279 or EGR 251 with a C- or better; EGR 200 with a C- or better; MTH 132 or 133; Permission of E&T Advisor; cumulative GPA of 2.5 or higher.

IET 385 Automotive Engines 3(1-4)

Design, construction, operation, and service procedures involved in both reciprocating and rotary engines. Prerequisites: permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 390 Discrete Device Theory 3(2-2)

A comprehensive study of discrete devices and circuits, including diodes, transistors, single and multistage amplifiers, frequency response, and integrated operational amplifiers. Prerequisite: IET 292; permission of E&T advisor; cumulative GPA of 2.5 or higher.

IET 397 Special Studies 1-6(Spec)

Individual investigation and research to increase ones technical competency. Prerequisites: Cumulative GPA of 2.5 or higher.

IET 400 Senior Seminar 1(1-0)

This seminar format will be used to prepare students to take the Certified Industrial Technologist (CIT) Exam and for graduation. Open to graduating seniors only. CR/NC Only. Prerequisites: Final Semester of Program of Study of ITM Majors.

IET 420 International Engineering Technology 1-6(Spec)

Engineering and technology applications, issues, and perspectives in international settings. Travel abroad required. May be repeated once. Any interested students should contact the IET Department. Prerequisites: 12 hours of IET credit; permission of E&T advisor.

IET 424 Human Factors and Ergonomics 3(3-0)

The study of methods and tools used in the fields of human factors and ergonomics to design and improve jobs, tasks, and products. Prerequisite: IET 324. Recommended: IET 327; permission of E&T advisor.

IET 425 Industrial Internship 2-8(Spec)

Supervised work experiences in industry. CR/NC only. Prerequisite: departmental permission.

IET 426 Plant Layout and Materials Handling 3(3-0)

Study of plant layout through the development of overall layout including location, planning, detailing, diagrams, and design of manufacturing and service facilities for efficient flow. Prerequisite: IET 326; permission of E&T advisor.

IET 427 Product Reliability and Safety 3(3-0)

A study of product reliability and safety factors affecting the design, production, distribution, sales, and use. Prerequisite: 12 hours of IET coursework; permission of E&T advisor.

IET 428 Manufacturing Quality 3(3-0)

Study of specific quality techniques used by production departments to monitor processes, products, and reliability so quality can be improved. Prerequisites: STA 282 or 382; junior standing; permission of E&T advisor.

IET 429 Occupational Competency 1-30(Spec)

Credit by examination for work experience of background in a given technical area for which no transferable credit has been earned. Prerequisites: certified record of work experience; approval of the department chairperson.

IET 435 Curriculum Development and Facility Planning 3(3-0)

Principles of curriculum development and facility planning. Prerequisite: Open only to seniors; permission of E&T advisor.

IET 437 Independent Study 2-5(Spec)

Individual investigation and research to increase ones technical competency. Prerequisite: departmental pre-registration.

IET 450 Mechanical Computer-Aided Engineering 3(2-2)

Mechanical components design, structural analysis, and mechanism analysis by using computer aided design system and simulation tools. Prerequisites: IET 226, 350, 379; permission of E&T advisor.

IET 451 Geometric Dimensioning and Tolerancing 3(2-2)

Fundamentals of geometric dimensioning and tolerancing concepts as interpreted in ASME standard Y14.5. This course may be offered in an online or hybrid format. Prerequisite: IET 226; permission of E&T advisor.

IET 452 Mechanical Laboratory 3(1-4)

Experiments utilizing a variety of mechanical devices and systems to demonstrate fundamental concepts in mechanics, fluid mechanics, thermodynamics and heat transfer. Prerequisites: IET 351, IET 352, IET 356, IET 379; permission of E&T advisor.

IET 453 Heat Transfer 3(3-0)

Fundamental laws of heat transfer by mechanism of conduction, convection and radiation, and boundary layer concepts. Prerequisites: IET 352, 356; permission of E&T advisor.

IET 454 Machine Design 3(2-2)

Theory and application of machine element fundamentals in design and analysis of mechanical systems for safe operation. Prerequisites: IET 350; IET 379 or EGR 255; permission of E&T advisor.

IET 455 Tool Design 3(2-2)

Covers the process of planning and developing tools, fixtures, and devices for efficient and economical manufacture of a product. Prerequisites: IET 170, IET 226; permission of E&T advisor.

IET 457 Computer-Aided Design 3(2-2)

Development and production of computer generated graphical images for solid-based models and basic system assemblies utilizing mass properties and boolean operations. Recommended: IET 226; permission of E&T advisor.

IET 458 Surface Modeling 3(2-2)

Development and production of industrial and engineering designs with conceptual and parametric surface modeling tools. Utilization of curve and surface functions to interpret engineering designs. Prerequisites: IET 226, MTH 132; permission of E&T advisor. Recommended: IET 324.

IET 459 Computer-Aided Design Engineering Analysis 3(2-2)

Development and production of computer-generated graphical images for advanced finite element models, setting of load and thermal constraints; introduction to mechanism analysis. Recommended: IET 458; permission of E&T advisor.

IET 461 Construction Estimating and Scheduling 3(3-0)

The techniques of quantity survey for material, labor, and equipment to enable the students to organize data essential for estimating cost and time duration of projects. Prerequisite: IET 361; permission of E&T advisor.

IET 462 Mechanical Systems in Buildings 3(3-0)

Design, installation and performance of mechanical systems (heating, air conditioning, and plumbing) in buildings. Prerequisites: PHY 170, MTH 130, IET 361; permission of E&T advisor.

IET 472 Instrumentation and Controls 3(2-2)

A study of instrumentation and control technology including process control fundamentals, signal conditioning, sensor measurements, control components and feedback control characteristics. Prerequisites: IET 352, 356, 375; permission of E&T advisor.

IET 477 Advanced Computer Numerical Control Programming 3(2-2)

Advanced CNC programming techniques including advanced GM codes, 3D surface machining, and multi-axis programming in CNC vertical milling center and turning center. Prerequisites: IET 226, 377; permission of E&T advisor.

IET 487 Vehicle Design and Manufacture 3(Spec)

This course provides an opportunity for students to apply skills of engineering and design to development and design in a nationally competitive setting. Prerequisites: IET 170, 226; permission of E&T advisor.

IET 488 Computer Aided Product Design Capstone 3(1-4)

Integration of design processes, techniques, systems, and technologies toward the solving of a product design problem. Prerequisite: IET 324. Pre/Co-requisites: IET 458 and Senior Standing.

IET 497 Special Studies 1-6(Spec)

Individual investigation and research to increase ones technical competency.

IET 499 Industrial Projects Capstone 3(Spec)

The integration of appropriate methods, procedures, and techniques for the analysis of industrial projects and implementation of solutions via a team approach. Labs to be arranged. Prerequisites: IET 450, 454 with a signed Mechanical Engineering Technology Major or IET 324, 458 with a signed Product Design Engineering Technology Major or IET 377, 500 with a signed Industrial Engineering Technology Major.

IET 500 Production Concepts 3(3-0)

Comprehensive review of current factors which influence productivity. Emphasis is placed on the integration of people, methods, machines, materials, and management. This course may be offered in an online or hybrid format. Prerequisites: IET 327; STA 282; or graduate standing and statistics competency; permission of E&T advisor.

IET 501 Application of Industrial Management Principles 3(3-0)

A study of industrial management as a process of coordination that exhibits different patterns depending on the manager's level in the organization and functional responsibilities. This course may be offered in an online or hybrid format. Prerequisites: STA 282 or graduate standing and statistics competency; permission of E&T advisor.

IET 502 Computer Applications in Industry 3(3-0)

General/special purpose, digital/analog computer applications in industry and automation with emphasis on input/output devices and process control. Prerequisite: 12 IET credit hours; permission of E&T advisor.

IET 524 Technology and Environment 3(3-0)

A study of the relationship between technology and environment. A systems approach is utilized to examine the optimization of technology within environmental constraints. This course may be offered in an online or hybrid format. Prerequisite: 12 IET credit hours or graduate standing; permission of E&T advisor.

IET 526 Industrial Ergonomics 3(2-2)

The study of human characteristics, capacities and limitations for the design of productive, safe, and comfortable work spaces, tools, equipment, tasks, and facilities. Prerequisites: IET 327; or senior/graduate standing and permission of instructor; permission of E&T advisor.

IET 527 Industrial Safety Management 3(3-0)

A comprehensive study of safety management systems and their implication related to accident cost analysis and to programs which comply with state and federal standards. Prerequisite: IET 327; permission of E&T advisor.

IET 532 Careers and Technology for Children 3(2-2)

Developing interdisciplinary instructional units, manipulatives, and pedagogy to provide K-12 students with meaningful career awareness, exploration, and preparation experiences utilizing industrial materials, tools, and processes. Prerequisite: junior, senior or graduate status in teacher education; permission of E&T advisor.

IET 534 Design and Construction of Teaching Aids 2(1-2)

Workshop for planning and constructing three-dimensional teaching aids and devices in various curriculum areas of the elementary and secondary grades. Prerequisite: senior status; permission of E&T advisor.

IET 550 Product Design and Development 3(3-0)

Product design principles, structural, aesthetic, and intellectual property considerations, and product function are discussed. Focus on concept development, evaluation, and prototyping. Prerequisites: IET 226 or Graduate Standing; permission of E&T advisor.

IET 561 Light Frame Construction Workshop 3(0-6)

A workshop on estimating, scheduling, building codes, and construction techniques for frame buildings. Recommended: IET 361; permission of E&T advisor.

IET 567 Construction Safety 3(3-0)

A comprehensive study of construction safety standards, practices, and procedures. Recommended: IET 361; permission of E&T advisor.

IET 576 Industrial Automation 3(2-2)

A study of electro mechanical devices, industrial robotics, programmable logic controllers (PLCs), and automated work cell designs. Prerequisites: IET 375; MTH 132; CPS 150 or CPS 180; permission of E&T advisor.

IET 590 Green Building and Sustainability 3(3-0)

Comprehensive study of the principles of Green Building and Sustainability. Topics include sustainability, xeriscaping, high performance building, energy efficiency, indoor air quality and environmental stewardship. This course is approved for offering in a distance learning format. Prerequisites: IET 361, 368 or graduate standing; permission of E&T advisor.

IET 591 Construction Management 3(3-0)

A comprehensive study of construction management standards, practices, and procedures with emphasis on the legal aspects of the private, federal, and state construction industries. Prerequisites: IET 361, IET 561; permission of E&T advisor.

IET 597 Special Studies 1-6(Spec)

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

IET 602 Current Concepts of Industrial Education 2(2-0)**IET 610 Advanced Quality Management 3(3-0)****IET 619 Continuing Registration for Final Research Project 1(1-0)****IET 620 Advanced Materials 3(2-2)****IET 625 Industrial Internship 2-6(Spec)****IET 633 Seminar: Industrial Education 3(3-0)****IET 634 Advanced Safety Management 3(3-0)****IET 635 Curriculum Development: Industrial Education 3(3-0)****IET 636 Leadership Internship 2-6(Spec)****IET 650 Project Management 3(3-0)****IET 670 Lean Manufacturing & Six Sigma Quality 3(3-0)****IET 680 Sustainability and Green Technology 3(3-0)****IET 694 Problems in Management and Technology 1-6(Spec)****IET 695 Independent Study 2-6(Spec)****IET 697 Special Studies 1-6(Spec)****IET 733 Practicum: Industrial Education/Special Education 3(Spec)****IET 791 Independent Research 2-6(Spec)****IET 798 Thesis 1-6(Spec)****IND - Interior Design**

See the Department of Human Environmental Studies for more information.

IND 131 Interior Design Studio I: Introduction 3(1-4)

Application of basic design elements and principles and the use of design concepts, materials, and model building techniques applicable to commercial and residential interiors. Prerequisites: IND 139. Pre/Co-requisite: IND 138.

IND 138 Visual Communication for Interior Design 3(2-2)

Visual communication of design concepts through rendering and presentation techniques; used to express development and the final states of design process. Pre/Co-requisite: IND 139.

IND 139 Interior Design Drafting 3(2-2)

Provides drafting and print reading experience designed to meet the professional needs of students concentrating in interior design by covering presentation, architectural and pictorial drawings.

IND 155 Introduction to Textiles 3(2-2)

Study of fiber, yarn and fabric properties intended for commercial and interior usage; impact of various processes on use and serviceability; includes textile laboratory analysis. Credit may not be earned in both IND 155 and FMD 155.

IND 238 Design History and Precedent 3(2-2)

Cross cultural survey of environmental design (Egyptian through Neoclassical Europe) including furniture, interiors and architecture with correlating historical context.

IND 328 Design History and Criticism 3(3-0)

Study of Western design forms (17th century through present) with correlating historical, cultural, and theoretical developments. Criticism of current design using diverse criteria. Prerequisite: IND 238.

IND 331 The Art of Event Planning 3(3-0)

Through the principles and elements of design, this course provides the application of design skills to the overall design of an event while recognizing budget and client constraints.

IND 332WI Human Shelter and Environment 3(3-0)

Course explores the interrelationship between the built, cultural and natural environments and human behavior, perception and social interaction. This course may be offered in an online format. Writing Intensive. (University Program Group III-A: Behavioral Sciences)

IND 333 Interior Design Service Learning 1-6(Spec)

This course offers an opportunity for Interior Design students to perform targeted academic-based service work under the supervision of a CMU faculty member. Prerequisites: IND 131, IND 138, IND 139.

IND 334 Computer-Aided Design for Interiors 3(2-2)

Fundamental concepts and applications of graphic software programs. Current and potential applications of digital computers and CAD software in design. Prerequisites: IND 131, IND 138, IND 139; Pre/Co-Requisite: IND 337.

IND 335 Contract Documents 3(2-2)

This course provides an introduction to construction working drawings, methods and materials of diverse construction types, and building codes. Prerequisite: IND 139.

IND 336 Materials and Components of Interior Design 3(3-0)

Consideration of the materials, equipment and systems utilized in the design and construction of interior environments.

IND 337 Interior Design Studio II: Residential 3(1-4)

Application of basic design process to residential interiors: space planning, furnishings, finishes and color; according to the socioeconomic, physical and psychological needs of users. Prerequisites: IND 131, 138, 139, 332; Pre/co-requisite: IND 238, 334, 336; formal admittance to Interior Design program.

IND 338 Internship Preparation for Interior Design 1(Spec)

Development of skills to prepare students for obtaining an internship in an interior design firm or related field. Should be taken semester prior to IND 438. Prerequisite: IND 337.

IND 339WI Interior Design Studio III: Special User Groups 3(1-4)

Assessment of the special environmental needs of people with disabilities, elderly and children; application to studio design problems. Writing Intensive. Prerequisites: IND 131, 138, 139, 238, 332, 334, 336, 337; Pre/co-requisites: IND 328, 436.

IND 397 Special Topics in Interior Design 1-6(Spec)

Topics of special interest which are not normally included in existing courses. Prerequisites: See Course Search and Registration.

IND 432WI Seminar in Interior Design 3(3-0)

Capstone course providing focus on current issues in interior design, methods, materials, and portfolio evaluations. Must be taken during the final Spring semester before graduation. Writing Intensive. Prerequisites: IND 339, 436.

IND 433 Professional Practices in Interior Design 3(3-0)

Application of internships and business procedures to the establishment and general management of a design practice. To be taken immediately following IND 438. Prerequisite: IND 438.

IND 434 Advanced CAD for Interiors 3(2-2)

Advanced application of CAD software. Emphasis on application of the computer as a design tool, topical applications and computer graphic methods. Prerequisites: IND 334, IND 337; Pre/Co-Requisites: IND 339, 436.

IND 436 Lighting and Other Mechanical Systems 3(2-2)

Considers the role of mechanical systems in the design of interior spaces with emphasis on lighting, and including heating, ventilation, air conditioning, and acoustical systems. Prerequisites: IND 131, 138, 139, 337; successful completion of math competency.

IND 437 Interior Design Studio IV: Contract 3(1-4)

Application of visual, conceptual and functional design processes in the interior design and space planning of large scale commercial environments. Prerequisites: IND 131, 137, 138, 328, 332, 334, 336, 337, 339; Pre- or co-requisite: IND 335.

IND 438 Interior Design Internship 2(Spec)

Supervised internship of 250 hours in an interior design firm or related field designed to complement classroom learning. Taken semester prior to IND 433. Prerequisite: IND 338.

IND 439 Interior Design Studio V: Senior Thesis 3(1-4)

A capstone studio course that focuses on projects with increasing scope and complexity and topics that vary depending on current trends in interior design. Prerequisite: IND 437.

IND 490 Independent Study in Interior Design 1-6(Spec)

A student-initiated learning activity focusing on a faculty approved topic in Interior Design. Prerequisite: Permission of instructor.

IND 497 Special Topics in Interior Design 1-15(Spec)

Topics of special interest which are not normally included in existing courses. Prerequisites: See Course Search and Registration.

IPR - Integrative Public Relations

See the *Integrative Public Relations Major* for more information.

IPR 101 Foundations of Integrative Public Relations 1(1-0)

Introduction to the concepts, activities, responsibilities and career directions of public relations from an interdisciplinary perspective.

IPR 490 Independent Study in Integrative Public Relations 1-6(Spec)

Student-initiated study guided by faculty member or faculty committee. Prerequisite: Students enrolling in IPR 490 must be a signed IPR major.

IPR 555 Public Relations Internship 3-6(Spec)

Directed full-time work experience in a professional public relations environment. Prerequisites: IPR 101; BCA 210, BCA 311; COM 264, COM 357; JRN 202, JRN 302, JRN 350, JRN 450; completion of 56 credit hours; prior written approval of the designated internship director; open only to signed Integrative Public Relations majors.

IPS - International Program Studies

Contact the *Office of International Affairs* for more information.

IPS 197 International Program Studies 1-36(Spec)

Courses taken abroad under auspices of Central Michigan University. Primarily for freshmen and sophomores. Prerequisite: permission of the Director of Study Abroad.

IPS 297 International Program Studies 1-36(Spec)

Courses taken abroad under auspices of Central Michigan University. Primarily for freshmen and sophomores. Prerequisite: permission of the Director of Study Abroad.

IPS 397 International Program Studies 1-36(Spec)

Courses taken abroad under auspices of Central Michigan University. Primarily for juniors and seniors. Prerequisite: permission of the Director of Study Abroad.

IPS 497 International Program Studies 1-36(Spec)

Courses taken abroad under auspices of Central Michigan University. Primarily for juniors and seniors. Prerequisite: Permission of the Director of Study Abroad.

IPS 597 International Program Studies 1-36(Spec)

Courses taken abroad under auspices of Central Michigan University. Primarily for seniors and graduate students. Prerequisite: permission of the Director of Study Abroad.

ITC - Information Technology

See the *Department of Computer Science* for more information.

ITC 101QR Reasoning Through Computer Visualization 3(2-2)

Computer visualization techniques for making informed decisions with data. Strategies for presenting and understanding graphical data representations. Interpretation and evaluation of info-graphics. Quantitative Reasoning.

ITC 111 Information Technology Programming II 3(3-0)

Programming for Information Technology. User interfaces, databases, component software. Language used is Visual Basic. Prerequisite: CPS 110.

ITC 190 Computer Hardware Concepts, Installation, Configuration, and Support 3(3-0)

Basic computer organization, overview of computer components, properties of peripheral devices, processes management, physical and virtual memory management techniques, resource allocation and protection.

ITC 191 Computer Software Concepts, Installation, Configuration, and Support 3(3-0)

User view of system resources, file systems and operations, start-up, configuration files, software installation, dependencies, deinstallation, simple scripts, batch files, and account management basics.

ITC 265 Basics of Data Communications and Computer Networks 3(3-0)

Concepts of data communications and networks with Internet focus. Introduction and examination of principles and protocol mechanisms with application to practical contexts. Prerequisites: ITC 190, 191; CPS 110 or 180.

ITC 292 Linux/Unix Server Administration 3(3-0)

Concepts and skills related to Linux/Unix system administration: system and application maintenance; user management; system security; system and data assurance. Prerequisites: ITC 191; CPS 110 or 180.

ITC 320 Web Application Development - Client-Side Scripting 3(3-0)

Creating web-based applications with a focus on graphical user interfaces, event driven, object-oriented programming and dynamic, animated web pages. Prerequisite: ITC 111 or CPS 181 or BIS 324. Recommended: CPS 165.

ITC 330 Information Storage and Management 3(3-0)

Information storage and management techniques for storing, managing, and protecting digital information in classic, virtualized, and cloud environments. Prerequisites: ITC 190, 191. Recommended: ITC 265.

ITC 341 Introduction to Databases and Applications 3(3-0)

Database concepts, data models, relational databases, query language SQL, simple database programming. Design and develop databases for various applications using database management systems. Prerequisites: CPS 181 or ITC 111.

ITC 365 Introduction to Data Communications and Computer Networks 3(3-0)

Introduction to data communications and computer networks concepts with hands-on projects and implementations. PC and workstation-based computer networks are designed and implemented. Recommended: ITC 290.

ITC 383 Computer Game Design 3(3-0)

Introduction to design and development of computer video games. Hands-on creation and testing of games. Prerequisite: CPS 382.

ITC 441 Database and Virtual Data Server Administration 3(3-0)

Database management systems: security, users, recovery, audit, software installation and configuration. Database server management: virtual machines and hosting, file management, permissions, network configuration and scripting. Prerequisites: ITC 265, 341. Recommended: STA 282 or 382.

ITC 465 Network Administration and Security 3(3-0)

Local area network and internet; Unix networks; Windows NT networks; administration and security issues of computer networks; integration of Unix and Windows NT networks. Prerequisites: ITC 365. Recommended: STA 282 or STA 382.

ITC 466 System Administration and Automation 3(3-0)

Study the concept, theory, tools and procedures around major functional areas (configuration, performance, accounting, fault and security) of network management and system administration. Prerequisite: ITC 465.

ITC 495 Senior Internship 1-3(Spec)

Supervised work experience in information technology. Up to 3 hours taken may count toward the IT major requirement. CR/NC only. Prerequisites: senior standing in information technology; written permission of department chairperson.

ITC 496 Special Topics in Information Technology 1-6(Spec)

Selected topics in information technology not otherwise available in a course regularly offered. Topic(s) are listed in Course Search and Registration. Repeatable up to 6 credits when content does not duplicate previous special topic studies. Pre/Co-requisites: See Course Search and Registration. Determined by the specific topics presented.

ITC 510 Software and Data Modeling 3(3-0)

Fundamentals of systems analysis, including the essential concepts and major paradigms of software and data modeling, and cutting-edge software and data modeling methods, and techniques. Prerequisites: CPS 410, ITC 341, or graduate standing.

ITC 520 Foundations of Computer Security 3(3-0)

Computer and network security, cryptography, encryption, threat models, protocols and algorithms, confidentiality, integrity, authentication, authority, access control, operating system and software security, malware, intrusion detection. Prerequisites: ITC 465 or graduate standing.

ITC 530 Mobile Computing 3(3-0)

Wireless networks, mobile devices, programming environments. Current contemporary topics on mobile computing. Student projects and literature review. Prerequisite: ITC 510.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

ITC 620 Information Security and Privacy 3(3-0)**ITC 630 Cloud Computing 3(3-0)****ITC 686 Big Data Analytics 3(3-0)****ITC 691 Information Technology Project 3(3-0)****ITC 798 Thesis 1-6(Spec)****JPN - Japanese**

See the Department of World Languages and Cultures for more information.

JPN 101 Elementary Japanese I 4(4-0)

Designed for students who have had no Japanese. Basic language skills. Introduction to the culture of Japan. Students who have completed more than one year of Japanese in secondary school will not receive credit. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

JPN 102 Elementary Japanese II 4(4-0)

Basic language skills and culture. Continuation of JPN 101. Recommended: JPN 101. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

JPN 110 Study Abroad 1-8(Spec)

Intended for beginning students studying abroad. Prerequisite: permission of department chairperson.

JPN 201 Intermediate Japanese I 4(4-0)

Further development of all language and reading skills; a review of grammar, and exploration of Japanese culture. Recommended: JPN 102. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

JPN 202 Intermediate Japanese II 4(4-0)

Designed to develop further fluency in Japanese language and culture. Recommended: JPN 201. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

JPN 210 Study Abroad 1-12(Spec)

Intended for intermediate students studying abroad. Prerequisites: JPN 102; permission of department chairperson.

JPN 310 Study Abroad 1-12(Spec)

Intended for advanced students studying abroad. Prerequisites: JPN 202; permission of department chairperson.

JPN 410 Study Abroad 1-12(Spec)

Intended for advanced students studying abroad. Prerequisites: 12 or more hours on 300 level; permission of department chairperson.

JRN - Journalism

See the Department of Journalism for more information.

JRN 101 Media and Society 3(3-0)

Understanding the influence of media and society. (University Program Group III-B: Studies in Social Structures)

JRN 102 Introduction to Journalism 3(3-0)

An introduction to journalism as a social, cultural, political, technological, and economic force; a professional field; an academic discipline, unit and program.

JRN 105 Social Media in Society 3(3-0)

The development and impact of social media on society, message control, and the goals and objectives in communication with audiences. This course is offered in an online format only.

JRN 107WI Literary Journalism 3(3-0)

An in-depth exploration of first-person story-telling and its influence on revealing the silent human experience. Writing Intensive. (University Program Group IA: Human Events and Ideas)

JRN 197 Special Studies 1-3(Spec)

Appropriate title to be listed when offered.

JRN 202WI Writing for the Mass Media 3(3-0)

Gathering, processing and writing information and opinion on current matters using professional standards and formats in news, public relations and advertising. Writing Intensive. Prerequisites: ENG 101 (C or better) or ENG 103/109 (C or better) or ELI 198 (C or better) or ENG 201 (C or better).

JRN 203QR Information Gathering for the Mass Media 3(3-0)

Acquiring, comprehending, analyzing, synthesizing, and evaluating information by solving journalistic problems in a variety of cases and from multiple perspectives. Pre/Co-Requisite: JRN 202. Quantitative Reasoning.

JRN 205WI Shaping the Media 3(3-0)

An in-depth exploration of the news environment and the forces that shape news within the context of civic and global citizenship. Writing Intensive. (University Program Group III-B: Studies in Social Structures)

JRN 207 Video Games and Mass Communication 3(3-0)

Examines video games as a mass medium, analyzes their social and cultural impact and explores current video game trends, including their uses by mass media industries. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

JRN 220 Basic Media Photography 3(3-0)

Camera operation, producing and processing of photographs for media use.

JRN 250 Social Media: Managing the Message 3(3-0)

Select, use and analyze social media to build relationships, network, distribute messages and develop strategies for organizations. This course is offered in an online format only. Prerequisite: JRN 105 with a C or better.

JRN 297 Special Studies 1-6(Spec)

Appropriate title to be listed when offered.

JRN 302 Introduction to Graphics and Visual Communication 3(3-0)

Principles and techniques of publication/advertising graphics and visual communication, including typography and the printing process.

JRN 305 Hackers: The History of Media Innovation 3(3-0)

Examines people's adoption of media technologies by focusing on how journalism, advertising, public relations and the public have historically assisted and/or hindered diffusion. (University Program Group III-A: Behavioral Sciences)

JRN 312WI Reporting 3(3-0)

Skills in gathering, evaluating and writing news. Writing Intensive. Prerequisites: JRN 202, 203; ENG 201.

JRN 315 Editing 3(3-0)

Copy editing, headline writing and design and layout. Prerequisite: JRN 202.

JRN 320 Photo Editing 3(3-0)

Use and preparation of photographs for the print media. Prerequisite: JRN 220.

JRN 339 Social Media: Reputation, Image and Interaction 3(3-0)

Advanced skills in using social media to engage audiences, establish professional brands, drive traffic and evaluate results. Prerequisite: JRN 202.

JRN 340 Introduction to Digital Journalism 3(3-0)

Survey of current theories, issues and trends of the digital journalism environment, and introduction of digital journalism production using current media tools and software. Prerequisites: JRN 202 with a C or better or JRN 361 with a C or better.

JRN 348WI Business Journalism 3(3-0)

Coverage of business, economic, consumer and personal finance issues. Writing Intensive.

JRN 350 Public Relations Principles and Practices 3(3-0)

Concepts and principles of public relations practiced by corporations, agencies, non-profits and other organizations. Role of the practitioner stressed. This course may be taken in an online or hybrid format.

JRN 353 Foundations of Strategic Public Relations 3(3-0)

Overview of strategic campaign process and application public relations theory to real-world projects including formative research, strategic and tactical planning, and plan evaluation phases.

JRN 360 Advertising Principles 3(3-0)

Organization of today's advertising industry; role of advertising in promotion; examination of types of advertising and media vehicles. This course is approved for offering in an online or hybrid format.

JRN 361 Writing for Advertising 3(3-0)

An introduction to the principles and techniques used in writing for print, broadcast, internet, mobile, direct mail, and point-of-sale advertising. Prerequisites: JRN 360.

JRN 365 Advertising Media 3(3-0)

Evaluation of media in relationship to marketing objectives. Selection of media space/time and decision-making in development of media schedules. Prerequisite: JRN 360.

JRN 366 Advertising Account Management 3(3-0)

An exploration of the history, functions, and skills of advertising account management. Prerequisite: JRN 360.

JRN 369 Advertising and Public Relations Research 3(3-0)

Reviews and applies secondary, social scientific, professional, and interpretative research methods in persuasive mass communication contexts. Prerequisite: JRN 350 or 353 or 360.

JRN 370 Social Media Legal and Ethical Issues 3(3-0)

Students investigate and analyze legal and ethical issues in social media to develop appropriate standards and policies for an organization. This course is offered in an online format only. Prerequisite: JRN 250 with a C or better.

JRN 372 The Asian Media and Cross-cultural Mass Communication 3(3-0)

Analysis of Asian media systems and historical, economic, political and cultural factors shaping those systems. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

JRN 380 Racial and Cultural Diversity: Mass Media's Role 3(3-0)

Critical, historical and contemporary examination of African, Hispanic, Asian, Native American, and gender stereotypes in mass media. Self-portrayals by these groups using mass media. May be offered as Writing Intensive. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

JRN 397 Special Studies 1-6(Spec)

Appropriate title to be listed when offered.

JRN 402 Advanced Media Graphics and Visual Communication 3(3-0)

Advanced techniques of multimedia graphics, digital publishing, and visual design for media industries including advertising, journalism and public relations. Prerequisite: JRN 302.

JRN 404 Law of Mass Communication 3(3-0)

Principles and case studies. Prerequisites: JRN 101 or 102; junior standing.

JRN 409 Independent Study 1-3(Spec)

Individual study under faculty direction. Prerequisite: senior standing.

JRN 417 Sports Reporting 3(3-0)

Critical examination and reporting of sports events. Prerequisites: JRN 315.

JRN 420 Photography Studio Techniques 3(3-0)

Use of camera in a controlled environment, studio lighting and basic studio operation. Prerequisite: JRN 220.

JRN 421 Color News Photography 3(3-0)

Use and production of color transparencies, prints; basic considerations of media use. Prerequisites: JRN 220, JRN 320.

JRN 422 The Picture Story 3(3-0)

Extensive use of the multiple-picture project to develop skills in visual storytelling, caption writing, and ethics. Digital SLR camera and external hard drive required. Prerequisites: JRN 220, 320.

JRN 423 Online Visual Storytelling 3(3-0)

Online storytelling for the photojournalist. Multimedia production combining still photography, audio, and video with the intended purpose of publishing on the Web. Prerequisites: JRN 220; 56 credits completed.

JRN 430WI Magazine and Feature Writing 3(3-0)

Experience in writing and marketing newspaper features and magazine articles. Submission of manuscripts for publication is required of each student in the course. Writing Intensive. Prerequisites: JRN 202, 203.

JRN 440 Advanced Digital Journalism 3(3-0)

Advanced techniques of digital journalism production using current media tools and software. Prerequisites: JRN 202, 340 with a C or better in each course. Recommended: JRN 203, 220.

JRN 441 Data Journalism 3(3-0)

An introduction to data journalism that involves the investigating and reporting of news by prospecting for, analyzing, graphing, and mapping data from online databases. Prerequisites: JRN 202, 203.

JRN 445 Multimedia Reporting Capstone 3(3-0)

Advanced principles and techniques of online multimedia news and feature packages including writing and reporting, text, photos, interactive graphics, audio, video, other forms of multimedia. Prerequisites: JRN 340, 440 for journalism majors, JRN 340, 423 for photojournalism majors.

JRN 448 Journalism Practicum 1-3(Spec)

Applying various online journalism theory and skills, such as web design, audio and video production, and photography to publish a web magazine as a group. Prerequisite: JRN 202.

JRN 449 Journalism Internship 3(Spec)

Experience in online journalism under professional and faculty supervision. May be applied toward journalism major and minor only with permission of faculty advisor. Prerequisites: Junior standing; prior approval of internship director.

JRN 450WI Public Relations Writing 3(3-0)

Creating and editing written materials for a variety of public relations purposes and a variety of media. Writing Intensive. Prerequisites: JRN 202; JRN 350 or 353.

JRN 460 Social Media Practicum, Portfolio and Plan 3(3-0)

A supervised, eight-week practicum for integrating social media into an organization's communications. This course is offered in an online format only. Prerequisites: JRN 370 with a C or better. Written authorization (CMU approved forms) is required from the faculty advisor and on-site practicum supervisor prior to the start of the course.

JRN 465 Advertising Copy and Design 3(3-0)

Techniques used to interpret advertising strategies and create advertising concepts, copy, layout, and presentations in print, broadcast and digital media. Prerequisites: JRN 302, 360, 361.

JRN 466 Advertising Campaigns 3(3-0)

Development of advertising plans. Choice of appeals, approaches, media, and creative strategies. Preparation, production and presentation of campaigns. Budget allocation, marketing research, assessment and evaluation. Prerequisites: JRN 361; JRN 365 or MKT 315.

JRN 467 Advertising Account Planning 3(3-0)

This course will explain, explore, demonstrate, and examine the research techniques and interpretive skills used in the field of marketing-communications. Prerequisite: JRN 360.

JRN 497 Special Studies 1-6(Spec)

Appropriate title to be listed when offered.

JRN 500 Current Issues in Mass Communication 3(3-0)

Examination of the role of mass communication in society through the exploration of issues, ethics, trends and decision-making processes. Prerequisite: senior standing.

JRN 516WI Public Affairs Reporting 3(3-0)

Coverage of government and other public issues. Writing Intensive. Prerequisite: JRN 203, 312.

JRN 519 Journalism Internship 1-4(Spec)

Experience at news organizations under professional and faculty supervision. May be applied toward journalism major and minor only with permission of faculty advisor. Prerequisites: junior standing; permission of instructor.

JRN 520 Independent Study in Photography 3(3-0)

Advanced experience and individual instruction in photography. Prerequisites: JRN 220, JRN 320.

JRN 521 Seminar in News Photography 3(3-0)

Field experience of the photograph as a means of communicating information, ideas and opinions.

JRN 529 Photojournalism Internship 1-4(Spec)

Photojournalism experience under professional and faculty supervision. May be applied to journalism major or minor only with permission of faculty advisor. Prerequisites: junior standing; permission of instructor.

JRN 551WI Case Studies in Public Relations 3(3-0)

Examination of historic and contemporary public relations problems and programs with emphasis on research, planning and problem solving skills in public relations practices. Writing Intensive. Prerequisites: JRN 350 or 353; JRN 450.

JRN 556 Public Relations Seminar 3(3-0)

Practical applications of public relations principles in a diverse society. Prerequisites: JRN 350 or 353; 450.

JRN 559 Public Relations Internship 1-4(Spec)

Experience in public relations under professional and faculty supervision. May be applied toward journalism major and minor only with permission of faculty advisor. Prerequisites: junior standing; permission of instructor.

JRN 569 Advertising Internship 1-4(Spec)

Experience in advertising under professional and faculty supervision. May be applied toward journalism major or minor only with permission of faculty advisor. Prerequisites: junior standing and permission of instructor.

JRN 597 Special Studies 1-6(Spec)

Appropriate title to be listed when offered.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

JRN 670 Public Relations Management 3(3-0)

LAR - Liberal Arts

See the *College of Humanities and Social & Behavioral Science* for more information.

LAR 197 Special Studies in Liberal Arts 1-12(Spec)

Primarily for freshmen or sophomores. Prerequisite: permission of instructor.

LAR 397 Special Studies in Liberal Arts 1-12(Spec)

Prerequisite: Permission of instructor. Primarily for juniors and seniors.

LAR 597 Special Studies in Liberal Arts 1-12(Spec)

Primarily for graduate students. Prerequisite: permission of instructor.

LAT - Latin

See the *Department of World Languages and Cultures* for more information.

LAT 101 Elementary Latin I 4(4-0)

Introduction to Latin through the study of grammar, vocabulary, and readings in Roman history, literature, and culture. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

LAT 102 Elementary Latin II 4(4-0)

Continuation of LAT 101. Prerequisite: LAT 101.

LAT 201 Intermediate Latin I 4(4-0)

Translating typical classical Latin prose. Prerequisite: LAT 102.

LAT 202 Intermediate Latin II 4(4-0)

Continuation of LAT 201. Prerequisite: LAT 201.

LDR - Leadership Studies

See the *Leadership Minor* or the *Leadership Institute* (see index for page number) for more information.

LDR 100 Introduction to Leadership Education and Development 1(1-0)

Designed to provide students with the foundation to develop and enhance their leadership potential and expose them to opportunities in the university environment in order for them to fulfill their scholarship protocol. CR/NC only. Prerequisites: Only open to Leader Advancement Scholarship (LAS) recipients.

LDR 110 Personal Leadership & Service 1(1-1)

An exploratory course guiding students in discovering their personal & leadership potential and exposure to the university and local community with emphasis on public service.

LDR 120 Introduction to Service Leadership 1(1-1)

The use of service leadership as a means of impacting issue-based social problems.

LDR 200 Introduction to Leadership 3(2-2)

Introduction to theoretical, philosophical, and conceptual foundations of leadership. Emphasis on styles and approaches to leadership related to the humanities, natural sciences, and social sciences. This course may be offered in an online format.

LDR 302 Field Experience in Leadership 3(Spec)

The application of leadership theories, skills and practices within a supervised organizational setting involving work, volunteer/community service, or project management. Course may be offered in an online format. Prerequisites: LDR 200, 45 credit hours completed and a signed leadership minor.

LDR 320 Leadership and Service in Nonprofits 3(3-0)

Students will experience and apply leadership models specific to nonprofits. This course will emphasize social change leadership and service-based projects. This course may be offered in an online or hybrid delivery format. Prerequisite: LDR 200.

LDR 499 Contemporary Issues in Leadership 3(3-0)

An integrative capstone course designed to synthesize theory, skills, and applications of leadership. Students will explore personal values, ethical decision-making, and organizational functions of leadership. This course may be offered in an online format. Prerequisites: LDR 302, COM 461, signed leadership minor.

LIB - Library

Contact *Park Library* for more information.

LIB 197 Introduction to Library and Information Research 1(1-0)

Practical skills needed to conduct library and information research. Includes locating information in electronic and print sources, defining researchable topics, as well as evaluating, citing, and using information. Not open to students with LMT 530.

LIB 397 Special Topics in Library and Information Research 1-3(Spec)

Students will learn in-depth library and information research skills within specialized or discipline-related subject areas. Topics vary by semester. Prerequisites: at least junior standing.

MAR - Marine Science

See the *Department of Biology* for more information. Summer courses taken with affiliation agreement with the *University of Southern Mississippi's Gulf Coast Research Laboratory in Ocean Springs, MS*.

MAR 301 Marine Science II: Marine Biology 5(Spec)

An introduction to marine biology with emphasis on local fauna and flora. Prerequisites: general zoology; general botany.

MAR 590 Special Problems in Marine Science 1-6(Spec)

Prerequisites: permission of instructor.

MBA - Master of Business Administration

See the *College of Business Administration* for more information.

MBA 500 Spreadsheet Applications in Business 1(1-0)

Application of spreadsheet software tools to the solution of common business problems including budgeting, forecasting, and optimization for preparing information to support management decision-making. Course may not be included on any graduate degree program. Prerequisites: computer literacy as demonstrated by BIS 104, CPS 100 and prior knowledge of spreadsheet software; admission to the MBA program OR both graduate status and permission of the MBA director.

MBA 501 Presentation Graphics Applications in Business 1(1-0)

Application of presentation graphics software tools in preparing and delivering professional management briefings that provide information which supports the solution of common business problems. Course may not be included on any graduate degree program. Prerequisites: computer literacy as demonstrated by BIS 104, CPS 100 and prior knowledge of presentation graphics software; admission to the MBA program OR both graduate status; permission of the MBA director.

MBA 502 Database Applications in Business 1(1-0)

Application of a database management program to the solution of common business problems including sales and inventory management for preparing information to support decision making. Course may not be included on any graduate degree program. Prerequisites: computer literacy as demonstrated by BIS 104, CPS 100 and prior knowledge of database management software; admission to the MBA program OR both graduate status and permission of the MBA director.

MBA 503 Professional Business Communications 2(2-0)

Developing professional business communications skills within a team environment. Emphasis on both written and oral communications utilizing current technologies. Prerequisites: admission to the MBA program, or permission the MBA director.

MBA 504 Using Financial Accounting Information 2(2-0)

Introduces use of financial accounting income statements, balance sheets, and statements of cash flow in managerial planning, control, and evaluation. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 505 The Economic Environment of Business 2(2-0)

Provides the economic tools necessary for graduate study in business: demand and supply, elasticity, costs and production, competitive and monopolistic markets, macroeconomics, and international trade. Not open to economics graduate students. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 506 Legal Environment of Business 2(2-0)

Basic concepts concerning the interrelationships of business and its external environments. Managerial participation in and response to public policy issues and their resolutions. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 507 Introduction to Marketing Management 2(2-0)

An introduction to the marketing management process including the marketing environment, buyer behavior, marketing analysis, segmentation, marketing strategy, the marketing mix, and social/ethical issues. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 508 Management and Organization 2(2-0)

Introduction to the internal structure, processes, and control of organizations. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 509 Production/Operations Management 2(2-0)

Concepts and applications of production and operations management in business and industry. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 510 Financial Management and Analysis 2(2-0)

An introduction to basic finance principles and tools including the time value of money, risk and return, capital budgeting and the interpretation of financial statements. Prerequisites: admission to the MBA program, or permission of the MBA director.

MBA 511 Statistics for Managerial Decisions 2(2-0)

An introduction to descriptive and inferential statistics in a business decision context. Applications of various t-tests, ANOVA, multiple regression, and cross-tabulation are emphasized. Prerequisites: admission to the MBA program, or graduate status and permission of the MBA director.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MBA 609 Information Systems Management 2(2-0)**MBA 610 Managing Information Systems in a Global Economy 3(3-0)****MBA 614 Introduction to Enterprise Systems Using SAP Software 3(3-0)****MBA 615 Executive Business Communication 3(3-0)****MBA 616 Quantitative Methods for Managerial Decision Making 3(3-0)****MBA 617 Forecasting for Business and Economics 3(3-0)****MBA 618 Continuing Registration for Final Research Project 1(1-0)****MBA 619 Accounting Information for Managers 2(2-0)****MBA 620 Managerial Accounting: A Management Perspective 3(3-0)****MBA 621 Globalization: Economic and Managerial Perspectives 3(3-0)****MBA 622 Managerial Accounting 3(3-0)****MBA 623 Strategic Marketing Management 3(3-0)****MBA 624 Organizational Behavior 3(3-0)****MBA 625 Corporate Finance and Investment Analysis 3(3-0)****MBA 626 Integrative Strategic Management 3(3-0)****MBA 627 Business Analytics with SAP 3(3-0)****MBA 628 Integrated MBA Capstone: Simulation and Performance Metrics 3(3-0)****MBA 629 Managing Behavioral Change 2(2-0)****MBA 630 Managing and Leading Individuals and Groups in Organizations 3(3-0)****MBA 639 Quantitative Applications for Managers 2(2-0)****MBA 640 Data Analysis for Managers 3(3-0)****MBA 649 Marketing Management 2(2-0)****MBA 650 Marketing-Based Management 3(3-0)****MBA 659 Managing in a Global Economy 2(2-0)****MBA 660 Global Business and Sustainability 3(3-0)****MBA 669 Financial Decision-Making 2(2-0)****MBA 670 Financial Analysis and Risk Management 3(3-0)****MBA 679 Economic Analysis for Managers 2(2-0)****MBA 680 Global Economic Environment 3(3-0)****MBA 688 Directed Work/Observation/Internship 1(1-0)****MBA 689 Strategic Management 2(2-0)****MBA 690 Strategic Management: Integrative Experience 3(3-0)****MBA 697 Special Topics 1-6(Spec)****MBA 699 The MBA Project 4(4-0)****MED - College of Medicine**

See the College of Medicine for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MED 600 Society and Community Medicine 9(Spec)**MED 610 Essentials of Clinical Skills 17(Spec)****MED 620 The Art of Medicine 9(Spec)****MED 630 Foundational Sciences of Medicine: Wellness and Disease 18(Spec)****MED 640 Reproductive/Human Development: Wellness and Disease 8(Spec)****MED 650 Cardiopulmonary: Wellness and Disease 10(Spec)****MED 660 Renal/Endocrine: Wellness and Disease 10(Spec)****MED 740 Neurosciences and Behavior: Wellness and Disease 10(Spec)****MED 750 Musculoskeletal/Dermal: Wellness and Disease 8(Spec)****MED 760 Gastrointestinal: Wellness and Disease 8(Spec)****MED 770 Hematology/Oncology: Wellness and Disease 8(Spec)****MED 780 SYNAPSE 6(Spec)****MED 797 Special Topics: Medical Clerkship Elective 1-30(Spec)****MED 800 Comprehensive Community Clerkship 36(Spec)****MED 810 Clerkship: Surgery 6(Spec)****MED 820 Clerkship: Hospitalist - Internal Medicine 6(Spec)****MED 830 Clerkship: Psychiatry 6(Spec)****MED 840 Clerkship: Obstetrics and Gynecology 6(Spec)****MED 850 Clerkship: Pediatrics 6(Spec)****MED 910 Surgery Sub-Internship 8(Spec)****MED 920 Internal Medicine Sub-Internship 8(Spec)****MED 930 Clerkship: Emergency Medicine 6(Spec)****MED 997 Special Topics: Medical Clerkship Elective 1-42(Spec)****MED 999 Capstone 6(Spec)****MET - Meteorology**

See the Department of Earth and Atmospheric Sciences for more information.

MET 101QR Our Changing Climate 3(2-2)

Scientific causes of climate change and its potential impact. Past, current, and future climates with emphasis on how scientists measure and interpret climate variation. This course may be offered in an online format. Quantitative Reasoning. Satisfies University Program Group II laboratory requirement. (University Program Group II-A: Descriptive Sciences)

MET 140 Severe and Unusual Weather 3(3-0)

Description and causes of tornadoes, hurricanes, explosive cyclones, floods and drought. The potential impact of global climate change on these phenomena. This course may be offered in an online or hybrid format. (University Program Group II-B: Quantitative and Mathematical Sciences)

MET 250 Geoscience Mapping and Resource Evaluation 3(3-0)

This course explores applications that aid in the analysis of geoscience data. Integration of various geospatial data sources and analysis pertinent to geoscientists. Identical to GEL 250; credit may not be earned in both of these courses. Prerequisites: GEO 203; One of: ENS 101 or MET 101 or MET 140 or MET 260 or GEL 100 or GEL 101, 102 or GEL 105, 102 or GEL 130.

MET 260 Introduction to Atmospheric Science 3(2-2)

Description and analysis of the fundamental atmospheric phenomena that define our weather and climate: radiation, wind, moisture, stability, clouds, precipitation, convection, and cyclones. Pre/Co-requisite: One of the following: MTH 130, 132, 133, 232, 233.

MET 265 Professional Development in the Atmospheric Sciences 1(1-0)

Development of a plan for success in meteorology based on understanding the requirements to enter the field and the resources CMU provides to meet them. Pre/Co-requisite: MET 260.

MET 301 Climatology & Climate Change 3(3-0)

A study of major climate types, their controls, distribution patterns and significance. Examination of the causes and implications of climatic change. Prerequisites: GEO 201 or ENS 101 or MET 101 or MET 140 or MET 260.

MET 310 Atmospheric Thermodynamics and the Boundary Layer 3(2-2)

Thermodynamic properties of dry and moist air. Atmospheric stability. Theory and applications of thermodynamic diagrams. Structure and evolution of the atmospheric boundary layer. Prerequisites: MET 260 with a grade of C- or better; MTH 133. Pre/Co-requisite: PHY 145.

MET 312 Meteorological Instruments and Observations 3(3-0)

Design and use of meteorological instrumentation, including meteorological radar and satellites. Prerequisites: MET 310 with a grade of C- or better.

MET 315 Computer Applications in Meteorology 2(1-2)

Analysis of different types of meteorological data using meteorological software within the Linux operating system, including proper ways to visualize and present data. Prerequisites: MET 310 with a grade of C- or better.

MET 320 Physical Meteorology 3(3-0)

Microphysical processes in warm and cold clouds. Properties of radiation and radiative transfer in the atmosphere. Prerequisites: MET 310 with a grade of C- or better; PHY 145; MTH 133.

MET 330 Dynamic Meteorology I 3(3-0)

Application of Newton's laws of motion to various scales of atmospheric phenomena. Vorticity, divergence and vertical motion. Prerequisites: MET 310 with a grade of C- or better; MTH 233; PHY 145. Pre/Co-requisite: MET 340.

MET 335 Dynamic Meteorology II 3(3-0)

Quasi-geostrophic theory and its application in weather prediction and diagnosis. Atmospheric waves, baroclinic instability theory. Prerequisite: MET 330 with a grade of C- or better.

MET 340 Synoptic Meteorology I 3(2-2)

Analysis of large-scale weather patterns through the application of concepts from physical and dynamical meteorology. Focus on cyclogenesis and frontogenesis. Prerequisites: MET 310 with a grade of C- or better; MET 312; MTH 233; PHY 145. Pre/Co-requisite: MET 330.

MET 345 Synoptic Meteorology II 3(2-2)

Advanced analysis of large-scale weather patterns through the application of concepts from physical and dynamical meteorology. Focus on quasi-geostrophic, isentropic, and potential vorticity frameworks. Prerequisite: MET 340 with a grade of C- or better. Pre/Co-requisite: MET 335.

MET 350 Tropical Meteorology 3(3-0)

Climatology and weather analysis in the tropics: streamlines, time sections. Air-sea interaction, convection, tropical disturbances, hurricanes, the Madden-Julian Oscillation, and tropical/mid-latitude interaction. Pre/Co-requisites: MET 335, 345.

MET 355 Weather Forecasting Practicum 1(1-0)

Presentation of past, current, and forecast weather data to an audience of meteorology majors and faculty. Prerequisite: MET 260.

MET 375 Special Studies in Meteorology 1-6(Spec)

Various special topics in atmospheric science. Repeatable up to 6 credits when content previously studied is not duplicated. Prerequisite: See Course Search and Registration.

MET 450 Mesoscale Meteorology 3(3-0)

Structure, dynamics, and morphology of atmospheric phenomena on the mesoscale including thunderstorms and mesoscale convective systems. Prerequisites: MET 335, 345.

MET 460WI Global Climate Dynamics 3(3-0)

Examines physical laws that govern the climate system; intraseasonal and longer climatic variations (General Circulation, Climate Change, teleconnections) and fundamental data analysis. Writing Intensive. Prerequisites: MET 335; MTH 232. Pre/Co-requisites: CPS 150 or 180; STA 382.

MET 470 Advanced Weather Forecasting 2(1-2)

Best practices for creation of forecasts of a variety of weather phenomena. Includes most appropriate ways of communicating impacts to affected users. Prerequisites: MET 355, 450.

MET 480WI Atmospheric Modeling 3(2-2)

Numerical differencing techniques, stability analysis, structure and operation of commonly utilized weather and climate models, physical parameterizations and their implications. Writing Intensive. Prerequisites: MET 450; CPS 150 or 180.

MET 491 Internship 1-6(Spec)

Internship in the field of atmospheric science. Prerequisites: Three or more courses in MET program (2 of which must be 300 level or greater), permission of instructor.

MET 497 Independent Study 1-6(Spec)

Research in meteorology with topics agreed upon by student and instructor. May be taken only by arrangement prior to registration. Prerequisites: Three or more courses in MET program (2 of which must be 300 level or greater), permission of instructor.

MGT - Management

See the Department of Management for more information.

MGT 210 Effective Supervision: Principles and Practices 3(3-0)

Prepares students to be effective first-line supervisors in a variety of organizational settings by using sound principles and practices applied to basic managerial processes. Identical to HSA 210. Credit may not be earned in more than one of these courses.

MGT 258 Effective Management of Human Resources in Organizations 3(3-0)

Applying the underlying principles of employee behavior to the effective design, use, and management of human resource systems in organizations. This course may be offered in an online or hybrid format. Prerequisites: ACC 250; BUS 100; BIS 101; BLR 235; ECO 203, 204; MTH 217 or MTH 132 or STA 282 or STA 382; overall GPA of 2.50 or higher.

MGT 303 Integrated Supply Chain Management 3(3-0)

Application of concepts and tools in purchasing, production and distribution of goods and services along an integrated supply chain in organizations. Identical to MKT 303. Credit cannot be earned in more than one of these courses. This course may be offered in an online format. Prerequisites: Tier 2 Admission to Professional Business Studies; ACC 255, BIS 255, MGT 258. Co-requisites: FIN 302, MKT 304.

MGT 310 Small Business Management 3(3-0)

The course covers concepts, processes, and techniques for starting and managing a small business. It focuses on management processes that are unique to small businesses. Prerequisites: 56 semester hours completed.

MGT 312 Introduction to Management 3(3-0)

Introduction to the concepts, techniques, and processes of management as they pertain to business and other organizations. This course is approved for offering in a distance learning format. Prerequisite: 56 semester hours completed.

MGT 320 Human Resource Management 3(3-0)

Examines process for providing and maintaining productive human resources in an organization. Includes recruitment, selection, training, performance appraisal, compensation, labor relations, and health and safety. This course is approved for offering in a distance learning format. Prerequisites: MGT 258 or MGT 312, 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 333 Purchasing Management 3(3-0)

Introduction to concepts, models, and techniques in Purchasing Management, with special emphases on vendor management, materials management, and purchasing strategy. This course is approved for offering in a distance learning format. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 335 Introduction to Management Science 3(3-0)

Basic concepts and applications of quantitative methods in management decisions. This course may be offered in an online or hybrid format. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on a signed major.

MGT 340 Production/Operations Management 3(3-0)

An introduction to production and operations management concepts, tools and techniques as applied in service and manufacturing organizations. Prerequisites: 56 semester hours completed. This course is approved for offering in a distance learning format.

MGT 348 Dynamics of Organizational Behavior 3(3-0)

Integrative theory of organizational behavior. Human motivation influenced by leadership, the organization itself, and its social environment. This course is approved for offering in a distance learning format. Prerequisites: MGT 258 or MGT 312, 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 355 Communications: Managerial Applications 3(3-0)

An applications-oriented class exposing students to many of the common communication-related situations, which they will soon face as managers in business and industry. This course may be offered in an online format. Prerequisites: MGT 258 or MGT 312; 348 is recommended; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 357 Women in Management 3(3-0)

Explores women in management focusing on social phenomena shaping historical contributions and inequalities facing women in the workplace today, specifically opportunities/challenges pursuing a management career. This course may be offered in an online or hybrid format. (University Program Group III-B: Studies in Social Structures)

MGT 360 Managing Cultural Differences and Diversity in a Global Economy 3(3-0)

Theories, procedures, and methodology for managing cultural differences and diversity in a global economy. Covers culture, diversity, international human resources and organizational behavior, and ethics. This course may be offered in an online format. Prerequisites: MGT 258 or MGT 312; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

MGT 365 International Business 3(3-0)

Environment and operations of multinational business. Public policy issues and their influence on internal management. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. This course is approved for offering in a distance learning format.

MGT 390 Field Studies 3(3-0)

Activities which may include industrial visitations and work study in conference with supervision of cooperating organization, professor, and student. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 397 Special Topics 3-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcript. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 400 Global Concepts for Sustainable Development 3(Spec)

Students will learn the basic concepts used in sustainable development and apply them through the use of cases and simulations. Prerequisites: ECO 301, ENV 101, MGT 365.

MGT 442 Computer Applications for Production Operations Management 3(3-0)

Simulation modeling and application of existing computer software for production and operations decisions. This course may be offered in an online format. Prerequisites: MGT 303/MKT 303 or MGT 340; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 445 Compensation Administration 3(3-0)

Theory, procedures, and methodology for developing and administering compensation systems. Covers job evaluation methods, wage and salary structure development, incentive pay systems, and benefits administration. This course may be offered in an online format. Prerequisites: MGT 258 or MGT 312, MGT 320; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 446 Industrial Relations 3(3-0)

Relationships between organized labor and management analyzed in the light of contemporary conditions. This course may be offered in an online format. Recommended: MGT 258 or MGT 312 prior to enrollment. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 447 Personnel Selection and Evaluation 3(3-0)

Study of personnel selection policies and practices and employee evaluation approaches and techniques, including legal issues and concerns, as they are applied in complex organizations. Prerequisites: MGT 320; STA 282; 56 hours completed; either admission to Professional Business Studies or listed on a signed major or minor.

MGT 457 Seminar in International Business 3(3-0)

A case study course for analysis and integration of international business functions in order to develop a cross-cultural perspective in dealing with global challenges. Prerequisites: completion of MGT 365; 86 semester hours completed and admission to the Professional Business Studies or listed on signed major or minor. Recommended: ECO 372, FIN 573, and MKT 560.

MGT 484 Human Resource Training and Development 3(3-0)

This course examines theories, concepts, and process of human resource training and development in modern organizations to meet current and future needs. This course may be offered in an online format. Prerequisites: MGT 258 or MGT 312; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Recommended: MGT 320.

MGT 487 Project Course for Sustainable Development 3(Spec)

The students will apply the basic tools of sustainable development within a real-world setting through completion of an applied project. May be offered in an online format. Prerequisite: MGT 400.

MGT 490 Internship in Management 1-6(Spec)

Full or part time on the job learning experience for one or more semesters in industry, government or business organizations. Prerequisites: permission of instructor and of department chairperson; 56 semester hours completed; admission to Professional Business Studies or listed on signed major in the Department of Management.

MGT 491 Independent Studies 1-6(Spec)

Directed reading or research on an approved topic. Open to seniors in good academic standing. Prerequisites: prior permission of instructor and department chairperson; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 492 Practicum in Small Business 3(Spec)

Provides the student an opportunity to analyze the accounting, finance, marketing, management, and production systems of an ongoing small business. Identical to ACC/FIN/MKT/492. Credit may not be earned in more than one of these courses. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 495 Global Management Strategy 3(3-0)

An integrative, cross-functional capstone course focusing on the process of strategic planning and management from the general management perspective, and on the domestic, multinational, and global dimensions. Primarily a case course. Prerequisites: 86 semester hours completed; completion of 300-level common body knowledge requirements in business; admission to Professional Business Studies. Graduating seniors only. This course is approved for offering in a distance learning format.

MGT 499 Integrated Capstone-Strategic Management 3(3-0)

An integrative capstone course applying and analyzing financial, marketing, supply chain and other business functions within a global strategic management perspective. This course may be offered in an online format. Prerequisites: 86 semester hours completed; BUS 300, 301; MGT/MKT 303; FIN 302; MKT 304; Tier 2 Admission to Professional Business Studies. Preference given to graduating seniors.

MGT 500 Comparative Labor Relations Systems 3(3-0)

Comparative analysis of the history, structure, institutional arrangements, and philosophy of the labor relations systems of several countries in advanced stages of industrialization. Prerequisites: MGT 320; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 516 Management and Women 3(3-0)

Enables both male and female students to understand the opportunities, challenges, and problems confronting women in their pursuit of careers in management, and to manage more effectively. Prerequisites: MGT 312; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 520 Management in Health Care Facilities 3(3-0)

Management problems and practices in health care facilities. Prerequisites: MGT 312; MSA 650; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MGT 533 Purchasing Strategy 3(3-0)

Provides a managerial perspective, and understanding of the impact that purchasing and supply chain management strategies have on the success of organizations. This course may be offered in an online format. Prerequisites: MGT 333 and admission to Professional Business Studies or listed on signed major or minor, or graduate standing.

MGT 542 Inventory and Materials Management 3(3-0)

The study of the concepts, models and systems for material management and production planning. Prerequisites: MGT 303/MKT 303 or MGT 340; STA 282; 86 semester hours completed; admission to Professional Business Studies or listed on signed major or minor or graduate standing.

MGT 543 Management and Control of Quality 3(3-0)

In-depth study of management and statistical techniques employed in the analysis, design and implementation of quality assurance and control systems in manufacturing and service organizations. Prerequisites: MGT 303/MKT 303 or MGT 340; STA 282 or STA 382; 86 semester hours completed; admission to Professional Business Studies or listed on major or minor or graduate standing.

MGT 545 Operations Strategy 3(3-0)

The treatment of strategic planning and competitive issues in operations management in a domestic and global environment. Prerequisites: MGT 303/MKT 303 or MGT 340; 86 semester hours completed; admission to Professional Business Studies or listed on signed major or minor or graduate standing.

MGT 597 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcripts. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MGT 600 Principles of Management Science/Management Information Systems 3(3-0)**MGT 643 Human Resource Management 3(3-0)****MGT 645 Personnel Compensation Practice and Process 3(3-0)****MGT 646 Labor Relations Issues 3(3-0)****MGT 647 Employee Selection and Evaluation 3(3-0)****MGT 649 Seminar in Organizational Development 3(3-0)****MGT 657 International Management 2(2-0)****MGT 667 International Business 3(3-0)****MGT 791 Independent Studies 1-6(Spec)****MGT 797 Special Topics 3-6(Spec)****MGT 798 Thesis 1-6(Spec)****MHA - Master of Health Administration**

Contact the School of Health Sciences for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MHA 601 Statistics for Health Professionals 3(3-0)**MHA 602 Managerial Epidemiology 3(3-0)****MHA 603 Health Informatics and Quality Improvement 3(3-0)****MHA 604 Quantitative Decision-Making for Health Administration 3(3-0)****MHA 605 International Health Systems, Policy and Administration 3(3-0)****MHA 697 Health Administration Field Experience 6(Spec)****MHA 698 Health Administration Graduate Thesis 1-6(Spec)****MHA 699 Health Administration Internship 6(Spec)****MKT - Marketing**

See the Department of Marketing and Hospitality Services Administration for more information.

MKT 151 Marketing and Society 3(3-0)

An overview of the environment, concepts and current trends that shape the world of marketing. Attention is paid to the impact of marketing on society. This course will not be accepted for credit for departmental or College of Business Administration major or minors.

MKT 220 Introduction to Retail Merchandising 3(3-0)

An overview of merchandising systems and procedures as they relate to organizational structure, product planning, and inventory control.

MKT 255 Introduction to Logistics and Physical Distribution 3(3-0)

Functions, tactics, and current trends that shape logistics management. Introduces fundamentals of logistics, including inventory, transportation, and distribution. This course may be offered in online or hybrid format. Prerequisite: BUS 100; Co-requisite: BIS 255 or 221.

MKT 297 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topics will be listed on students' transcripts.

MKT 300 Introduction to Marketing 3(3-0)

A basic introduction to the marketing environment, the marketing mix, marketing management and the place of marketing in world society. Credit may not be earned in both MKT 304 and MKT 300; cannot be counted on any BSBA major including Marketing, Logistics Management, or Hospitality Services Administration. This course may be offered online. May be offered as Writing Intensive. Prerequisite: 56 semester hours completed.

MKT 303 Integrated Supply Chain Management 3(3-0)

Application of concepts and tools in purchasing, production and distribution of goods and services along an integrated supply chain in organizations. Identical to MGT 303. Credit cannot be earned in more than one of these courses. This course may be offered in an online format. Prerequisites: Tier 2 Admission to Professional Business Studies; ACC 255, BIS 255, MGT 258. Co-requisites: MKT 304, FIN 302.

MKT 304 Integrated Marketing Management 3(3-0)

An introduction to marketing and how it provides customer and market information to the organization so strategic and tactical decisions are customer-focused and market-driven. This course may be taught in an online format. Prerequisites: Tier 2 Admission to Professional Business Studies; ACC 255, BIS 255, MGT 258. Co-requisites: MGT/MKT 303, FIN 302.

MKT 305 Buyer Behavior 3(3-0)

Characteristics of consumers affecting the decision process in buying and the marketing implications. Prerequisites: MKT 300 or MKT 304, 56 semester hours completed, and admission to Professional Business Studies or listed on signed major or minor.

MKT 310 Marketing Communications 3(3-0)

An overview of advertising, personal selling and sales promotion, and other techniques that an organization would use to communicate with its target markets. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. This course is approved for offering in a distance learning format.

MKT 315 Advertising Media 3(3-0)

Evaluation of media in relationship to marketing objectives. Selection of media space/time and decision-making in development of media schedules. Prerequisites: 56 semester hours completed; MKT 310 or JRN 360 or approval of instructor; admission to Professional Business Studies or listed on signed major or minor.

MKT 320 Retail Management 3(3-0)

Functions of a retail establishment are examined. Significant developments taking place in the major environments of retailers--social, economic, technological, and legal. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor; or with approval from the Office of Undergraduate Business Studies.

MKT 325 Merchandising Management 3(3-0)

Current problems in merchandising which include technological aspects, inventory valuation and reporting procedures, stock planning, and product mix considerations. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor; Recommended: Pre/Co-Requisite: MKT 320.

MKT 330 Marketing Channels 3(3-0)

Institutions, physical flows, behavioral and economic relationships comprising channel systems in the marketing environment. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 340 Personal Selling 3(3-0)

Analysis of the field of personal selling as a vital element of the promotional efforts of the firm. Prerequisites: MKT 300 or 304; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor; or with approval from the Office of Undergraduate Business Studies. For students with a signed minor in Electronic Media Sales, BCA 265QR and 56 semester hours completed.

MKT 341 Services Marketing 3(3-0)

Planning and implementation of marketing strategy and application of the marketing mix to services including hospitality, banking and health services. Identical to HSA 341. Credit may not be earned in more than one of these courses. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 350 Marketing Analysis 3(3-0)

Analysis of marketing data: marketing research, statistics, marketing cost/revenue analysis and sales and market forecasting. Prerequisites: MKT 300 or MKT 304; STA 282; ACC 202 or ACC 255; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 360 Electronic Commerce and Marketing Strategy 3(3-0)

Basic concepts and tools for understanding and exploring market opportunities and marketing strategies associated with global electronic commerce. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 390 Field Studies 3(3-0)

Activities which may include industrial visitations and work study in conference with supervision of cooperating organization, professor, and student. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 397 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcript. Prerequisites: 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 410 Advertising Management 3(3-0)

Provides an understanding and evaluation of the advertising function within the modern business environment. Management decision-making is stressed in advertising as a vital communication tool. Prerequisites: MKT 300 or MKT 304, MKT 310 or JRN 360; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 420 Advanced Selling and Negotiation 3(3-0)

Methods for building the consultative selling skills necessary to form relationships with customers, negotiate successfully and develop and deliver effective sales presentations. Prerequisites: MKT 300 or 304; MKT 340; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

MKT 422 Cooperative/Internship in Retailing 3-6(Spec)

Full time work experience under the supervision of the department and participating employer. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Recommended: MKT 320.

MKT 425 Retail Strategy 3(3-0)

Development of strategic methods for addressing retail problems. Problem solving orientation within the retail organizational setting. Prerequisites: MKT 320; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Recommended: MKT 422.

MKT 431 Logistics Operations 3(3-0)

Operational issues, management techniques and technology applied to distribution operations. Focus is on the integration of logistics operations of all firms within the supply chain. Prerequisites: MKT 330; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 432 Logistics Strategy 3(3-0)

Strategic planning of a firm's logistics system in a global marketplace, including customer service, inventory, warehousing and transportation strategies. Prerequisites: MKT 300 or MKT 304, MKT 330; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 435 Transportation 3(3-0)

The role of transportation systems in an economy, transport system pricing, and the management of transportation operations. Prerequisites: MKT 300 or MKT 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 440 Sales Management 3(3-0)

The organization, planning, operation and control of a field sales force from the perspective of the sales manager. Prerequisites: MKT 300 or 304; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. For students with a signed minor in Electronic Media Sales, BCA 265QR and 56 semester hours completed.

MKT 450 Marketing Research 3(3-0)

Methodology used in gathering, recording, and analyzing marketing data to aid executives in making marketing decisions. Prerequisites: MKT 300 or MKT 304; STA 282; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor. Recommended: BUS 300.

MKT 460 Organizational Selling 3(3-0)

Methodologies that enable one to work with the leadership of customer organizations in order to develop solutions that enhance and sustain their competitive advantage. Prerequisites: MKT 300 or 304; MKT 340; 56 semester hours completed; admission to Professional Business Studies or listed on a signed major or minor.

MKT 465 Supply Chain Management 3(3-0)

Integration of competencies in logistics related areas. Logistical policy establishment and decision-making for solving complex logistical problems that focus on global and intercompany logistics systems. This course may be offered in an online or hybrid format. Prerequisites: MKT 431, 432; 86 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 490 Internship in Marketing/Logistics 3-6(Spec)

A full time work experience occurring within a marketing or logistics organization. Detailed written report and assigned readings required. Prerequisites: Permission of instructor and department chairperson; 56 semester hours completed; Marketing or logistics major in addition to MKT 300 or MKT 304; admission to Professional Business Studies or listed on signed major or minor. Recommended: Completion of 6 credit hours in marketing.

MKT 491 Independent Studies 1-6(Spec)

Directed reading or research on an approved topic. Open to seniors in good academic standing. Prerequisites: prior permission of instructor and department chairperson; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 492 Practicum in Small Business 3(Spec)

Provides the student an opportunity to analyze the accounting, finance, marketing, management, and production systems of an ongoing small business. Identical to ACC/FIN/MGT/492. Credit may not be earned in more than one of these courses. Prerequisites: permission of instructor; 56 semester hours completed; admission to Professional Business Studies or listed on signed major or minor.

MKT 499 Strategic Marketing Problems 3(3-0)

A functionally integrative capstone course which focuses upon developing a decision-making framework. Students formulate and implement comprehensive marketing strategies within a global context. Prerequisites: 86 semester hours completed; MKT 255, 305, 310, 450; admission to Professional Business Studies or listed on signed major or minor.

MKT 555 Market and Sales Forecasting 3(3-0)

Develops familiarity with methods most commonly used in market and sales forecasting. Both qualitative and quantitative methods are included with emphasis on the latter. This course is approved for offering in a distance learning format. Prerequisites: one course in MKT; one course in statistics or MKT 450; admission to Professional Business Studies; 86 semester hours completed.

MKT 560 International Marketing 3(3-0)

Policies and practices employed in international business. Considers problems of international payments, trade and investment with special emphasis on integrating managerial dimensions with related economic principles. Prerequisites: MKT 300 or MKT 304; admission to Professional Business Studies; senior standing; 86 semester hours completed. This course is approved for offering in a distance learning format.

MKT 597 Special Topics 1-6(Spec)

Selected problems of interest to students which are not normally included in existing courses. Specific topic will be listed on the student's transcripts. Prerequisites: MKT 300 or MKT 304; admission to Professional Business Studies; senior standing; 86 semester hours completed.

MKT 599 Humanitarian Logistics Project 3(Spec)

Provide students the opportunity to work on a large-scale service-learning humanitarian logistics project supervised by a faculty member. Prerequisites: Completion of 86 credit hours. Recommended: MKT 300 or 304.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- MKT 631 Lean Logistics Operations 3(3-0)**
- MKT 632 Integrated Logistics Strategy 3(3-0)**
- MKT 633 Risk-based Logistics Networks 3(3-0)**
- MKT 650 Marketing Research: Managerial Applications 2(2-0)**
- MKT 663 Product Management 2(2-0)**
- MKT 664 Promotional Strategy 2(2-0)**
- MKT 698 The Logistics Project 4(4-0)**
- MKT 791 Independent Studies 1-6(Spec)**
- MKT 797 Special Topics 3-6(Spec)**
- MKT 798 Thesis 1-6(Spec)**

MLE - Middle Level Education

See the Department of Teacher Education and Professional Development for more information.

- MLE 361 Pre-Student Teaching Practicum 2(1-4)**
Pre-service Teachers will gain practical experience through observing, interacting, collaborating, and teaching in a pre K-12 classroom setting. Identical to EDU 361. Credit may not be earned in more than one of these courses. Prerequisites: Admission to Teacher Education; EDU 280 or HDF 100 or PSY 220 [General Education Students take EDU 280 or HDF 100; Special Education Majors must take PSY 220]; EDU 290, 393. Co-requisites: EDU 320, 330, 343, 345.
- MLE 362 Mathematics and Reading Practicum 1(0-2)**
Pre-service teachers will gain practical experience through observation, interaction, collaboration, preparation, and delivery of reading and mathematics instruction in a pre K-8 classroom setting. Identical to EDU 362. Credit may not be earned in more than one of these courses. CR/NC only. Prerequisites: Admission to Teacher Education Program; EDU 280 or HDF 100 (students with a major in "teachers of students with emotional impairment" or a major in "teachers of students with cognitive impairment" are required to have SPE 126 and PSY 220); EDU 290, 330, 393. Co-requisites: EDU 320, 431.
- MLE 363 Science and Social Studies Practicum 1(0-2)**
Pre-service teachers will gain practical experience through observation, interaction, collaboration, preparation, and delivery of science and social studies instruction in a pre K-8 classroom setting. Identical to EDU 363. Credit may not be earned in more than one of these courses. CR/NC only. Prerequisites: Admission to Teacher Education Program; EDU 280 or HDF 100 (students with a major in "teachers of students with emotional impairment" or a major in "teachers of students with cognitive impairment" are required to have SPE 126 and PSY 220); EDU 290, 320, 330, 393, 431; EDU/MLE 362. Co-requisites: EDU 343, 345, 495.
- MLE 381 Needs and Characteristics of Young Adolescents 3(3-0)**
An orientation to the unique developmental needs and characteristics of young adolescents. Prerequisites: Have a signed Middle Level Education Minor; junior status. Recommended: Successful completion (C+ or higher) of EDU 280 or HDF 100.
- MLE 382 Middle Level School Concept, Structures and Programs 3(3-0)**
An orientation to middle level education which focuses on the middle level school concept, structures, and programs. Prerequisite: MLE 381.
- MLE 383 Student Diversity in the Middle Level Classroom 3(3-0)**
An orientation to the multiple aspects of human diversity in the middle level classroom. Prerequisite: MLE 382.
- MLE 384 Meeting the Diverse Needs of Learners in the Middle Level Classroom 3(3-0)**
Instructional strategies and assessment/evaluation methods and materials for middle level classroom teachers appropriate for the unique developmental needs and characteristics of young adolescents. Prerequisite: MLE 383. Co-requisite: MLE 385.
- MLE 385 Curriculum in the Middle Level School 3(3-0)**
Curriculum for middle level classroom teachers to meet the unique developmental needs and characteristics of young adolescents. Prerequisite: MLE 383. Co-requisite: MLE 384.
- MLE 570 Issues in Middle Level Education 1-3(Spec)**
A focus on current issues in middle level education. Students will help select specific topics for in-depth study. Prerequisites: MLE 383 or 643.
For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.
- MLE 613 Current Educational Issues 3(3-0)**
- MLE 641 Young Adolescent Needs and Characteristics 3(3-0)**
- MLE 642 Concepts, Structures, and Programs for Middle Level Schools 3(3-0)**
- MLE 643 Student Diversity Issues in the Middle Level Classroom 3(3-0)**
- MLE 644 Issues in Meeting the Diverse Needs of Middle Level Learners 3(3-0)**
- MLE 645 Middle Level School Curriculum 3(3-0)**
- MLE 646 Middle Level Field Experience 3(3-0)**
- MLE 687 Independent Study in Middle Level Education 1-6(Spec)**
- MLE 780 Master of Arts Capstone Experience 3(3-0)**

MMD - Multimedia Design

For more information, contact the College of Communication and Fine Arts, or see the Multimedia Design Minor in the Index.

- MMD 495 Multimedia Design Capstone 1(1-0)**
The course focuses on the documentation and presentation of skills developed during the Multimedia Design Minor. Must be taken in the last two semesters prior to graduation. This course may be offered in an online format. Prerequisites: ART 231; BCA 223; CPS 282; JRN 220; All with a C or better; Senior status.

MPH - Master of Public Health

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- MPH 640 Biostatistics in Public Health 4(3-1)**
- MPH 642 Health Education Theories 3(3-0)**
- MPH 644 Rural Health 3(3-0)**
- MPH 646 Epidemiology for Public Health 3(3-0)**
- MPH 648 Health Policy and Management 3(3-0)**
- MPH 650 Biological Basis of Public Health 3(3-0)**
- MPH 652 Public Health Environmental Science 3(3-0)**
- MPH 654 Public Health Leadership 3(3-0)**
- MPH 655 Program Planning and Evaluation 3(3-0)**
- MPH 658 Health Planning and Assessment 3(3-0)**
- MPH 660 Program Evaluation 3(3-0)**
- MPH 664 Public Health Communication and Informatics 3(3-0)**
- MPH 666 Substance Abuse Services 3(3-0)**
- MPH 667 Maternal and Child Health 3(3-0)**
- MPH 668 Ethics in Public Health 3(3-0)**
- MPH 670 Methods in Public Health Research 3(3-0)**
- MPH 790 Applied Practice Experience 2(Spec)**
- MPH 796 Integrative Learning Experience 1-6(Spec)**
- MPH 798 Thesis 1-6(Spec)**

MSA - Master of Science in Administration

For more information on the MSA degree, consult the current College of Graduate Studies Bulletin.

- MSA 501 Managing Change with Emotional Intelligence 3(3-0)**
An examination of organizational leadership utilizing emotional intelligence as a foundation for managing change. This course is approved for offering in a distance learning format. Prerequisites: LDR 200 and 86 semester hours completed; or graduate standing.
- MSA 502 Workforce Improvement Strategies in Corporate/Non-profit Organizations 3(3-0)**
Examines the process of preparing objectives, defining content, and selecting learning activities used by administrators to train, develop, and evaluate employees throughout the career continuum. This course may be offered in an online or hybrid format. Prerequisites: 86 semester hours completed or admission into a graduate program.
- MSA 503 Gender and Generational Supervision 3(3-0)**
The course analyzes how gender and generational differences manifest themselves in the workplace, and how to effectively work within and manage those differences. This course may be offered in an online or hybrid format. Prerequisites: 86 semester hours completed or admission into a graduate program.
- MSA 504 Strategies and Proposals in Government Acquisitions 3(3-0)**
Provides a framework for formulating strategies used in federal acquisitions. Examines the request for proposal (RFP) process, and the preparation of proposals, reviews, and follow-up. This course may be offered in an online or hybrid format. Prerequisite: 86 semester hours completed or graduate standing.
- MSA 506 Evaluation, Coaching and Mentoring 3(3-0)**
Post-hire evaluation, coaching, and mentoring: Course examines the alignment of individual and group performance with an organization's strategic vision by developing effective performance management processes. This course may be offered in an online format.
- MSA 510 Global Leadership Perspectives 3(3-0)**
An examination of established and emerging perspectives on global leadership. The student will focus on geo-leadership models which impact administration across borders and cultures. This course may be offered in an online or hybrid format. Prerequisites: LDR 200 and 86 semester hours completed; or Graduate Standing.
- MSA 540 Legal Considerations of Contract Administration 3(3-0)**
Examines legal and regulatory aspects associated with federal acquisition and contracts including: standards of conduct, governmental liability, dispute processes, and administrative and judicial resolution methods. This course may be offered in an online or hybrid format. Prerequisite: 86 hours completed or graduate standing.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- MSA 600 Foundations of Research Methods in Administration 3(3-0)**
MSA 601 Organizational Dynamics and Human Behavior 3(3-0)
MSA 602 Financial Analysis, Planning and Control 3(3-0)
MSA 603 Strategic Planning for the Administrator 3(3-0)
MSA 604 Administration, Globalization and Multiculturalism 3(3-0)
MSA 607 Program Management in Complex Organizations 3(3-0)
MSA 608 Succession Planning 3(3-0)
MSA 609 Ethical and Legal Dimensions of Private Sector Organizations 3(3-0)
MSA 610 Environments in Administration 3(3-0)
MSA 611 Contract Administration 3(3-0)
MSA 612 Grants Fiscal Administration 3(3-0)
MSA 613 Project Administration 3(3-0)
MSA 614 Ethics in Research Administration 3(3-0)
MSA 615 Sponsored Project Administration 3(3-0)
MSA 616 The Practice of Research Administration 3(3-0)
MSA 617 Clinical Research Administration 3(3-0)
MSA 618 International and Comparative Employment Relations 3(3-0)
MSA 619 Continuing Registration for Final Research Project 1(1-0)
MSA 620 Effective Administration and Organizational Behavior 3(3-0)
MSA 622 Research Facilities Administration and Cost 3(3-0)
MSA 634 Managerial Accounting Concepts 3(3-0)
MSA 635 Financial Management 3(3-0)
MSA 640 Quantitative Applications in Decision Making 3(3-0)
MSA 641 Historical and Cultural Perspectives on Philanthropy 3(3-0)
MSA 642 Principles, Theory and Ethical Practices in Fundraising and Grant Making 3(3-0)
MSA 643 Administration of Annual, Capital Campaigns and Major Gifts 3(3-0)
MSA 644 Philanthropy: The Role of Foundations, Non Profit Organizations in Society 3(3-0)
MSA 645 Strategic Philanthropy: Corporations, Foundations, Individuals and Bequests 3(3-0)
MSA 646 Foundations of Philanthropic Organizations 3(3-0)
MSA 647 People and Project Administration 3(3-0)
MSA 650 Organization Theory: Strategy and Structure 3(3-0)
MSA 660 Marketing Administration 3(3-0)
MSA 661 Diversity and Multiculturalism in the Workplace 3(3-0)
MSA 675 Strategic Policy Administration 3(3-0)
MSA 677 Disruption, Innovation, Transformation and Change 3(3-0)
MSA 681 Administrative Practicum 1-3(Spec)
MSA 685 Integrative Analysis of Administration 3(Spec)
MSA 690 Internship 1-3(Spec)
MSA 691 Independent Study 1-2(Spec)
MSA 696 Special Topics 3(3-0)
MSA 698 Directed Administrative Portfolio 3(3-0)
MSA 699 Applied Research Project in Administration 3(Spec)

MSL - Military Science and Leadership

See the Department of Military Science for more information. The focus of all Military Science Courses is leadership development. All courses include student work using the Army's Leadership Framework. The curriculum is fully integrated and designed to be completed in progressive order. All on-campus courses include a student-led Leadership Lab, which includes hands-on training in: rappelling, rock climbing, high-ropes course, marksmanship, water survival, orienteering, map reading, first aid, weapons, drill, squad tactics, patrolling, and team building exercises. The complete description of the Department of Military Science is found in the College of Humanities and Social & Behavioral Sciences.

- MSL 101 Introduction to the Army and Critical Thinking 2(Spec)**
 Introduction to effective leadership, communication, life skills, cultural understanding, goal setting, time management, and comprehensive fitness that relate to the Army profession.
- MSL 102 Introduction to the Profession of Arms 2(Spec)**
 An introduction to the professional challenges and competencies that are needed for effective execution of the Profession of Arms and Army communication.
- MSL 201 Individual Leadership Studies 3(Spec)**
 Studies in personal well-being, self-development, problem solving, and decision-making; group dynamics, communication and values and ethics; introduces team-building, leading and assessing group actions. Prerequisites: MSL 102.

MSL 202 Leadership and Teamwork 3(Spec)

Continuing studies in self-development and team-building. Introduces group problem solving, planning group actions, risk management, diversity, persuasion, and the profession of arms. Recommended: MSL 201.

MSL 301 Adaptive Team Leadership 4(Spec)

Planning, leading, assessing small unit actions. Studies in problem-solving, training management, Principles of War, tactics, warrior ethos. History and future of the Army. Recommended: MSL 101, 102, 201, 202.

MSL 302 Leadership in Changing Environments 4(Spec)

Planning, leading, and assessing small unit actions. Studies in ethical decision-making, military briefings, writing, power, personality, followership, diversity, group cohesion and dysfunction. Prerequisite: MSL 301.

MSL 397 Special Topics in Military Science and Leadership 1-6(Spec)

Studies in military science or leadership. Topics may include military leadership, military logistics, military administration, military operations or military history. Prerequisite: permission of the MSL Chairperson.

MSL 401 Mission Command and Army Profession 4(Spec)

Explore the dynamics of leading in complex situations of current Military operations. Examine: customs; courtesies; military law; principles of war. Prerequisites: MSL 301, 302.

MSL 402 Mission Command II and the Company Grade Officer 4(Spec)

Students will learn the Army Profession and the ability to demonstrate the Seven Army Values, Soldier's Creed, and the Warrior Ethos. Prerequisites: MSL 301, 302, 401.

MST - Museum Studies

See the Museum Studies Minor for more information.

MST 310 Introduction to Museums 3(3-0)

An introduction to the role of museums in society, as well as to museum management, operations and careers. Prerequisite: 36 hours of course credit.

MST 315 Museums, Stakeholders and Communities 3(3-0)

Conceptual and practical knowledge for dealing effectively with diverse museum audiences, collaborators and stakeholders on mission-fulfilling activities that enhance the organization's value to society. Prerequisite: MST 310.

MST 320 Collections Stewardship and Curatorial Work 3(3-0)

This course covers basic museum collections management and care policies and procedures, as well as mission-based collections planning and curatorial research techniques. Prerequisite: MST 310.

MST 325 Public Programming in Museums 3(3-0)

This course focuses on developing mission-driven, audience-focused public and educational programs; planning, implementing and evaluating programs; and enhancing interpretive methods and skills. Prerequisite: MST 310.

MST 546 Introduction to Museum Work 3(3-0)

Exploration of the duties and responsibilities encountered in museum work. Collection care and development, exhibit preparation, and educational program development. Prerequisite: 56 hours of course credit.

MST 547 Museum Science Laboratory 3(0-6)

Experimentation with materials and techniques utilized within the museum profession. Primary emphasis is on exhibit preparation, model-building, and replica-making for educational usage. Prerequisites: MST 546; 56 semester hours of credit.

MST 550 Museum Collections Management and Care 3(3-0)

Curatorial techniques in museums including acquisition, cataloging, legal requirements, preservation, computerization and proper handling. Prerequisites: MST 546; 56 hours of course credit.

MST 551 Museum Education and Interpretation Techniques 3(3-0)

Interpretive methods used by museums including development and implementation of programs and enhancement of interpretive skills. Prerequisites: MST 546; 56 hours of course credit.

MST 575 Independent Study in Museum Studies 3(3-0)

Study of specific selected topics in museum theory or practice at a level suitable for advanced undergraduates or graduate students. Prerequisites: MST 310.

MST 598 Museum Internship 6(Spec)

Supervised work experience applying classroom concepts and skills in the operation and programming of a museum, historic site or other informal learning center. Prerequisites: Obtain permission of Director of the Museum Studies Program.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MST 610 International Cultural Laws and Ethics 3(3-0)

MST 620 Museum Management 3(3-0)

MST 740 Seminar in Emergency Preparedness 3(3-0)

MST 750 Seminar in Advanced Exhibit Design and Construction 3(3-0)

MST 775 Seminar in Funding and Fundraising 3(3-0)

MST 798 Creative Endeavors in Museum Studies 3(3-0)

MTH - Mathematics

See the Department of Mathematics for more information.

MTH 051 Review for Elementary Teachers Mathematics Proficiency Test 1-2(Spec)

Review for elementary teachers proficiency tests on base ten numeration, common and decimal fractions, percentage, U.S. customary and metric measures, ratio and proportion, geometry, and algebra. Credit in this course does not count toward the total number of hours required for graduation. It does count in determining whether you are a full-time student. CR/NC only.

MTH 101 Elementary Algebra 3(3-0)

The real number system, variables, algebraic expressions, exponents, Cartesian coordinate system, linear equations, percent, polynomial operations, reading graphs. Word problems emphasized. This course may only be used as a General Elective on the BS degree. Cannot be used to fulfill the Area 2 Natural Sciences requirement. CR/NC only. Prerequisite: Placement.

MTH 103QR Quantitative Reasoning for Informed Citizens 3(3-0)

Quantitative reasoning skills useful in an individual's private, civic, and professional life. Topics may include: financial management, insurance, personal health, and environmental and social concerns. Quantitative Reasoning.

MTH 105 Intermediate Algebra 3(3-0)

Rational and radical expressions and equations, integer and rational exponents, functions, graphs, systems of equations and inequalities, quadratic equations. Successful completion of this course satisfies the University Mathematics Competency requirement. This course may be offered in an online or hybrid format. Prerequisite: Placement or successful completion of MTH 101.

MTH 107 College Algebra 3(3-0)

Complex numbers, introduction to functions, zeros, graphing, linear functions, quadratic functions, intersections of graphs, interpreting graphs, inequalities, polynomial and rational functions, algebra of functions. Course does not count toward a major, minor in mathematics except for students pursuing a B.S. in Ed., Elementary Education. Recommended: Successful completion of MTH 105.

MTH 109 Plane Trigonometry 3(3-0)

Solutions of triangles, trigonometric equations, and identities. No credit in MTH 109 after credit earned in MTH 130. Course does not count toward a major, minor in mathematics except for students pursuing a B.S. in Ed., Elementary Emphasis. This course may be offered in an online or hybrid format. Recommended: one and one-half years of high school algebra; or successful completion of MTH 107 and one year of high school geometry.

MTH 113 Mathematics: A Modeling Approach 3(3-0)

The role of mathematics in modeling real world phenomena is explored. Such mathematical areas as graph theory, linear programming, probability theory, and difference equations are developed as solution techniques for concrete problems from many disciplines. Recommended: Two years of high school mathematics or equivalent. (University Program Group II-B: Quantitative and Mathematical Sciences)

MTH 130 Pre-Calculus Mathematics 4(4-0)

Sets, mathematical induction, functions, relations, theory of equations, analytic geometry. This course is approved for offering in a distance learning format. Recommended: MTH 107, 109.

MTH 132 Calculus I 4(4-0)

Limits, continuity, interpretations of the derivative, differentiation of elementary functions, applications of derivatives, antiderivatives, Riemann sums, definite integrals, fundamental theorem of calculus. This course may be offered in an online or hybrid format. Recommended: MTH 107, 109; or MTH 130. (University Program Group II-B: Quantitative and Mathematical Sciences)

MTH 133 Calculus II 4(4-0)

Techniques of integration, applications of definite integrals, improper integrals, elementary differential equations, infinite series, Taylor series, and polar coordinates. Prerequisite: MTH 132.

MTH 151 Mathematics for Elementary Teachers I 3(3-0)

Mathematical background for elementary teachers. Sets, historical and modern numeration systems, operations with natural numbers, rational numbers, elementary number theory. Admission limited to students pursuing a B.S. in Ed., Elementary emphasis. Prerequisite: C or better in one of: MTH 105, 107, 109, 130, 132. Pre/Co-requisite: EDU 107.

MTH 152 Mathematics for Elementary Teachers II 3(3-0)

Continuation of MTH 151. Decimals, percent, ratio/proportion, geometry (concepts and measurement), probability, statistics. Prerequisites: MTH 151 with a grade of C or better; one of: MTH 105, 107, 109, 130, 132.

MTH 175 Discrete Mathematics 3(3-0)

Topics in discrete mathematics including sequences, graphs, mathematical induction, recursion, number theory, combinatorial counting, difference equations, algorithms, and Boolean Algebra. No credit in MTH 175 after credit in MTH 375 or MTH 332. Prerequisite: MTH 130 or 132 or 133.

MTH 217 Business Calculus 4(4-0)

Differentiation and integration of algebraic, exponential, and logarithmic functions, applications of differentiation and integration, partial derivatives. Does not count toward a major or minor in mathematics. Recommended: MTH 107.

MTH 223 Linear Algebra and Matrix Theory 3(3-0)

Systems of linear equations, matrices, determinants, vectors, vector spaces, eigenvalues, linear transformations, applications and numerical methods. Prerequisite: MTH 132.

MTH 232 Linear Algebra and Differential Equations 3(3-0)

First order differential equations, systems of linear differential equations, matrices, vector spaces, linear transformations and eigenvalues. May not be counted toward major in Mathematics. Credit may not be earned in both MTH 223 and MTH 232, or in both MTH 334 and MTH 232. Prerequisite: MTH 133.

MTH 233 Calculus III 4(4-0)

Vectors and surfaces in R^3 , vector-valued functions, functions of several variables, partial differentiation and some applications, multiple integrals, vector calculus. Prerequisites: MTH 133. Pre/Co-Requisites: MTH 223 or 232.

MTH 254 Probability and Statistics for K-8 Mathematics Teachers 3(3-0)

Examines applications of statistics, experimental probability, and theoretical probability suitable for teachers. Prerequisites: MTH 152 with a B or better; signed major or minor in Elementary Mathematics.

MTH 256 Algebraic Modeling and Measurement for K-8 Math Teachers 3(3-0)

This course examines the concepts of algebraic thinking and measurement, focusing specifically on applications for teachers. Prerequisites: MTH 151 with grade of B or better; MTH 152 with grade of B or better; Signed major or minor in Elementary Mathematics.

MTH 261 Algebra for Secondary Teachers 3(3-0)

Abstract algebraic concepts are explored through a technology-enhanced approach connecting secondary mathematics curricula with undergraduate mathematics and pedagogical content. Prerequisites: MTH 223; signed major or minor in secondary mathematics.

MTH 278 Mathematical Models 3(3-0)

Mathematical modeling of real world problems using concepts learned in algebra, calculus and statistics. Prerequisites: MTH 132 or MTH 217. Co-requisite: STA 282 or STA 382.

MTH 296 Special Topics in Mathematics 1-6(Spec)

Subject matter not included in regular course. May be taken for credit more than once, total credit not to exceed 6 hours. Prerequisite: permission of instructor.

MTH 332 Introduction to Mathematical Proof 3(3-0)

Study of several basic concepts in mathematics including logic, set theory, relations and functions, cardinality, number systems, sequences. Pre/Co-requisites: MTH 175, 351; or one of: MTH 223, 232.

MTH 334 Differential Equations 3(3-0)

Definition and solution of first, second, and higher order differential equations. Prerequisites: MTH 133, MTH 223.

MTH 335 Mathematical Biology 3(3-0)

Discrete and continuous models of population growth, stability analysis of dynamical systems, biochemical reaction kinetics, and biological oscillators and switches. Prerequisite: MTH 132. Recommended: MTH 133 or STA 282 or 382.

MTH 341 College Geometry 3(3-0)

An advanced study of Euclidean and Non-Euclidean geometries from an axiomatic and historical standpoint. Prerequisite: MTH 332.

MTH 351 Geometry for K-8 Mathematics Teachers 3(3-0)

This course examines geometry focusing on axiomatic systems with the purpose of developing the ability to create mathematical proofs. Prerequisite: MTH 256.

MTH 361 - Field Experience in Teaching Mathematics 1(Spec)

Preparation for and experience in working with students in secondary (7-12) mathematics classrooms. Prerequisites: MTH 223.

MTH 362 Problem-Based and Technology Enhanced Geometry for Secondary Teachers 3(3-0)

Geometry content is explored through a problem-based and technology-enhanced approach connecting secondary mathematics curricula with undergraduate mathematics and pedagogical content. Prerequisites: MTH 332; C+ or better in MTH 261; signed major or minor in secondary mathematics teaching.

MTH 363 Problem-Based Probability and Statistics for Secondary Teachers 3(3-0)

Probability and Statistics content are explored through a problem-based and technology-enhanced approach connecting secondary mathematics curricula with undergraduate mathematics and pedagogical content. Prerequisites: MTH 332; C+ or better in MTH 261; signed major or minor in secondary mathematics.

MTH 375 Discrete Structures 3(3-0)

Relation between set theoretic operations and computer operations, applications of graph theory, graphical algorithms, discrete algebraic structure. Prerequisites: MTH 133 or MTH 223; MTH 175 or MTH 332.

MTH 397 Independent Study 1-6(Spec)

The in-depth study of a topic in mathematics under the direction of a faculty member. May be taken for credit more than once, total credit not to exceed six hours. Prerequisite: Permission of instructor.

MTH 434 Methods of Applied Mathematics 3(3-0)

Topics in applied mathematics and boundary value problems and orthogonal functions, partial differential equations, and complex variables. Prerequisites: MTH 233, MTH 334.

MTH 436 Elements of Complex Variables 3(3-0)

Complex numbers, analytic functions, Laurent series, Cauchy integral formula. Prerequisites: MTH 233, 332.

MTH 438 Numerical Analysis I 3(3-0)

Computational methods for solving non-linear equations and systems of linear equations. Interpolation, numerical differentiation and integration. Prerequisites: MTH 133, 223.

MTH 439 Numerical Analysis II 3(3-0)

Continuation of MTH 438. Solutions to ordinary differential equations. Study of approximation theory and solutions to nonlinear systems of equations. Prerequisite: MTH 438.

MTH 444 Introduction to Differential Geometry 3(3-0)

Curves and surfaces, Frenet formulas, calculus on Euclidean space, tangent vectors and surface maps, Gauss map, shape operator, curvature, special curves on surfaces. Prerequisites: MTH 233, 332.

MTH 461 Teaching of Secondary School Mathematics 4(4-0)

Materials, teaching techniques for prospective secondary mathematics teacher. Course does not count as one of two 400 or 500 level courses on mathematics major. May not be counted toward a major or minor in mathematics except for students pursuing a B.S. in Ed. degree. Open only to seniors and approved juniors. Prerequisites: MTH 223, MTH 341.

MTH 462 Capstone on Teaching and Learning Mathematics for Secondary Teachers 3(3-0)

This course exposes pre-service secondary mathematics teachers to theory and practice of curriculum, assessment and instruction in schools, introducing current literature and designing instructional units. Prerequisites: MTH 341; C+ or better in MTH 261, 362, 363; signed major or minor in secondary mathematics.

MTH 496 Special Topics in Mathematics 1-6(Spec)

Subject matter not included in regular course. May be taken more than once, total credit not to exceed 6 hours. Prerequisite: See Course Search and Registration.

MTH 499 Capstone Course in Mathematics 3(3-0)

Material in core mathematics courses is unified through study of subject matter excluded from regular mathematics courses, in the areas of classical and applied mathematics. Prerequisites: MTH 133, MTH 332; permission of instructor.

MTH 520 Optimization Theory 3(3-0)

An introduction to the theory, practical applications and algorithms of nonlinear programming. Prerequisites: MTH 233.

MTH 521 Theory of Numbers 3(3-0)

Properties of integers, congruences, greatest common divisors and prime factorization, applications of number theory to computer science and/or cryptography. Prerequisite: MTH 332.

MTH 522 Math of Cryptology 3(3-0)

The mathematics and algorithms of classical and computer-age cryptology. Substitution, transposition, stream and block ciphers; DES, Rijndael and public key cryptology; cryptanalysis of cipher systems. Prerequisites: CPS 340 or MTH 332.

MTH 523 Modern Algebra I 3(3-0)

Groups, rings, integral domains, fields, and fundamental homomorphism theorems. Prerequisite: MTH 332 or graduate status.

MTH 525 Modern Algebra II 3(3-0)

Vector spaces, subspaces, bases and dimensions; linear transformations, their algebra, their representation by matrices, and linear functionals; eigenvalues, triangularizable and diagonalizable transformations; inner product spaces. Prerequisite: MTH 523.

MTH 527 Representation Theory of the Symmetric Group 3(3-0)

Representation theory of finite groups, Specht modules, combinatorics of Young tableaux, and symmetric functions. Prerequisite: MTH 525.

MTH 532 Advanced Calculus I 3(3-0)

Rigorous development of calculus for functions of one variable. Sequences, limits, continuity, differentiation, integration, exponential and logarithmic functions, arc length, series. Credits will not count towards M.A. or Ph.D. degree requirements in mathematics. Prerequisites: MTH 233 and MTH 332, or graduate status.

MTH 533 Advanced Calculus II 3(3-0)

Continuation of MTH 532. Rigorous development of calculus for functions of several variables. Limits, continuity, differentiation, and integration. Prerequisite: MTH 532.

MTH 534 Applied Mathematics and Differential Equations 3(3-0)

Initial-boundary value (linear, nonlinear) problems, orthogonal functions, differential operators, numerical techniques, introduction to partial differential equations, applications to biology, chemistry, engineering, medicine, and physics. Prerequisites: MTH 233, 334.

MTH 545 Introduction to Point-Set Topology 3(3-0)

Development of elementary point-set topology. Sets, functions, metric spaces, topological spaces, quotient surfaces, compactness, and connectedness. Prerequisite: MTH 332 or graduate status.

MTH 551 Mathematical Structures for K-8 Mathematics Teachers 3(3-0)

Problem-solving, set theory, logic, number theory, algebra, consumer mathematics and mathematical systems. Credit will not apply toward a master's degree in mathematics. Prerequisites: MTH 254 and 351.

MTH 553 History of Elementary Mathematics for K-8 Teachers 3(3-0)

History of mathematical developments of western and non-western cultures for use in grades K-8. Credit will not apply toward a master's degree in mathematics. Prerequisites: MTH 254, 351.

MTH 556 Microcomputers for Elementary Mathematics Teachers 3(3-0)

Develops the use of microcomputers in elementary education with particular emphasis on mathematical applications. Computer literacy and BASIC programming are included. Open only to those students pursuing a B.S. in Elementary Emphasis. Prerequisites: MTH 107, MTH 251.

MTH 558 Mathematics in Popular Culture 3(3-0)

This course explores how popular culture (such as television, comics, movies, music and books) portrays mathematicians and mathematics as a discipline. This course is intended for elementary education mathematics majors and minors or in-service teachers. Prerequisite: MTH 256.

MTH 565 Using Graphics Calculators in Mathematics Education 1(1-0)

Course is designed for secondary mathematics education majors and minors. Emphasis will be on the classroom use of graphics calculators to teach mathematics. Prerequisites: MTH 132; with MTH 223 as a co-requisite.

MTH 566 Microcomputers for Secondary Mathematics Teachers 3(3-0)

Examines microcomputer use in secondary education with particular emphasis on mathematical applications. Open only to those students pursuing a B.S. in Ed., Secondary Emphasis. Prerequisite: MTH 223.

MTH 573 History of Mathematics 3(3-0)

History of arithmetic, algebra, geometry, calculus. Prerequisites: MTH 332 or MTH 341, or graduate status.

MTH 578 Combinatorics I 3(3-0)

Introduction to the basic principles of combinatorics and graph theory with applications to problems of nonmathematical origin. Prerequisites: MTH 523.

MTH 586 Operations Research I 3(3-0)

Mathematical theory and applications of mathematical programming. Linear programming duality, integer programming, mixed integer programming, and dynamic programming. Prerequisites: MTH 133.

MTH 587 Operations Research II 3(3-0)

Continuation of MTH 586. Theory and application of stochastic models in operations research. Inventory models, queuing theory. Markov chains, stochastic programming. Prerequisites: STA 382, MTH 586.

MTH 591 Seminar in the Solution of Putnam Problems 1-3(Spec)

Problem-solving techniques demonstrated through solutions of the Putnam Examination problems. Designed particularly for those students interested in participating in the Putnam Examination. Prerequisite: MTH 233; permission of instructor.

MTH 594 Seminar in Higher Mathematics 3(3-0)

Class presentation of results of independent study, and final comprehensive written report in an approved subject. Prerequisite: one year of calculus; permission of instructor.

MTH 595 Special Topics in Mathematics Education 1-6(Spec)

Subject matter not included in regular mathematics education course. May be taken for credit more than once, total credit not to exceed 6 hours. Specific topics and pre/co-requisites will be announced in Course Search and Registration. May not be counted toward a major or minor in mathematics except for students pursuing a B.S. in Ed. degree. Pre/Co-requisites: See Course Search and Registration.

MTH 596 Special Topics in Mathematics 1-6(Spec)

Subject matter not included in regular course. May be taken for credit more than once, total credit not to exceed 6 hours. Pre/Co-requisite: See Course Search and Registration.

MTH 597 Independent Study 1-6(Spec)

Open to students with permission of instructor. May be taken for credit more than once, total credit not to exceed 6 hours.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MTH 619 Continuing Registration for Final Research Project 1(1-0)**MTH 623 Theory of Groups and Rings 3(3-0)****MTH 625 Theory of Modules and Fields 3(3-0)****MTH 627 Representation Theory of Lie Algebras 3(3-0)****MTH 632 Introduction to Real Analysis and Its Applications 3(3-0)****MTH 633 Real Variables 3(3-0)****MTH 634 Fourier Analysis 3(3-0)****MTH 636 Introduction to Complex Variables 3(3-0)****MTH 637 Complex Variable Theory 3(3-0)****MTH 638 Theoretical Numerical Analysis 3(3-0)****MTH 641 Topics in Geometry 3(3-0)****MTH 644 Differential Geometry 3(3-0)****MTH 645 Topology 3(3-0)****MTH 651 Basic Ideas and Procedures in Elementary School Arithmetic 3(3-0)**

MTH 652 The Teaching of Measurement 3(3-0)
MTH 656 Teaching & Learning Mathematics with Technology 3(3-0)
MTH 658 Workshop in Teaching Mathematics 1-6(Spec)
MTH 661 The Teaching of Middle School Mathematics 3(3-0)
MTH 673 History of Advanced Mathematics 3(3-0)
MTH 678 Combinatorics II 3(3-0)
MTH 692 Graduate Seminar in Mathematics Education 1-4(Spec)
MTH 693 Graduate Seminar in Mathematics and Its Applications 1-4(Spec)
MTH 694 Practicum in Mathematics 3(3-0)
MTH 695 Special Topics in Mathematics Education 1-6(Spec)
MTH 696 Special Topics in Mathematics 1-6(Spec)
MTH 697 Independent Study 1-9(Spec)
MTH 698 Plan B Project 1-2(Spec)
MTH 725 Topics in Algebra 3-9(Spec)
MTH 730 Topics in Applied Mathematics 3-9(Spec)
MTH 732 Functional Analysis 3(3-0)
MTH 734 Partial Differential Equations and Applications 3(3-0)
MTH 737 Topics in Analysis 3-9(Spec)
MTH 761 Methods for Teaching College Mathematics 3(3-0)
MTH 762 A Survey of Research in Collegiate Mathematics Education 3(3-0)
MTH 763 Advanced Perspectives in Collegiate Mathematics Education 3(3-0)
MTH 764 Qualitative Research Methods in Mathematics Education 3(3-0)
MTH 766 Internship: College Teaching 3-6(Spec)
MTH 767 Seminar I in Collegiate Mathematics Education 3(3-0)
MTH 768 Seminar in Collegiate Mathematics Education II 3(3-0)
MTH 778 Topics in Combinatorics 3-9(Spec)
MTH 795 Advanced Practicum/Internship 3-6(Spec)
MTH 796 Special Topics in Mathematics 1-6(Spec)
MTH 797 Independent Study 1-9(Spec)
MTH 798 Thesis 1-6(Spec)
MTH 898 Dissertation 1-30(Spec)

MUS - Music

See the School of Music for more information.

School of Music Course Numbering

Course numbers are coded according to content. The middle digit of the number indicates content as follows:

Course Content	Middle Digit
Theory and Composition	0
Music History and Literature	1
Pedagogy	3
Class Applied Instruction	4
Private Applied Instruction	5, 6, 7
Ensembles	8
Research and Special Studies	9

MUS 097 Recital Attendance 0(0-0)

Attendance at recitals and concerts in the School of Music. B.M. and B.M.E. students are required to register for and complete seven (7) semesters of MUS 097. B.A. and B.S. music students are required to register for and complete four (4) semesters of MUS 097. CR/NC only. Prerequisite: Admission to the School of Music.

MUS 101 Theory I 3(3-0)

Training in basic terminology and in melodic, harmonic, and rhythmic elements and processes of music. Prerequisite: Admission to the School of Music. Co-requisite: MUS 103.

MUS 102 Theory II 3(3-0)

Continuation of MUS 101. Prerequisites: Admission to the School of Music; MUS 101 with a C or better.

MUS 103 Sight Singing and Ear Training I 1(0-2)

Basic aural and vocal training in the melodic, harmonic, and rhythmic elements of music. Prerequisite: Admission to the School of Music.

MUS 104 Sight Singing and Ear Training II 1(0-2)

Continuation of MUS 103 (Sight Singing and Ear Training I). Prerequisites: Admission to the School of Music; MUS 103 with a C or better.

MUS 105 Supplemental Theory 2(0-2)

This course reinforces concepts taught in MUS 101. Prerequisite: Admission to the School of Music. Co-requisite: MUS 101.

MUS 107 The Craft of Composition 2(2-0)

An exploratory course in the craft of composing music. Prerequisite: MUS 101 or 206.

MUS 109 Introduction to Music Technology 1(1-1)

A hands-on introduction to the use of computers, software, synthesizers, and related equipment as they relate to music and music education. Prerequisite: Admission to the School of Music.

MUS 110 Music in Society 3(3-0)

An intercultural and interdisciplinary exploration of the elements of music. This course may be offered in an online or hybrid format. (Not open to music majors.) (University Program Group I-B: The Arts)

MUS 114 Listening Experience 3(3-0)

Objectives are to experience a variety of musical events, to develop musical awareness, to sharpen perception, and increase musical discrimination. Not open to music majors. May be offered as Writing Intensive. (University Program Group I-B: The Arts)

MUS 141 Vocal Techniques I 1(0-2)

Study and practice of basic techniques necessary to improve the singing voice (i.e. posture, breathing habits, tone, diction). Prerequisite: Admission to the School of Music.

MUS 142 Vocal Techniques II 1(0-2)

Continuation of work begun in MUS 141. Prerequisites: Admission to the School of Music; MUS 141 with a C or better.

MUS 144 Woodwind Techniques 2(0-4)

Flute, clarinet, and saxophone playing and teaching techniques. Prerequisite: Admission to the School of Music.

MUS 146 Brass Techniques 2(0-4)

Trumpet, Horn, Trombone, Euphonium-Baritone, and Tuba performing and teaching techniques. Prerequisite: Admission to the School of Music.

MUS 147 Piano Class I 1(0-2)

This course is designed to develop functional piano skills, such as sight reading, harmonization, basic repertoire, and technique appropriate to the level. Prerequisite: Admission to the School of Music; or signed Music Theatre Major.

MUS 148 Piano Class II 1(0-2)

This course is designed to continue the development of functional piano skills, such as sight reading, harmonization, basic repertoire, and technique. Prerequisites: Admission to the School of Music; or signed Music Theatre Major, MUS 147 with a C or better.

MUS 149 Class Guitar 1(0-2)

Group guitar instruction for non-music and music majors on correct technique, playing and reading chords, melodies, and standard works written for guitar.

MUS 150 Voice 1-12(Spec)

Individualized program of applied studio instruction in voice performance focusing on the foundations of technique, musicianship, literature, and performance practice. This course is repeatable and intended as a two-semester foundation and pre-requisite for study at the 200-level. Prerequisite: Admission to the School of Music or Music Theater Program.

MUS 151 Organ 1-12(Spec)

Individualized program of applied studio instruction in organ performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 152 Piano 1-12(Spec)

Individualized program of applied studio instruction in piano performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 153 Violin 1-12(Spec)

Individualized program of applied studio instruction in violin performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 154 Viola 1-12(Spec)

Individualized program of applied studio instruction in viola performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and prerequisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 155 Violoncello 1-12(Spec)

Individualized program of applied studio instruction in violoncello performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and prerequisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 157 String Bass 1-12(Spec)

Individualized program of applied studio instruction in string bass performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 158 Composition 1-4(Spec)

Applied study of music composition. The course is repeatable and intended as a two-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music; minimum GPA of 3.0 in MUS 101, 102, 103, 104; permission of instructor.

MUS 159 Guitar 1-8(Spec)

Individualized program of applied studio instruction in guitar performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 161 Flute 1-12(Spec)

Individualized program of applied studio instruction in flute performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 163 Oboe 1-12(Spec)

Individualized program of applied studio instruction in oboe performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 165 Clarinet 1-12(Spec)

Individualized program of applied studio instruction in clarinet performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 167 Bassoon 1-12(Spec)

Individualized program of applied studio instruction in bassoon performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 169 Saxophone 1-12(Spec)

Individualized program of applied studio instruction in saxophone performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 171 Trumpet 1-12(Spec)

Individualized program of applied studio instruction in trumpet performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 173 Horn 1-12(Spec)

Individualized program of applied studio instruction in horn performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite: Admission to the School of Music.

MUS 175 Trombone 1-12(Spec)

Individualized program of applied studio instruction in trombone performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 177 Euphonium 1-12(Spec)

Individualized program of applied studio instruction in euphonium performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 178 Tuba 1-12(Spec)

Individualized program of applied studio instruction in tuba performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 179 Percussion 1-12(Spec)

Individualized program of applied studio instruction in percussion performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 300-level. Prerequisite(s): Admission to the School of Music.

MUS 180 Festival Chorus 1-8(Spec)

Preparation and performance of major choral/orchestral compositions. No audition required.

MUS 181 Men's Chorus 1-8(Spec)

Preparation and performance of choral works for the male voice. Open by audition to any student in the University.

MUS 182 Women's Chorus 1-8(Spec)

Preparation and performance of choral works for the female voice. Open by audition to any student in the University.

MUS 183 Concert Choir 1-8(Spec)

Preparation and performance of choral works. Open by audition to any student in the University.

MUS 185 Orchestra 1-8(Spec)

The rehearsal and performance of orchestral literature. Open by audition to any student in the University.

MUS 186 Band 1-8(Spec)

Preparation and performance of instrumental works. Open by audition to any student in the University.

MUS 187 String Orchestra 1-8(Spec)

The rehearsal and performance of string orchestral literature. Open by audition to any student in the University.

MUS 188 Men's Barbershop 1-8(Spec)

Preparation and performance of barbershop works for the male voice. Open by audition.

MUS 189 Introduction to Accompanying 1(0-2)

Experience in accompanying vocal and instrumental music. Prerequisite: Admission to the School of Music.

MUS 197 Special Topics 1-6(Spec)

Exploration of special topics in the field of Music. This course may be repeated when content does not duplicate previous special topic studies. Prerequisite: Admission to the School of Music.

MUS 201 Theory III 3(3-0)

Continuation of MUS 102. Study of chromatic harmony. This is the third course in a four-course sequence. Prerequisites: Admission to the School of Music; MUS 102 with a C or better.

MUS 202 Theory IV 3(3-0)

Study and analysis of forms in music from the Baroque, Classic, Romantic and 20th-century periods. Prerequisites: Admission to the School of Music; MUS 201 with a C or better.

MUS 203 Sight Singing and Ear Training III 1(0-2)

Continuation of MUS 104. Prerequisites: Admission to the School of Music; MUS 104 with a C or better.

MUS 204 Sight Singing and Ear Training IV 1(0-2)

Continuation of MUS 203. Prerequisites: Admission to the School of Music; MUS 203 with a C or better.

MUS 206 Understanding Musical Composition 3(3-0)

Develop basic theory skills in notation, sight-singing, listening, composition, and the aesthetic appreciation of music in Western culture. Not open to music majors.

MUS 209 Music Technology II 2(2-0)

A continuation of MUS 109 using computers, software, synthesizers, and related equipment as it relates to music and music education. Prerequisite: MUS 109.

MUS 211 Historical Survey of Music I 3(3-0)

Western music history from ancient times to c.1700. Includes an introduction to the music of selected non-western cultures. Prerequisites: Admission to the School of Music; MUS 101 with a C or better.

MUS 212 Historical Survey of Music II 3(3-0)

Continuation of the work begun in MUS 211. Western music history from the Baroque through early Romanticism (c. 1700-1850). Prerequisite: MUS 211 with a C or better.

MUS 213 Jazz: An American Art Form 3(3-0)

A music literature course reviewing important trends and styles in the history of jazz. Open to all students. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. (University Program Group I-B: The Arts)

MUS 230 Introduction to Music Education 2(1-2)

An overview of music teaching methodologies and observations of these methods as they are used by public school music teachers. Prerequisite: Admission to the School of Music.

MUS 236 Piano Pedagogy I 2(2-0)

Introduction to elementary piano teaching methods and materials, including repertoire, sight-reading, technique, duets, and theory. Prerequisites: Admission to the School of Music; two semesters of MUS 151 or 152.

MUS 237 Piano Pedagogy II 2(2-0)

Continuation of Piano Pedagogy I with emphasis on the intermediate pianist and teaching materials for that level. Prerequisite: MUS 236.

MUS 241 Diction for Singers 2(1-2)

Elementary pronunciation techniques in French, German, and Italian as an aid to private voice study. Prerequisites: Admission to the School of Music; two semesters of MUS 150.

MUS 244 Double Reed Techniques 1(0-2)

Oboe and bassoon playing and teaching techniques. Prerequisite: MUS 144.

MUS 246 String Techniques 2(0-4)

Teaching techniques for violin, viola, cello, and double bass. Prerequisite: Admission to the School of Music.

MUS 247 Piano Class III 1(0-2)

This course is designed to continue the development of functional piano skills, such as sight reading, harmonization, basic repertoire, and technique. Prerequisites: Admission to the School of Music, MUS 148 with a C or better.

MUS 248 Piano Class IV 1(0-2)

This course is designed to develop functional piano skills, such as sight reading, harmonization, basic repertoire, and technique appropriate to the level. Prerequisites: Admission to the School of Music, MUS 247 with a C or better.

MUS 249 Functional Piano 1(0-2)

Development of skills in harmonization, improvisation, transposition, and score reading for intermediate and advanced piano and organ students. Prerequisites: Admission to the School of Music, MUS 248 with a C or better. Pre/Co-requisites: MUS 151 or 152.

MUS 250 Voice 1-12(Spec)

Individualized program of applied studio instruction in voice performance. Building technique, musicianship, literature, and performance practice studied in MUS 150. This course is repeatable and intended as a two-semester foundation and pre-requisite for study at the 300-level. Prerequisites: Admission to the School of Music or Music Theater Program; Successful completion of a 200-level performance jury.

MUS 252 Jazz Piano 1-8(Spec)

Individual instruction in jazz piano performance. Prerequisite: Admission to the School of Music.

MUS 280 Introduction to Conducting 2(0-4)

Development of the physical and musical skills needed by a conductor. Prerequisites: Admission to the School of Music; MUS 202, 204.

MUS 281 Chamber Ensemble 1-8(Spec)

Chamber ensemble rehearsal and performance. Prerequisite: Admission to the School of Music.

MUS 282 Chamber Singers 1-8(Spec)

Preparation and performance of vocal chamber music from Medieval to contemporary with a focus on acapella music. Open by audition to any student in the University.

MUS 284 Techniques for the Singing Actor 1-6(Spec)

Preparation and performance of solo roles in scenes from standard operas, chamber operas, and/or musical theatre. Prerequisite: Admission to the School of Music or signed Music Theatre major.

MUS 285 Percussion Ensemble 1-8(Spec)

Preparation and performance of percussion ensemble works. Open by audition to any student in the University.

MUS 286 Jazz Ensemble 1-8(Spec)

Jazz ensemble rehearsal and performance. Prerequisite: Open by audition to any student in the University.

MUS 297 Special Topics 1-6(Spec)

Exploration of special topics in the field of Music. This course may be repeated when content does not duplicate previous special topic studies. Prerequisite: Admission to the School of Music.

MUS 302 Contrapuntal Techniques 3(3-0)

Study of contrapuntal techniques. Prerequisites: admission to Music candidacy; MUS 202.

MUS 304 Instrumentation and Scoring 3(2-2)

Study of the ranges, transpositions, timbral combinations, and tessitura strengths/weaknesses of orchestral and band instruments with practical application of scoring preexisting music. Prerequisites: Admission to Music candidacy; MUS 201.

MUS 309 Electroacoustic Music I 3(3-0)

This course covers the technology, techniques, and literature associated with electronic/electroacoustic music. The emphasis is on the composition and creation of music in various electroacoustic genres. Prerequisites: Admission to Music candidacy; MUS 209.

MUS 310 Music and the Mind 3(3-0)

An exploration of the various brain systems that are engaged by different musical styles and activities. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. Recommended: 56 credit hours completed. (University Program Group I-B: The Arts)

MUS 311 Historical Survey of Music III 3(3-0)

Continuation of the work begun in MUS 211 and MUS 212. Western music history from c.1850 to the present. May be offered as Writing Intensive. Prerequisites: MUS 212 with a C or better; admission to Music Candidacy.

MUS 313 Musics of the World 3(3-0)

An introduction to musical systems of major non-Western cultures and folk and traditional music of Western continents. May be offered as Writing Intensive. Recommended: 56 credit hours. (University Program Group I-B: The Arts)

MUS 314WI History of Symphonic Literature 3(3-0)

Development of the symphony orchestra and changing styles and trends of its literature. Writing Intensive. Prerequisites: MUS 202, 204, 212; Admission to Music Candidacy.

MUS 316 History and Literature of the Organ 2(2-0)

Study of the various composers and literature for the organ and the various periods and schools of organ building. Prerequisite: Admission to Music Candidacy.

MUS 317 Song Repertoire for Young Voices 2(2-0)

Study of solo vocal literature and materials suited for students at the secondary level. Prerequisite: Admission to Music Candidacy. Recommended: MUS 338.

MUS 330 Music for Elementary Classroom Teachers 2(2-0)

Fundamentals and methods of teaching music for elementary classroom teachers. Prerequisite: Tier One: Pre-Admission of Candidacy to Teacher Education.

MUS 331 Instrumental Organization 2(2-0)

Includes all phases of instrumental organization and administration in the elementary, junior high, and senior high school. Prerequisites: admission to Music candidacy; MUS 230.

MUS 333 Music Education in the Elementary Grades 2(2-0)

Topics include objectives and instructional strategies for development of basic music concepts and skills in elementary classroom music. Prerequisite: admission to Music candidacy; MUS 230.

MUS 335 Instrumental Pedagogy 2(2-0)

Instrumental pedagogy and practicum for the student's major instrument on the Bachelor of Music degree: Orchestral Instrumental concentration. Prerequisite: admission to Music candidacy.

MUS 338 Voice Pedagogy 2(1-2)

Problems, procedures, teaching lab and materials for teaching correct vocal production. Prerequisite: Admission to Music Candidacy.

MUS 339 Piano Pedagogy Practicum 1(1-1)

Supervised experience in teaching piano at the precollege and college levels in both the private and group settings. Prerequisite: admission to Music candidacy; MUS 237.

MUS 344 Percussion Techniques 2(0-4)

Teaching techniques for percussion. Prerequisites: admission to Music candidacy.

MUS 350 Voice 1-16(Spec)

Individualized program of applied studio instruction in voice performance focusing on advanced technique, musicianship, literature, and performance practice. This course is repeatable and intended as a two-semester foundation and pre-requisite for study at the 400-level or as a four-semester finalization of voice studies at the undergraduate level. Prerequisites: Admission to the School of Music or Music Theater Program; Successful completion of a 300-level performance jury.

MUS 351 Organ 1-16(Spec)

Individualized program of applied studio instruction in organ performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 352 Piano 1-16(Spec)

Individualized program of applied studio instruction in piano performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 353 Violin 1-16(Spec)

Individualized program of applied studio instruction in violin performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 354 Viola 1-16(Spec)

Individualized program of applied studio instruction in viola performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and prerequisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 355 Violoncello 1-16(Spec)

Individualized program of applied studio instruction in violoncello performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and prerequisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 357 String Bass 1-16(Spec)

Individualized program of applied studio instruction in string bass performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced study at the 700-level. Prerequisites: Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 358 Composition 2-8(Spec)

Advanced applied study of music composition. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; MUS 158; Successful completion of a composition jury.

MUS 359 Guitar 1-8(Spec)

Individualized program of applied studio instruction in guitar performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation for professional study. Prerequisite(s): Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 360 Harpsichord 1-8(Spec)

Individualized program of applied studio instruction in harpsichord performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable. Prerequisites: Admission to Music Candidacy; successful completion of a 300-level performance jury.

MUS 361 Flute 1-16(Spec)

Individualized program of applied studio instruction in flute performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisite(s): Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 363 Oboe 1-16(Spec)

Individualized program of applied studio instruction in oboe performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 365 Clarinet 1-16(Spec)

Individualized program of applied studio instruction in clarinet performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 367 Bassoon 1-16(Spec)

Individualized program of applied studio instruction in bassoon performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 369 Saxophone 1-16(Spec)

Individualized program of applied studio instruction in saxophone performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 371 Trumpet 1-16(Spec)

Individualized program of applied studio instruction in trumpet performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 373 Horn 1-16(Spec)

Individualized program of applied studio instruction in horn performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 375 Trombone 1-16(Spec)

Individualized program of applied studio instruction in trombone performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 377 Euphonium 1-16(Spec)

Individualized program of applied studio instruction in euphonium performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and prerequisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; successful completion of a 300-level performance jury.

MUS 378 Tuba 1-16(Spec)

Individualized program of applied studio instruction in tuba performance focusing on advanced technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 379 Percussion 1-16(Spec)

Individualized program of applied studio instruction in percussion performance focusing on the foundations of technique, musicianship, literature, and performance practice. The course is repeatable and intended as a four-semester foundation and pre-requisite for advanced professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 300-level performance jury.

MUS 381 Choral Conducting and Materials 2(0-4)

The study of advanced conducting techniques specific to choral ensembles. The course will focus on rehearsal methods, vocal techniques, music selection and score analysis. Prerequisites: MUS 280, Admission to Music Candidacy.

MUS 382 Advanced Instrumental Conducting 2(0-4)

Principles and performance of instrumental conducting. Prerequisites: MUS 280 with a grade of C or better; Admission to Music candidacy.

MUS 389 Service Playing 2(2-0)

Covers various worship services, liturgies, and hymn playing. Prerequisites: Admission to Music Candidacy; Successful completion of 300-level organ jury.

MUS 397 Special Topics 1-6(Spec)

Exploration of special topics in the field of Music. This course may be repeated when content does not duplicate previous special topic studies. Prerequisite: Admission to Music Candidacy.

MUS 413 History and Literature of Church Music 2(2-0)

A study of church music in Europe and the United States. Prerequisite: admission to Music candidacy; MUS 311.

MUS 431 Instrumental Classroom and Rehearsal Methods 2(2-1)

Methods and materials for teaching instrumental music, grades 5-12. Topics include sequential curricular development, standards-based rehearsal design, and teaching in a heterogeneous setting. Includes pre-student teaching field experience. Prerequisites: MUS 230; Admission to Music Candidacy, Tier Two: Admission of Candidacy to Teacher Education. Co-requisite: TEPD Pre-student teaching field experience. Recommended: MUS 144, 146, 244, 246, 344.

MUS 433 Secondary Choral & General Music Methods 3(3-0)

Principles, concepts, materials, and methods of a comprehensive secondary school choral and general music program. Prerequisites: MUS 280, 333; Admission to Music Candidacy; Tier Two: Admission of Candidacy to Teacher Education.

MUS 450 Voice 1-8(Spec)

Individualized program of applied studio instruction in voice performance expanding on advanced technique, musicianship, literature, and performance practice. This course is repeatable and intended as a two-semester foundation and pre-requisite for professional study at the 700-level. Prerequisites: Admission to the School of Music; Successful completion of a 400-level performance jury.

MUS 490 Independent Study 1-12(Spec)

Student-initiated study guided by faculty member or faculty committee. This course is repeatable up to 12 hours when content does not duplicate previous independent studies. Prerequisite: Music Candidacy.

MUS 503 Advanced Counterpoint 2(2-0)

Advanced counterpoint techniques and writing assignments in 18th century style. Prerequisites: MUS 302; Music candidacy; or admission to the graduate music program.

MUS 504 Seminar in Compositional Techniques 3-9(Spec)

Exploration and application of significant compositional trends and techniques. Repeatable up to nine hours when content previously studied is not duplicated. Prerequisites: MUS 202 and Music candidacy; or admission to the graduate music program.

MUS 505 Seminar in Contemporary Music Analysis 3(3-0)

Analysis of selected contemporary compositions. Prerequisites: Music Candidacy, MUS 202; or admission to the graduate music program.

MUS 506 Advanced Scoring 2(2-0)

Scoring for large ensembles. Prerequisite: MUS 304 and admission to Music candidacy; or graduate standing in Music program.

MUS 511 Choral Literature I 2(2-0)

Detailed study of choral forms of the Renaissance and Baroque eras. Prerequisites: Admission to Music Candidacy or Admission to the Graduate Music Program.

MUS 512 Choral Literature II (Since 1750) 2(2-0)

Representative small choral forms suitable for secondary school. Special attention to style characteristics which contribute to interpretive techniques. Prerequisites: Admission to Music Candidacy or Admission to the Graduate Music Program.

MUS 514 Survey of Piano Literature 3(3-0)

Survey of piano literature from the Baroque period to modern times. Prerequisites: Music Candidacy or admission to the graduate music program.

MUS 515 History of Opera 3(3-0)

A survey of operatic literature from the Baroque to modern eras. Prerequisite: Admission to Music Candidacy or admission to the graduate music program.

MUS 516 Seminar in Piano Music 3-9(Spec)

Critical examination of the piano works of a selected composer, focusing on stylistic contributions to musical forms and genres. Repeatable up to nine hours when content previously studied is not duplicated. Prerequisites: Music Candidacy or admission to the graduate music program; MUS 514.

MUS 518 Song Repertoire 2(1-2)

A survey of art song repertoire. Prerequisites: Music Candidacy or admission to the graduate music program.

MUS 520 Jazz Arranging 3(3-0)

The study of basic arranging techniques used in writing music for small and large jazz ensembles. Prerequisite: Admission to Music candidacy or admission to the graduate music program.

MUS 521 Advanced Jazz Arranging 3(3-0)

The study of modern advanced arranging techniques used in writing music for large jazz ensembles. Prerequisite: Admission to Music candidacy or admission to the graduate music program; MUS 520.

MUS 531 Orff Techniques 2(1-2)

Philosophy, techniques, and pedagogy of the Orff-Schulwerk approach to music education. Prerequisite: Admission to Music Candidacy or admission to the graduate music program.

MUS 532 Dalcroze Eurhythmics 2(1-2)

Introduction to the music education philosophy and approach of Emile Jacques-Dalcroze. Prerequisite: Admission to Music Candidacy or admission to the graduate music program.

MUS 533 Kodály Pedagogy 2(1-2)

Philosophy, materials, and pedagogy of the Kodály method of music education. Prerequisite: Admission to Music Candidacy or admission to the graduate music program.

MUS 534 Music for Pre-School Children 2(2-0)

Musical activities for the preschool child designed to nurture musical potential and promote musical awareness. Prerequisite: Junior status or above; or graduate status.

MUS 535 Workshop in Music Education 1-4(Spec)

Practical applications of selected music education trends, techniques, or methodologies. Repeatable up to four hours when content previously studied is not duplicated. Prerequisites: Music Candidacy or admission to the graduate music program.

MUS 540 Organ Pedagogy Practicum 2(Spec)

Supervised experience in teaching the organ. Prerequisites: Admission to Music Candidacy, MUS 351; or admission to the graduate music program.

MUS 552 Jazz Piano 1-8(Spec)

Individual instruction in jazz piano performance. May be taken more than once, for 1-2 credits per enrollment, not to exceed eight credits. Prerequisites: Music Candidacy or admission to the graduate music program.

MUS 581 Jazz Improvisation Laboratory 2(1-2)

Advanced improvisation and ensemble leadership skills in a laboratory setting. This course is repeatable up to 4 credits. Prerequisites: Music Candidacy; or Admission to the Graduate Music Program.

MUS 597 Special Topics 1-6(Spec)

This course is repeatable. Prerequisite: Admission to Music Candidacy or admission to the graduate music program.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

MUS 607 Music Technology Seminar 3(3-0)**MUS 619 Continuing Registration for Final Research Project 1(1-0)****MUS 620 Jazz Harmony and Analysis 3(3-0)****MUS 621 Jazz Improvisation Pedagogy and Practicum 2(1-2)****MUS 622 Modern Jazz History 3(3-0)****MUS 624 Jazz Pedagogy 3(2-2)****MUS 631 Advanced Piano Pedagogy I 3(3-0)****MUS 632 Advanced Piano Pedagogy II 3(3-0)****MUS 633 Class Piano Pedagogy 3(3-0)****MUS 634 Piano Pedagogy Practicum 3(2-2)****MUS 670 Elective Applied Instruction 1-8(Spec)****MUS 701 Composition 2-8(Spec)****MUS 707 Analytical Styles I: Medieval-Classical 3(3-0)****MUS 708 Analytical Styles II: 19-21st Century 3(3-0)****MUS 711 Choral Masterworks 3(3-0)****MUS 713 Early Jazz and American Culture through 1945 3(3-0)****MUS 714 Wind Band Literature 3(3-0)****MUS 715 Rock 'n' Roll Seminar 3(3-0)****MUS 717 Historical Topics I: Medieval - Classical 3(3-0)****MUS 718 Historical Topics II: 19-20th Century 3(3-0)****MUS 719 Seminar in World Music 3(3-0)****MUS 720 Seminar in the Music of a Selected Composer 3-9(Spec)****MUS 731 Curriculum Design in Music Education 3(3-0)****MUS 732 History and Philosophy of Music Education 3(3-0)****MUS 733 Woodwind Pedagogy 3(3-0)****MUS 734 Brass Pedagogy 3(3-0)****MUS 735 Percussion Pedagogy 3(3-0)****MUS 736 String Pedagogy 3(3-0)****MUS 750 Voice 1-8(Spec)****MUS 751 Organ 1-8(Spec)****MUS 752 Piano 1-8(Spec)****MUS 753 Violin and Viola 1-8(Spec)****MUS 754 Viola 1-8(Spec)****MUS 755 Violoncello 1-8(Spec)****MUS 757 String Bass 1-8(Spec)****MUS 760 Harpsichord 1-8(Spec)****MUS 761 Flute 1-8(Spec)****MUS 763 Oboe 1-8(Spec)****MUS 765 Clarinet 1-8(Spec)****MUS 767 Bassoon 1-8(Spec)****MUS 769 Saxophone 1-8(Spec)****MUS 771 Trumpet 1-8(Spec)****MUS 773 Horn 1-8(Spec)****MUS 775 Trombone 1-8(Spec)****MUS 777 Euphonium 1-8(Spec)****MUS 778 Tuba 1-8(Spec)****MUS 779 Percussion 1-8(Spec)****MUS 780 Performance Ensembles 1-8(Spec)****MUS 781 Advanced Choral Conducting 3-6(Spec)****MUS 782 Advanced Instrumental Conducting 3-6(Spec)****MUS 784 Instrumental Rehearsal Techniques 3(3-0)****MUS 790 Independent Study 1-9(Spec)****MUS 791 Introduction to Music Research 3(3-0)****MUS 793 Research Project in Music Education 2(Spec)****MUS 795 Psychology of Music Teaching and Learning 3(3-0)****MUS 797 Special Topics 1-6(Spec)****MUS 798 Thesis 1-6(Spec)****MUS 799 Recital 4(Spec)****NSC - Neuroscience**

See the Department of Psychology for more information.

NSC 401 Principles of Neuroscience I 4(4-0)

First of two upper-level courses for the Grad-Prep undergraduate Neuroscience majors covering the field of neuroscience comprehensively. Prerequisites: PSY 387, BIO 392; permission of instructor.

NSC 402 Principles of Neuroscience II 4(4-0)

Second of two upper-level courses for the Grad-Prep undergraduate Neuroscience majors covering the field of neuroscience comprehensively. Prerequisite: NSC 401.

NSC 496 Neuroscience Directed Research 1-6(Spec)

Research course for students who desire to investigate a research problem in neuroscience. Prerequisite: Must file written proposal approved by faculty sponsor in department office prior to registration. Recommended: BIO 392, PSY 387, PSY 211, BIO 500 or HSC 544.

NSC 501 Principles of Neuroscience I 4(4-0)

First of two core courses for advanced (grad-prep) undergraduates and graduates providing comprehensive neuroscience fundamentals such as history, key cells and molecules, and sensation mechanisms. Prerequisites: A signed major in Neuroscience Grad-Prep (Opt. B); PSY 387 (3) or BIO 392 (4); or graduate standing in the Neuroscience Graduate Program.

NSC 502 Principles of Neuroscience II 4(4-0)

Second of two core courses for advanced (grad-prep) undergraduates and graduates providing comprehensive neuroscience fundamentals. Prerequisites: NSC 501.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

NSC 600 Special Issues in Neuroscience 1-12(Spec)**NSC 690 Research Seminar Neuroscience 1-4(Spec)****NSC 696 Directed Research 1-12(Spec)****NSC 697 Independent Study 1-8(Spec)****NSC 789 Graduate Seminar in Neuroscience 1-12(Spec)****NSC 798 Thesis: Design 1-3(Spec)****NSC 799 Thesis: Implementation 1-3(Spec)****NSC 800 Neuroscience Research for Doctoral Candidacy 1-12(Spec)****NSC 898 Doctoral Dissertation: Design 1-12(Spec)****NSC 899 Doctoral Dissertation: Implementation 1-12(Spec)**

OJB - Ojibwe

See the Department of World Languages and Cultures for more information.

OJB 101 Elementary Ojibwe I 3(3-0)

Designed for students who have had no Ojibwe language instruction. Basic language skills. Introduction to Ojibwe culture via the language.

OJB 102 Elementary Ojibwe II 3(3-0)

Basic language skills. Continuation of OJB 101 including the continued introduction of the culture of the Ojibwe people. Prerequisite: OJB 101.

OJB 201 Intermediate Ojibwe I 3(3-0)

Review of grammar and further development of all language skills. Further explanation of Ojibwe culture. Prerequisites: OJB 101, OJB 102.

OJB 202 Intermediate Ojibwe II 3(3-0)

Designed for those who wish to continue the study of the Ojibwe language. The emphasis will be on the written language. Prerequisites: OJB 101, OJB 102; or knowledge of the Ojibwe language and OJB 201.

PAD - Public Administration

See the Department of Political Science and Public Administration for more information.

PAD 210 Introduction to Public Administration 3(3-0)

Provides a broad understanding of basic concepts and principles of public administration, including the role, structure, and functions of public agencies and how they operate. May be offered as Writing Intensive. This course may be offered in an online format.

PAD 313 Public Budgeting Processes 3(3-0)

Study of the creation and administrative management of public budgets. Emphasizes processes of budget preparation, adoption, administration and evaluation at various levels of government. This course may be offered in an online or hybrid format. Prerequisite: PAD 210.

PAD 380QR Public Sector Research Methods 3(3-0)

Overview of common public sector research techniques and how research findings can be integrated into effective organizational decisions. Quantitative Reasoning. This course may be offered in an online format. Prerequisite: PAD 210.

PAD 398 Special Topics in Public Administration 3-9(3-0)

Examines the role of public and nonprofit organizations in society. Covers special topics of interest not covered in existing courses. May be repeated when the content is not a duplication of a previous special topics offering. Prerequisites: Permission of the instructor. Recommended: PAD 210.

PAD 411 Public Sector Human Resources 3(3-0)

Study of the policies, strategies, and legal processes that define human resources management in public and nonprofit organizations. This course may be offered in an online and hybrid format. Prerequisite: PAD 210.

PAD 412 Nonprofit Administration 3(3-0)

Overview of the nonprofit sector emphasizing charitable organizations, the rationales for their existence, and the fundamental elements of nonprofit administration. May be offered as Writing Intensive. This course may be offered in an online format. Prerequisite: PAD 210.

PAD 413 Organizational Leadership and Behavior 3(3-0)

Study of the policies and strategies used in the public sector to lead, manage, and motivate employees to solve societal problems. May be offered as Writing Intensive. This course may be offered in an online format. Prerequisite: PAD 210.

PAD 414 Public Policy Analysis 3(3-0)

Advanced overview of the practice of public policy analysis and program evaluation. This course may be offered in an online or hybrid format. Prerequisite: PSC 280 or PAD 380.

PAD 523WI Fundamentals of Grant Writing and Management 3(3-0)

This course examines grant seeking, writing, proposal development, management, and evaluation in public and nonprofit organizations. Writing Intensive. This course may be offered in an online format. Prerequisite: Graduate standing or completion of 56 credit hours.

PAD 585 Public Sector Information Technology Management 3(3-0)

Study of the administrative strategies used to successfully implement information technology in public sector organizations. This course may be offered in an online format. Prerequisite: 56 credit hours completed or graduate standing.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

PAD 610 Foundations of Public Administration 3(3-0)

PAD 620 Nonprofit Management 3(3-0)

PAD 621 Board Governance and Executive Leadership 3(3-0)

PAD 622 Strategic Planning for Public/Non-Profit Organizations 3(3-0)

PAD 623 Public Policy Processes and Evaluation 3(3-0)

PAD 655 Managing Modern Local Government 3(3-0)

PAD 661 Administration and Policy in American State Government 3(3-0)

PAD 711 Public Personnel Management 3(3-0)

PAD 712 Implementation and Reform of Public Programs 3(3-0)

PAD 713 Public Budgeting and Finance 3(3-0)

PAD 714 Program Analysis and Evaluation 3(3-0)

PAD 730 Public Service Competencies 1(Spec)

PAD 773 Administration and Ethics in Public Service 3(3-0)

PAD 775 Organization Theory and Behavior 3(3-0)

PAD 780 Public Sector Research Methods 3(3-0)

PAD 785 Strategic Leadership 3(3-0)

PAD 795 Internship in Public Administration 1-6(Spec)

PAD 796 Applied Research in Public Administration 3(3-0)

PED - Sports Instructional Program (Activity)

See the Department of Physical Education and Sport for more information.

Note: a limitation of 6 hours of PED and RLA courses may be applied toward the requirements for graduation.

PED 121 Steelhead Fly Tying 1(Spec)

This course introduces the materials and techniques of tying flies for river steelhead fishing. All materials will be provided through course fee.

PED 122 Diving, Beginning 1(Spec)

Beginning techniques of springboard diving. An aquatic fee.

PED 123 Aqua-Aerobics 1(Spec)

Students learn fitness concepts and aquatic safety principles and perform water based fitness exercises.

PED 127 Beginning Swimming 1(Spec)

Instruction in basic skills of water adjustment, gliding, floating, kicking and learning to swim across the pool; includes safety and self- help techniques.

PED 129 Intermediate Swimming 1(Spec)

Introduction to swim strokes, backstroke, front crawl, elementary backstroke, sidestroke, breaststroke, and butterfly. Recommended: PED 127 or ability to swim one length of the pool.

PED 130 Advanced Swimming for Fitness 1(Spec)

Fitness and conditioning swimming which includes advanced stroke techniques. Ideal for those with previous competitive swim experience. Recommended: Ability to swim three lengths of the pool using front crawl, backstroke and breaststroke.

PED 131 Disc Golf 1(Spec)

A course designed to provide students with skills and knowledge to participate in disc golf. Students must furnish own discs made specifically for disc golf.

PED 132 Introduction to Clogging 1(Spec)

Beginner level of clogging. Students will learn basic level clogging steps using a variety of music. Students will learn to read cue-sheets and understand the history of clogging. Identical to DAN 132. Credit may not be earned in more than one of these courses.

PED 133 Zumba 1(1-0)

Latin inspired dance fitness class incorporating Latin and International music and the core Zumba movements to improve and maintain cardiovascular fitness.

PED 134 Zumba Fitness 2(2-0)

Latin inspired dance fitness class incorporating Latin and International music to improve and maintain cardiovascular fitness. Course will include core and variations of Zumba movements.

PED 135 Hustle Dance Fitness 2(2-0)

Dance fitness class incorporating hip hop music to improve and maintain cardiovascular fitness. Course will include core and variations of Hustle Dance Fitness movements.

PED 136 Aerobic Kickboxing 2(Spec)

This course is designed to provide students with an aerobic workout while learning basic techniques based on various forms of martial arts.

PED 137 Fitness Walking 2(Spec)

Course will introduce fitness walking designed for students who want to begin a program to improve their cardiovascular endurance and learn basic fitness training principles.

PED 138 Cardio-Variety 2(Spec)

A beginning aerobic workout course comprised of conditioning activities and vigorous nonstop rhythmic movement patterns designed to improve or maintain cardiovascular endurance. Recommended: Physician approval.

PED 139 Step Aerobics I 2(1-2)

A course comprised of step aerobic conditioning activities and vigorous movement patterns designed to improve or maintain cardiovascular endurance. Recommended: Physician approval.

PED 140 Turbo Kick 2(Spec)

Interval training workout with kickboxing moves choreographed to contemporary music intended to focus on development of movement combinations and core strength.

PED 141 Judo 2(2-0)

Judo is a Japanese martial art that is both an art and an Olympic Sport. It involves throwing and grappling techniques.

PED 142 Hapkido 2(Spec)

Hapkido is a Korean martial art that combines elements of Judo, Tae Kwon-Do and Aikido. It primarily focuses on self-defense techniques.

PED 144 Pilates 2(2-0)

Course designed to improve total fitness, posture, and appearance through exercise methods strengthening core postural muscles and developing body alignment using the Pilates model.

PED 145 Fundamentals of Gymnastics 1(Spec)

Course will introduce and improve basic gymnastics skills. No prior experience required.

PED 146 Yoga: Beginning 1(Spec)

This course focuses on the fundamentals of yoga through the practice of basic yoga postures and essential yoga breathing techniques.

PED 147 Introduction to Fitness Yoga 2(Spec)

This course focuses on yoga as a system of regular exercise to improve physical fitness.

PED 148 Yoga for Wellness 2(2-0)

This course focuses on the specific application of yoga poses and techniques to address various health and wellness issues.

PED 149 Yoga and Meditation 2(2-0)

This course focuses on yoga and meditation techniques to relax and revitalize the mind and body.

PED 150 Archery 1(Spec)

An introduction to the basic skills of the sport of archery.

PED 153 Jogging 1(Spec)

A course comprised of jogging designed for students who want to begin a program to improve their cardiovascular endurance.

PED 154 Bowling, Beginning 1(Spec)

An introduction to the skills, strategies and terminology of bowling.

PED 155 Beginning Fencing 1(Spec)

An introduction to the skills, strategies, and terminology of fencing. A fee is charged for equipment.

PED 156 Golf, Beginning 1(Spec)

Introduction to golf. Includes instruction and practice on the fundamentals of the golf swing, rules, equipment, terminology and etiquette. Class may meet at local golf course.

PED 157 In-Line Skating 1(Spec)

Beginning techniques of in-line skating with a focus on safety and enjoyment.

PED 158 Beginning Figure Skating 2(Spec)

Beginning Figure Skating is intended to present basic skills to the class. The goal is for the skater to feel more secure on the ice and to have the ability to perform basic skills.

PED 159 Billiards, Beginning 1(Spec)

An introduction to the skills, strategies and terminology of billiards. Equipment is provided.

PED 160 Racquetball, Beginning 1(Spec)

An introduction to the skills, strategies and terminology of racquetball singles and doubles play.

PED 161 Snowboarding, Beginning 1(Spec)

Introduction and development of beginning snowboarding skills. Class meets at local ski/snowboarding facility. Students are responsible for travel and overnight accommodations. Course fee only covers lift tickets.

PED 162 Snow Skiing, Beginning 1(Spec)

Introduction and development of beginning downhill snow skiing skills. Class meets at local ski/snowboarding facility. Students are responsible for travel and overnight accommodations. Course fee only covers lift tickets.

PED 163 Cross Country Skiing 1(Spec)

Beginning class in cross country skiing involving on-snow techniques, waxing, proper equipment choices, and field trips.

PED 164 Individual Sports 2(Spec)

A course which will expose students to badminton, golf, and tennis, which are individual, lifetime sports.

PED 165 Tennis, Beginning 1(Spec)

Student furnishes own racket and balls.

PED 166 Beginning Foil Fencing 2(2-0)

Basics of fencing, footwork, blade work bouting and equipment use.

PED 168 Ice Hockey 2(Spec)

Course designed to gain an understanding, development, and appreciation of the skills of ice hockey.

PED 169 Workshop in Leisure Time Sports 1-6(Spec)**PED 170 Fundamentals of Basketball 1(Spec)**

Development of basic skills needed to play basketball.

PED 172 Introduction to Boxing 1(Spec)

Students will learn boxing principles, techniques, safe practices and strategies. No experience necessary. Non-contact.

PED 173 Triathlon Training 2(Spec)

Introduction to basic triathlon training including instruction in swimming, biking and running technique. Course will prepare students to successfully complete a triathlon event. Prerequisite: Student must have previous instruction in swimming technique.

PED 174 Team Sports 2(Spec)**PED 175 Wallyball 1(1-0)**

Wallyball combines the skills of volleyball, racketball, and handball.

PED 176 Soccer 1(Spec)

An introduction to the skills, strategies and terminology of soccer through instruction and student participation.

PED 177 Softball 1(Spec)

Slow-pitch softball designed for beginners through advanced skilled performers.

PED 178 Volleyball, Beginning 1(Spec)

Introduction to basic skills, rules and strategy.

PED 179 Fundamentals of Floor Hockey 1(Spec)

To learn the fundamentals of floor hockey.

PED 180 Individual Program of Physical Activity 1-4(Spec)

Designed for students physically unable to participate in regularly scheduled activities.

PED 184 Military Physical Conditioning 1(Spec)**PED 185 Physical Conditioning and Body Mechanics 1(Spec)**

Develop physical conditioning using weight training equipment and cardiovascular exercises.

PED 186 Physical Fitness for Life 2(2-0)

Identical to PES 186. Credit may not be earned in more than one of these courses.

PED 189 Weight Training and Conditioning 2(Spec)

This is a personal fitness course. It will cover the importance of muscular work for acquiring strength needed for successful performance in most physical activities and its relationship to the total conditioning program.

PED 222 Diving, Intermediate 1(Spec)

Intermediate techniques of springboard diving.

PED 236 Intermediate Aerobic Kickboxing 2(Spec)

Non-contact, fast-paced, aerobic workout done to music utilizing kicks from martial arts and punches from boxing, while emphasizing heart rate monitoring and developing consistent form. Recommended: PED 136 or previous aerobic experience.

PED 238 Intermediate Aerobics 2(1-2)

This class provides increased length and difficulty of aerobic exercise. Designed to improve or maintain cardiovascular endurance for those with previous aerobic experience. Recommended: Previous aerobic experience; physician approval.

PED 244 Pilates: Intermediate 2(2-0)

This course is designed to strengthen the Pilates practice of students who have had previous Pilates experience. Students will perform movements using the Pilates ring. Prerequisite: PED 144.

PED 246 Yoga, Intermediate 1(Spec)

This course focuses on strengthening the yoga practice of students who have had previous experience with the basic foundations of yoga. Recommended: PED 146, 147, 148, 149, or previous yoga experience.

PED 253 Marathon 2(1-2)

Class designed to physically and mentally prepare students to complete a marathon. Recommended: PED 153.

PED 254 Bowling, Intermediate 1(Spec)

To develop further understanding and appreciation of bowling. To develop further proficiency in the fundamental skills of bowling. Course Fee. Recommended: PED 154.

PED 255 Intermediate Fencing 1(Spec)

Opportunity for students to continue beyond the beginning level of skill and strategy mastery. A fee is charged for equipment. Prerequisite: PED 142.

PED 256 Intermediate Golf 2(Spec)

Intermediate golf skills taught. Classes meet at local golf course chosen by instructor. Student furnishes own clubs and transportation. Recommended: Beginning golf skills.

PED 258 Intermediate Figure Skating 2(Spec)

Intermediate Figure Skating is intended to present more advanced skills and combination moves to the class. The goal is for skaters to learn and execute more difficult skills and to gain speed and confidence on the ice.

PED 261 Snowboarding, Intermediate 1(Spec)

Development of intermediate snowboarding skills. Class meets at local ski/snowboarding facility. Students are responsible for travel and overnight accommodations. Course fee only covers lift tickets. Recommended: PED 161, previous snowboarding experience.

PED 262 Snow Skiing, Intermediate 1(Spec)

Development of intermediate downhill snow skiing skills. Class meets at local ski/snowboarding facility. Students are responsible for travel and overnight accommodations. Course fee only covers lift tickets. Recommended: PED 162, previous skiing experience.

PED 265 Tennis, Intermediate 1(Spec)

This course is designed to develop intermediate-level tennis skills and introduce techniques and strategies beyond beginner level.

PED 266 Competitive Fencing 2(Spec)

Course will focus on bouting, electric fencing, and tournament training in foil and épée. Prerequisites: PED 166 or PED 167.

PED 270 3-on-3 Basketball 1(Spec)

Development of skills needed to play 3-on-3 basketball. Recommended: PED 170.

PED 278 Volleyball, Intermediate 1(Spec)

Recommended: Skill test; student should perform spiking and defensive movements.

PED 285 Strength Training 1(Spec)

Course designed to provide students the opportunity to improve muscular strength and endurance through the utilization of resistant weight training.

PED 356 Golf, Advanced 2(2-0)

Development of advanced skills. Planning course strategy; rule interpretation; designing and administering tournaments; figuring handicaps, index, course slope. Class meets at golf course. Course fee is charged.

PED 358 Advanced Figure Skating 2(Spec)

Development of skills and combinations to gain proficiency in advanced figure skating. Skills and combinations include advanced jump and spin techniques. Recommended: PED 258; possession of intermediate figure skating skills as identified by the United States Figure Skating (USFS).

PED 360 Racquetball, Advanced 1(Spec)

Student furnishes racquet, official ball, and eye protection.

PED 361 Advanced Snowboarding 1(Spec)

To further understand, appreciate and develop proficiency in the skills of advanced snowboarding. Course fee. Recommended: PED 261.

PED 362 Snow Skiing, Advanced 1(Spec)

A course fee for lift tickets and lessons is charged. Student furnishes own equipment or rents it from ski resort.

PED 363 Indoor Racket and Paddle Sports 2(2-0)

Combines units in badminton-table tennis and/or tennis-racquetball; racket sports with somewhat similar strategies.

PED 365 Tennis, Advanced 1(Spec)

This course is designed to develop advanced-level tennis skills and introductory techniques and strategies beyond intermediate level. Recommended: PED 265.

PES - Physical Education Professional

See the Department of Physical Education and Sport for more information.

PES 104 Sport Skill Development - Secondary Level 3(Spec)

Sports for grades 7-12 for Physical Education Secondary minors and for Physical Education majors.

PES 105 Introduction to Physical Education & Skill Development 2(2-1)

Overview of physical education history, profession, sub-disciplines, professional organizations, and preparation for the skills test required by the physical education teacher preparation program.

PES 115 Motor Development 2(2-0)

Comprehensive study of motor development across the lifespan as a change in functional capacity from prenatal development to elderly adult movement patterns.

PES 119 Introduction to Sport Management 3(3-0)

Introduction to the field of sport management. Specific focus on the nature, scope, and significance of the industry. A survey of professional opportunities.

PES 120 Skin and Scuba Diving 1(Spec)

Students are taught safe skin and scuba techniques. Students provide their own, approved, snorkeling equipment. Course fee required for equipment rental, use, and certification costs.

PES 125 Principles and Foundations of Coaching 3(3-0)

Practical information and issues relevant to professional practice for all athletic coaches. Includes eligibility for Coaching Advancement Program (C.A.P.) certification. This course may be offered in an online format.

PES 143 Sexual Assault and Harassment/Awareness and Avoidance 2(2-0)

A class designed to provide students with appropriate knowledge and skills to deal appropriately with sexual assault and sexual harassment.

PES 145 Skill Development in Gymnastics 1(0-2)**PES 180 Sport Management Governance & Organizational Theory 3(3-0)**

The managerial fundamentals and principles applied to the sport industry: concepts and functions of management, organizational theories, human resources, integrated issues and trends. Pre/Co-requisite: PES 119.

PES 186QR Principles of Physical Fitness for Lifelong Wellness 3(3-0)

Designed to enable lifetime fitness for individuals from all backgrounds. Study and demonstrate physical fitness concepts; develop and implement personal fitness program. Quantitative Reasoning.

PES 203 Physical Education Program for Grades K-3 3(2-2)

Foundations for planning physical education for grades K-3. Studies of developmental characteristics of children grades K-3 are used to plan physical education programs.

PES 210 Mental Training for Sport Performance 3(3-0)

Development of the mental skills of self-concept, confidence, tension control, concentration, and visual imagery to allow students to perform to their potential in athletic competition.

PES 215 K-12 Physical Education Programming 3(3-0)

A course covering the foundations of physical education curriculum development and the steps and procedures involved with designing a K-12 program. Prerequisites: PES 115, 186.

PES 218QR Sport Analytics 3(3-0)

Theory, development, and application of analytics in sport for purposes of player performance, team management/operations, team valuation, social media analysis, sponsorship metrics, and fantasy competitions. This course may be offered in an online format. Quantitative Reasoning. Prerequisites: PES 119, 180 both with a B- or better.

PES 224 WSI-Swimming and Water Safety 3(2-2)

Methods and techniques for teaching swimming courses as well as emergency water rescue. There is a \$10 aquatic fee. Prerequisite: Ability to swim 100 yards. Highly recommended: CPR and First Aid.

PES 225 Athletic Conditioning for Coaches 3(3-0)

Principles of physical training and nutrition as they apply to the short and long term conditioning of athletes at various levels of competition and sports. This course may be offered in an online format. Prerequisite: PES 125.

PES 255 Athletic Skills and Techniques 2(2-0)

A study of the skills necessary for athletes to be successful, and the techniques, drills and strategies coaches need to facilitate skilled performance. This course may be offered in an online format. Prerequisite: PES 125.

PES 260 Exercise Psychology 3(3-0)

An overview of exercise psychology, introducing a broad base of knowledge of how to alter exercise-related behaviors and understand psychological outcomes of physical activity. Prerequisite: PES 186QR or PED 186 or HSC 106QR. Recommended: PSY 100.

PES 271 Basketball 2(2-0)

Methods and materials for the teaching of basketball. Prerequisite: PED 171; or intermediate skill.

PES 279 Sport First Aid and Athletic Emergencies 3(3-0)

A coach's role from the perspective of policy and practice in managing injuries and emergencies common to the athletic and sport culture. This course may be offered in an online format. Pre/Co-requisite: PES 125.

PES 280 Economics & Finance in the Sport Industry 3(3-0)

Examines and introduces the principles of economics, accounting, and finance as they apply to the sport industry. This course may be offered in online format. Prerequisites: PES 119, 180 both with B- or better.

PES 293 Field Study in Sport Management 1-4(Spec)

Provides exposure via experiences in select sport related organizations. Students enroll in 1 to 4 credits (45-180 clock hours to meet course requirements). Prerequisite: PES 119 with a B- or better; Pre/Co-requisite: PES 180.

PES 297 Special Topics in Physical Education and Sport 1-12(Spec)

Contains subject matter not included in courses currently listed in the Bulletin.

PES 300 Wilderness Experience for Leadership Development 3(2-2)

A course on leadership skills with applications for traditional and alternative learning environments which is taught in the context of a seven-day wilderness expedition.

PES 303 Physical Education Program for Grades 4-6 3(2-2)

Foundations for planning physical education for grades 4-6. Studies of developmental characteristics of children grades 4-6 are used to plan physical education programs. Prerequisite: PES 203.

PES 304 Youth Sports 2(2-0)

Comprehensive study of problems involved in organizing and coaching youth sports.

PES 310 Physical Education for the Classroom Teacher 2(Spec)

An introduction to elementary physical education methods and materials. This course integrates the concepts of motor skill development, physical fitness, and human wellness. Prerequisite: EDU 107; Tier One - Pre- Admission of Candidacy to Teacher Education.

PES 311 Psychology of Coaching 3(3-0)

A study of the interaction between psychological variables and performance in sports and physical activity. Coaching applications are emphasized. This course may be offered in an online format. Pre/Co-requisite: PES 255. Prerequisite: PES 125.

PES 313 Elementary Physical Education Methods and Materials 2(2-0)

Methods and applications of planning and teaching elementary physical education including individual and group activities, fitness activities, modified sport and precursors to lifetime activities. Prerequisites: PES 215.

PES 315 Methods in Teaching Physical Education 3(3-0)

A broad spectrum of methods used in K-12 programs. Emphasis on teaching and development of reflective teaching practices including assessment of teaching performance. Prerequisites: PES 215; Passing Score on the PES Department's Sports Skill Competency Assessment.

PES 318 Social, Historical, & Global Issues in Sport 3(3-0)

A critical examination of sport through prevailing theories in sport sociology. Historical perspectives will also be addressed. This course may be offered in online format. Prerequisites: minimum 56 credits.

PES 319 Women and Sport 2(2-0)

An investigation of the motivational and social implications of women's participation in sport. Identical to WST 319. Credit may not be earned in more than one of these courses.

PES 321 ARC Lifeguard Certification 3(Spec)

The CMU lifeguard course provides ARC lifeguarding, CPR, and first aid certifications necessary to consider lifeguarding at a swimming pool or non-surf beach. This course may be offered in a hybrid format. Prerequisites: swim 500 yards continuously; surface dive to 9 feet and recover a 10 pound diving brick; surface dive to 5 feet and swim underwater for 15 yards; tread water for 1 minute.

PES 322 Applied Skills & Methods - Team Sports 2(2-0)

Emphasis on the development and use of skills and strategies in lifetime team sports. Methods for teaching skills and strategies are a major emphasis. Prerequisites: PES 105, 115; successful completion of departmental Sports Skill Competency Assessment Program (SSCAP).

PES 323 Applied Skills & Methods - Individual and Team Sports 3(3-0)

The development of skills and strategies used in competitive environments in individual and team sports. Key elements of form, teaching progressions and effective drills are emphasized. Prerequisites: PES 105, 215; successful completion of departmental Sports Skills Competency Assessment Program (SSCAP).

PES 324 Applied Skills & Methods - Rhythmic Activities 2(2-0)

Enable students to plan and implement effective rhythmic movement experiences for students across the K-12 curriculum. Prerequisites: PES 215.

PES 325 Applied Skills & Methods - Resistance Training 2(2-0)

Planning, implementation and assessment of resistance training techniques and modalities for grades 5-12. Prerequisites: PES 105, PES 215; Successful completion of departmental Sports Skill Competency Assessment Program (SSCAP).

PES 330 Human Movement Studies 3(3-0)

An integrated study of human movement including principles and assessment of applied human movement, and mechanical principles and movement patterns related to sport skills. Prerequisite: HSC 211.

PES 335 Principles of Effective Coaching Instruction 3(3-0)

Principles of effective instruction as they apply to assisting athletes in becoming proficient performers. This course may be offered in online format. Pre/Co-requisite: PES 255.

PES 338 Teaching Group Fitness 2(2-0)

Presents the basic methods used in teaching current group fitness techniques. Prerequisites: HSC 211 or HSC 214, 215; One of: PED 186, PES 186, HSC 106.

PES 347 Organization and Administration of Special Olympic Games 3(3-0)

Study of the philosophy, organization, and administration of the Special Olympics, with emphasis on the Michigan Games. Class participants assume administrative roles for the annual games.

PES 360 Sport Sales & Marketing 3(3-0)

An in-depth study of the nature, scope and significance of sales and marketing within the sport industry. Prerequisites: PES 218, 280 both with a C or better.

PES 364 Sports Officiating 1-6(Spec)

Theoretical and practical experience in officiating high school sports. Fall: football, basketball, soccer; Spring: track and field, baseball, softball, volleyball; other sports on demand.

PES 380 Sport Communication & Mass Media 3(3-0)

Students are provided theory and concepts to examine the role of public relations, communication, and mass media in the sport industry. This course may be offered in online format. Prerequisites: PES 218, 280 both with a C or better.

PES 386 Special Physical Education 3(3-0)

Physical needs of the atypical individual, ameliorative effects of physical activity, school programs appropriate for exceptional children. Prerequisite: PES 315.

PES 387 Physical Education for the Physically Impaired 3(2-2)

Description of orthopedic and physical impairment. Interrelationships of physical, social, and emotional aspects. Development of activity experiences that are appropriate for specific impairments. Prerequisite: PES 386.

PES 390 Practicum in Physical Education and Coaching 1-3(Spec)

Offers the student an opportunity to assist in on-campus and off-campus experiences in the areas of sport, dance, intramurals or aquatics, etc. CR/NC only. Prerequisites: Permission of the department chairperson and PES 311, 560; HSC 205 for students who are receiving credit for an athletic coaching minor or an athletic coaching endorsement. Permission of the department chairperson and PES 215 for students receiving elective credit for physical education major or minors.

PES 391 Independent Study 1-6(Spec)

Independent research on a special problem or problems. CR/NC only. Prerequisite: permission of department chairperson.

PES 395 Pre-Student Teaching Field Experience 1(Spec)

Students observe an experienced physical educator and perform teaching functions under the direction of an elementary, middle, or high school teacher. CR/NC only. Prerequisites: PES 315; Tier Two - Admission of Candidacy to Teacher Education.

PES 401 Fundamentals of Motor Learning 3(3-0)

Components of successful motor performance. Theories of learning, nervous system, methods of practice, teaching methodology, and various psychological concepts related to physical education and athletics.

PES 405 Physical Education Peer-Tutor Teaching 2(1-1)

Physical education majors plan for and teach selected sports skills to prospective physical education majors/minors seeking to pass required sports skills competencies. Prerequisites: PES 315; Passing Score on SSCAP Test.

PES 406 Evaluation in Physical Education and Sport 2(2-0)

Selection, criteria, methods, and procedures used in assessing the psychomotor, cognitive, affective, and health-related physical fitness domains in K-12 physical education. Prerequisite: PES 215.

PES 410 Competition Oriented Strategies and Preparations 2(2-0)

Specific strategies and tactics that prepare individuals or teams for maximizing their performance in athletic competition. This course may be offered in an online format. Prerequisites: PES 255.

PES 415 Planning, Teaching, and Assessing: Practical Applications 3(3-0)

Practical experience in programming, teaching, and assessing school children. Prerequisite: PES 406.

PES 445 Athletic Season Planning and Evaluation 2(2-0)

Prepares coaches to plan in- and out-of-season activities, and provides them with the tools they need to evaluate program strengths and weaknesses. This course may be offered in an online format. Pre/Co-requisite: PES 410.

PES 470 Athletic Coaching Internship 3(Spec)

A practical experience in coaching athletes in a competitive setting at any level of competition under the supervision of a superior. This course may be offered in an online format. Prerequisite: PES 445.

PES 480 Integration of Sport Management Theory & Practice 3(Spec)

A capstone experience for sport management majors, including fundraising, event management, strategic planning, game day operations, leadership, problem solving, sales, and communication. Prerequisites: PES 360, 380 both with grade of C or better; PES 393 with a grade of B- or better; minimum 86 credit hours (senior status).

PES 483 Physical Education for the Mentally Impaired 3(2-2)

Planning of movement experience appropriate for the mentally impaired, neurologically impaired, and emotionally disturbed. Prerequisite: PES 386.

PES 485 Theoretical Foundations of Strength and Conditioning 3(3-0)

Theory and application of physiological, biomechanical, psychological components of physical performance needed to analyze, develop and implement strength and conditioning programs. NSCA standards and guidelines. Prerequisite: One of: HSC 211 or HSC 214, 215.

PES 490 Practicum in Physical Education 1-3(Spec)

Opportunity to work in the area of classroom experience, extra class activities, interscholastics, clubs, and organizations. CR/NC only. Prerequisites: application to the department chairperson must be made in the semester prior to the one in which affiliation credit is earned.

PES 495 Senior Seminar in Physical Education 1(1-0)

A capstone experience, prior to student teaching, designed to integrate required physical education subject matter through case study, discussion, role playing, and organization of materials. CR/NC only. Prerequisite: minimum of 90 semester hours completed.

PES 499 Internship in Sport Management 1-12(Spec)

Provides practical experience in a select sport-related organization. Students enroll in 1 to 12 credits. A minimum of 400 clock hours is required (9 credit hours to meet course requirements). Prerequisites: PES 318, 360, 380 all with a C or better; PES 393 with a B- or better; minimum 86 credits (senior status), and permission of the sport management internship coordinator.

PES 508 Education on Sexual Aggression for School/Community 3(Spec)

This course addresses the realities of sexual aggression, and how schools, corporations, and communities can educate their respective populations on these topics. Identical to HSC 508. Credit may not be earned in more than one of these courses.

PES 525 International Travel Course in Sport 3(3-0)

A study abroad course that investigates the components of sport management from an international perspective, including historical and cultural influences on sport. Prerequisites: Permission of instructor.

PES 550 Sport Fundraising 3(3-0)

Provides theoretical and practical applications of fundraising in the sport industry. This course may be offered in an online or hybrid format. Prerequisites: Minimum 86 credit hours (senior status); or graduate status.

PES 564 Sport Governance: Ethics, Morals, & Values 3(3-0)

Investigation of how ethics, morals, and values influence the interpretation of laws and adherence to rules governing sport competition by athletes, coaches, and administrators. Prerequisites: PES 318, 360 and 380 all with a C or better; PES 393 with a B- or better; minimum of 86 credits (senior status); or graduate status.

PES 570 Advanced Coaching in Basketball 2(2-0)

Study of most recent basketball trends and new techniques, methods, and philosophies in the coaching of basketball.

PES 572 Advanced Coaching in Baseball 2(2-0)

Coaching philosophy, new techniques and drills, practice organization, coaching duties, and strategy. Prerequisite: PES 372.

PES 574 Advanced Coaching of Football 2(2-0)

Study of recent changes and new trends in coaching of football.

PES 592 Independent Reading 1(Spec)

Exploration of one or more aspects of the field of physical education by individual study. Prerequisite: Permission of the department chairperson and instructor required.

PES 595 Issues in Physical Education and Sport 1-6(Spec)

Investigation of selective major issues in physical education and sport. Prerequisite: permission of the instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

PES 602 Sport Event Management: Theory & Application 3(Spec)**PES 603 Administration of Sport and Athletics 3(3-0)****PES 606 Motor Learning and Human Performance 3(3-0)****PES 607 Physical Education Curriculum Analysis 3(3-0)****PES 610 Philosophical & Ethical Issues in Athletics 3(3-0)****PES 611 Psychology of Sport 3(3-0)****PES 615 Analysis of Teaching in Physical Education 3(3-0)****PES 619 Continuing Registration for Final Research Project 1(1-0)****PES 620 Sport - An Interdisciplinary Study 3(3-0)****PES 625 Athletic Facility Design and Management 3(3-0)****PES 631 Physiology of Exercise 4(3-2)****PES 635 Quantitative Applications & Data Based Decision Making in Sport 3(3-0)****PES 640 Sport and the Law 3(3-0)****PES 645 Financial Management of Sport 3(3-0)****PES 650 Sport Marketing 3(3-0)****PES 660 Biomechanics 3(3-0)****PES 665 Applied Research in Sport Management 3(3-0)****PES 670 Research Methods for Physical Education and Sport, Health and Recreation 3(3-0)****PES 672 Statistics for Physical Education and Sport, Health and Recreation 3(3-0)****PES 675 Human Resource Management in Sport Organizations 3(3-0)****PES 685 Integrated Capstone Project in Sport Management 3(Spec)****PES 690 Practicum 1-4(Spec)****PES 691 Independent Study 3(Spec)****PES 693 Field Study in Physical Education and Sport 1-6(Spec)****PES 696 Seminar in Physical Education 2(2-0)****PES 698 Thesis 1-6(Spec)****PES 699 Internship in Sport Management 3-6(Spec)****PES 703 Advanced Independent Reading 1-2(Spec)****PES 791 Independent Study 2(Spec)****PHA - Physician Assistant**

See the School of Rehabilitation and Medical Sciences for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

PHA 608 Clinical Medicine I 4(4-0)**PHA 609 Clinical Medicine II 4(4-0)****PHA 610 Clinical Medicine III 3(3-0)****PHA 612 Obstetrics/Gynecology 3(3-0)****PHA 614 Pediatrics 3(3-0)****PHA 616 Surgery 2(2-0)****PHA 618 Emergency Medicine 2(2-0)****PHA 619 Continuing Registration for Final Research Project 1(1-0)****PHA 620 Infectious Diseases 3(3-0)****PHA 624 Issues in Practice 2(2-0)****PHA 625 Clinical Pharmacology I 3(3-0)****PHA 626 Clinical Pharmacology II 3(3-0)****PHA 630 Clinical Procedures I 3(2-2)****PHA 631 Clinical Procedures II 3(0-6)****PHA 633 Scientific Basis of Medicine I 2(2-0)****PHA 634 Scientific Basis of Medicine II 2(2-0)****PHA 635 Scientific Basis of Medicine III 2(2-0)****PHA 640 Clinical Problem Solving I 3(1-2)****PHA 641 Clinical Problem Solving II 3(0-11)****PHA 642 Clinical Problem Solving III 3(0-11)****PHA 645 Critical Appraisal of Medical Literature and Evidence-Based Medicine 2(2-0)****PHA 650 Diagnostic Tests I 2(1-2)****PHA 651 Diagnostic Tests II 2(2-0)****PHA 652 Diagnostic Tests III 2(1-2)****PHA 660 History and Physical Examination I 3(2-2)****PHA 661 History and Physical Examination II 3(2-2)****PHA 662 History and Physical Examination III 4(2-4)****PHA 671 Preventive Medicine 1(1-0)****PHA 672 Applied Ethics for Physician Assistants 2(2-0)****PHA 673 Psychiatry 3(3-0)****PHA 690 Clinical Education I 16(0-40)****PHA 691 Clinical Education II 16(0-40)****PHA 692 Clinical Education III 16(0-40)****PHA 694 Clinical Clerkship Remediation 3-9(Spec)****PHA 697 Special Topics for Physician Assistants 1-9(Spec)****PHL - Philosophy**

See the Department of Philosophy and Religion for more information.

PHL 100 Introduction to Philosophy 3(3-0)

Study of the basic issues and methods of philosophy. Depending on instructor, it may have either a problem or a historical orientation. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

PHL 105 Critical Thinking in Everyday Life 3(3-0)

Designed to help the student think clearly, evaluate arguments, and develop a sensitivity to language. Emphasis is on the development of skills rather than theories.

PHL 118 Moral Problems 3(3-0)

Study of basic moral problems and proposed solutions to problems associated with violence, oppression, prejudice, and sex. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas.)

PHL 140 Introduction to Logic 3(3-0)

A study of modern formal logic, with emphasis on the development of general procedures for deciding whether any argument is correct. This course may be offered in an online or hybrid format. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHL 141 Applied Logic 3(3-0)

An introduction to logic, with a focus on its applications. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHL 145QR Reasoning and Probability 3(3-0)

A study of modern inductive reasoning, with emphasis on causal reasoning, probabilities, and decision theory as they relate to daily life. Quantitative Reasoning. (University Program II-B: Quantitative and Mathematical Sciences)

PHL 200 History of Philosophy: Classical Period 3(3-0)

Course focuses on "Athenian School" of the classical period, with heavy emphasis on Socrates, Plato and Aristotle, and some emphasis on the Pre-Socratic philosophers. Recommended: Any PHL course.

PHL 205 American Philosophy 3(3-0)

Historical study of the development and distinctive themes of American philosophy from colonial times to the present. Emphasis on Pierce, William James, and John Dewey.

PHL 218 Ethical Theories 3(3-0)

Surveys philosophical theories about right and wrong, the good life, and the nature and justification of morality. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

PHL 225 Foundations of Cognitive Science 3(3-0)

Introduction to cognitive science, the problems it addresses, its evolving models of the mind, its interdisciplinary nature, and its broader ramifications. Identical to PSY 225. Credit may not be earned in more than one of these courses.

PHL 230 Philosophy of Religion 3(3-0)

The philosophical study of the meaning and justification of religious claims, including those about the nature and existence of God and human immortality. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

PHL 286 Philosophy in Literature 3(3-0)

Philosophical themes in selected literary works from ancient, medieval, modern, or contemporary sources.

PHL 297 Special Topics in Philosophy 1-12(Spec)

Study of areas in philosophy not included in courses currently listed in catalog.

PHL 300 History of Philosophy: Medieval Period 3(3-0)

Faith, reason and logic in the Moslem, Jewish, and Christian perspectives during the Middle Ages.

PHL 302 History of Philosophy: Modern Period 3(3-0)

Major philosophers during the Scientific Revolution and Enlightenment, such as Descartes, Locke, Berkeley, Hume, Reid, Kant, Hobbes, Malebranche, Spinoza and Leibniz. Recommended: PHL 200; 56 credit hours.

PHL 305 Chinese Philosophy 3(3-0)

A survey of Chinese philosophy from the earliest times to the modern period, with emphasis on major thinkers and schools.

PHL 311 Human Nature, Human Rights 3(3-0)

A philosophical examination of classical theories of human nature and how these theories have shaped the development of the Universal Declaration of Human Rights. Recommended: One course in philosophy.

PHL 312 Philosophy of Humanitarian Law 3(3-0)

Exploration of philosophical and moral principles underlying the Geneva Conventions and other international laws aimed at reducing suffering and protecting human dignity during armed conflict. Recommended: One course in philosophy.

PHL 313 Justice, Human Rights, and the Philosophy of Nonviolence 3(3-0)

Focusing on questions of social and political philosophy, this course asks what we can learn from nonviolent movements about justice, power, democracy and human dignity. May be offered as Writing Intensive. Recommended: One course in philosophy.

PHL 318 Business Ethics 3(3-0)

Application of ethical principles to such business issues as fair competition, employee obligations, and business's responsibilities to stockholders, customers, employees, community, and society. This course may be offered in an online format.

PHL 320 Theory of Knowledge 3(3-0)

Study of skepticism, the justification of beliefs, and theories of truth. Prerequisites: PHL 100 or PHL 140.

PHL 325 Philosophy of Mind 3(3-0)

An attempt to explain the nature of the mind. By examining historical and contemporary philosophical works on the mind-body problem and related topics. Recommended: Any PHL course. (University Program Group I-A: Human Events and Ideas)

PHL 328 Animal Ethics 3(3-0)

Study of ethical issues, both theoretical and applied, related to human interactions with animals. Prerequisite: One of: PHL 100, 118, 218, 318.

PHL 335 Philosophy of Psychology 3(3-0)

An introduction to central areas of concern in the philosophy of psychology and/or the philosophy of psychiatry. May be offered as Writing Intensive. Prerequisite: One course in philosophy. Recommended: One course in psychology.

PHL 338 Medical Ethics 3(3-0)

Philosophical exploration of ethical issues in health care, such as the client-professional relationship, medical resource distribution, research ethics, organ allocation, end-of-life issues. Prerequisite: PHL 118 or 218.

PHL 340 Intermediate Logic 3(3-0)

First order quantificational theory is presented as a paradigm of formal theories. In terms of this, some metatheoretic notions are introduced. Prerequisite: PHL 140.

PHL 345 The Civil Rights Movement 3(3-0)

Examines the civil rights movement from 1954 to 1980s; based on PBS series: Eyes on the Prize. Identical to PSC 325, REL 345, SOC 345. Credit may not be earned in more than one of these courses. Prerequisites: Any one of the following: HST 110, HST 111, HST 112, LAR 145, PSC 100, PSC 105, PSC 125, REL 140, SOC 100. (University Program Group IV-C: Studies in Racism and Diversity in the United States)

PHL 348 Decision Theory 3(3-0)

An introduction to the central topics of decision theory, including decisions under certainty, ignorance, and risk, the nature of utility, basic probability, and the fundamentals of game theory. Prerequisite: One course in philosophy.

PHL 390 Philosophy of Science 3(3-0)

Study of problems that arise in a critical examination of science: explanation, theory, confirmation, law, measurement, scientific change. Prerequisites: PHL 140; one other course in Group II of the University Program.

PHL 397 Special Topics in Philosophy 1-12(Spec)

Study of areas of philosophy not included in courses currently listed in catalog. May be offered as Writing Intensive. Prerequisite: 3 credit hours in philosophy.

PHL 403 History of Philosophy: Nineteenth Century 3(3-0)

Analysis of philosophical texts selected from the work of thinkers such as Hegel, Marx, Kierkegaard, and Nietzsche. Prerequisites: at least three (3) credit hours in the history of philosophy.

PHL 404 Twentieth Century Philosophy 3(3-0)

A study of some of the important philosophical trends since 1900. May be offered as Writing Intensive. Prerequisite: PHL 100 or 140.

PHL 405 Major Philosophers 3(3-0)

An in-depth study of a major philosopher. Prerequisite: At least one of the following: PHL 200, 300, 302, 403, 404.

PHL 410 Philosophy of Law 3(3-0)

Consideration of such questions as: What is a legal system, a law, a legal right? What is the relation among law, morality, and custom?

PHL 418 Advanced Moral Philosophy 3(3-0)

An advanced study of contemporary moral theory, meta-ethics, and the methodology of constructing and evaluating ethical theories. May be offered as Writing Intensive. Prerequisite: PHL 218.

PHL 421 Philosophy of Language 3(3-0)

Study of structure of language, relations between language and reality, and interrelations among language, thought, and culture. Prerequisite: PHL 100, PHL 140.

PHL 422 Political and Social Philosophy 3(3-0)

Fundamental questions of political life, e.g., How does power operate within and between societies? What principles should we use to evaluate social/political institutions? May be offered as Writing Intensive.

PHL 426 Feminist Theory 3(3-0)

Examination of theories that describe and criticize the social, cultural and political status of women and offer alternatives to the status quo. Identical to WGS 426 and PSC 426. Credit may not be earned in more than one of these courses. Recommended: one course in philosophy or one of PSC 275, 326, 371, 372, 373, 378.

PHL 480 Philosophy of the Arts 3(3-0)

Studies in the experience of arts and discussion of traditional and contemporary aesthetics. May be offered as Writing Intensive.

PHL 490WI Senior Seminar in Philosophy 3(3-0)

A senior seminar for philosophy majors. Writing Intensive. Prerequisites: Philosophy Majors with senior status or junior status with permission of the instructor; at least 21 hours in Philosophy.

PHL 497 Special Topics in Philosophy 1-12(Spec)

Study of areas in philosophy not included in courses currently listed in catalog. May be offered as Writing Intensive. Prerequisite: 3 credit hours in philosophy.

PHL 498 Independent Research 1-6(Spec)

Independent study of selected philosophical topic(s) or work(s). Prerequisite: permission of instructor.

PHL 518 Professional Ethics 3(3-0)

An examination of the theories and methods used in ethical decision-making: with application to common issues in law, journalism, technology, research, education, and the health professions. This course may be offered in an online or hybrid format. Prerequisite: junior status.

PHL 525 Philosophical Problems of the Self 3(3-0)

Advanced study of central philosophical questions about persons, such as mind-body problem, the nature of personal identity, and the freedom of the will. Prerequisites: PHL 100.

PHL 597 Special Topics in Philosophy 1-12(Spec)

Study of areas in philosophy not included in courses currently listed in catalog. Prerequisite: permission of instructor.

PHL 598 Readings in Philosophy 1-6(Spec)

Selected studies of one or more philosophic works. Prerequisite: permission of instructor.

PHS - Physical Science

See the Department of Physics for more information.

PHS 101 Survey of Physical Science 3(3-0)

Introduction to the nature of the physical universe, the concepts and methods of physical science, and the history of scientific ideas. Developed through lectures and demonstrations. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHS 151 Introductory Physical Science I 3(2-2)

Introduction to the concepts and methods of physical science. Focusing on the physical science of solid matter, students are encouraged to draw conclusions from desk-top experiments. Recommended for prospective elementary, special education, and middle school teachers. Satisfies University Program Group II laboratory requirement. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHS 251 Introductory Physical Science II 3(2-2)

Continuation of PHS 151. The physical science of solid matter with emphasis on models of atoms and molecules. Prerequisite: PHS 151.

PHS 265QR Quantitative Physical Science 2(1-3)

Concepts and quantitative methods of physical science. Recommended for prospective elementary school teachers. Quantitative Reasoning. Prerequisite: MTH 152 (with a grade B- or better).

PHS 563 Physical Science Practicum 2(Spec)

Practical experience in all aspects of teaching a physics class with a laboratory component. Prerequisite: permission of instructor.

PHS 565 Selected Topics in Physical Science 1-6(Spec)

Topics not ordinarily covered in regular courses.

PHS 590 Independent Study 1-6(Spec)

Individual study in an area not covered by regular courses. Prerequisite: Prior permission of the instructor must be obtained.

PHY - Physics

See the Department of Physics for more information.

PHY 100 Conceptual Physics 3(3-0)

An exploration of physical concepts; their social and philosophical implications; and the utility and limitations of physics for solution of problems in the modern world. The mathematical level will be that of beginning high school algebra. Not intended for potential science majors. This course may be offered in an online or hybrid format. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHY 105QR Energy and Society: A Quantitative Perspective 3(3-0)

Understanding current and future energy problems using quantitative reasoning techniques. Topics covered span a range from the personal to the societal. Quantitative Reasoning.

PHY 110 Physics of Sports 3(3-0)

For students interested in physics of motion. Covers velocity, acceleration, force and momentum, as related to physical activity. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHY 127 Table Top Physics 1(0-2)

Laboratory experience for students in PHY 100, PHY 110, or PHS 101. Hands-on group laboratory to investigate basic concepts in introductory physics. Satisfies University Program Group II laboratory requirement. Pre/Co-requisite: PHY 100 or 110 or PHS 101. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHY 130QR College Physics I 4(4-0)

Mechanics, heat, kinetic theory, and sound. The mathematics used is algebra and trigonometry. The sequences PHY 130-131, PHY 170-171 satisfy minimum requirements for medical and dental schools. Quantitative Reasoning. Recommended: A high school math background that includes a good foundation in algebra and trigonometry, or MTH 109. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHY 131 College Physics II 4(4-0)

A continuation of PHY 130 that covers the topics of electricity, magnetism, optics and modern physics. Prerequisite: PHY 130.

PHY 145QR University Physics I 4(4-0)

Normally the first physics course for majors and minors. Mechanics of single and many-particle systems, conservation laws, statistical concepts, and gravitational interaction. Quantitative Reasoning. Pre/Co- Requisite: MTH 132.

PHY 146 University Physics II 4(4-0)

Temperature and thermodynamics, electromagnetic interaction, electrical circuits, electromagnetic radiation, and optics. Not open to those with credit in PHY 131. Prerequisite: PHY 145. Pre/Co-requisite: MTH 133.

PHY 170 College Physics Laboratory I 1(0-2)

Experimental techniques of physics introduced by studying quantitative situations through error analysis, graphical analysis, small computer calculations, and fitting data to model functions. Laboratory experience for PHY 130. Satisfies University Program Group II laboratory requirement. Pre/Co-requisite: PHY 130. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHY 171 College Physics Laboratory II 1(0-2)

Laboratory experience for PHY 131. Introductory experimental techniques and instrumentation for electrical, optical, and nuclear phenomena. Prerequisite: PHY 170. Pre/Co-Requisite: PHY 131.

PHY 175 University Physics Laboratory I 1(0-2)

Laboratory experience for PHY 145. Introduction to experimental techniques and the treatment of experimental data. Satisfies University Program Group II laboratory requirement. Pre/Co-requisite: PHY 145. (University Program Group II-B: Quantitative and Mathematical Sciences)

PHY 176 University Physics Laboratory II 1(0-2)

Laboratory experience for PHY 146. Introduction to electrical measurements and instrumentation. Introduction to techniques of optical measurements. Prerequisite: PHY 175. Pre/Co-Requisite: PHY 146.

PHY 180 Special Topics in Physics 1-6(Spec)

Special topics not included in standard courses in physics. Course may be taken for credit more than once; total credit not to exceed six hours.

PHY 210 Spacetime Physics 1(1-0)

Special relativity and a taste of general relativity for inquiring minds. Intended for prospective physics or mathematics majors. Prerequisite: PHY 145.

PHY 247QR Introduction to Modern Physics 3(3-0)

Historical development of modern physics; introduction to special relativity, atomic structure, and elementary quantum theory. Quantitative Reasoning. Prerequisites: PHY 146 or 131; MTH 132. Recommended: MTH 133.

PHY 252 Modern Concepts in Nuclear and Particle Physics 1(1-0)

Introduction to nuclear radioactivity, production of super-heavy elements, nuclear reactions and nuclear energy, stellar evolution, and the Standard Model of particle physics. Prerequisite: PHY 247.

PHY 254 Lasers: Basic Principles and Practical Applications 1(1-0)

An introduction to lasers and their applications for science and engineering students. Prerequisite: PHY 146.

PHY 256 Excursions into Condensed Matter 1(1-0)

An introduction to several topics in condensed matter physics for science and engineering majors. Prerequisite: PHY 247.

PHY 277 University Physics Laboratory III 1(0-3)

Laboratory experience for PHY 247. Introduction to the techniques of electron and photon physics. Pre/Co-Requisite: PHY 247.

PHY 280 Special Topics in Physics 1-6(Spec)

Special topics not included in standard courses in physics. Course may be taken for credit more than once; total credit not to exceed six hours. Prerequisites: PHY 145, 175.

PHY 294 Computation in Physics 1(0-2)

Laboratory experience using basic computational tools and techniques that are important in modern physics research. The course expands on physics concepts through numerical experimentation. Prerequisite: PHY 145. Pre/Co-requisite: MTH 133. Recommended: MTH 223.

PHY 312 Introduction to Mathematical Physics 3(3-0)

Introduction to mathematical concepts and techniques required to understand classical mechanics, electromagnetism, and quantum mechanics. Pre/Co-Requisites: PHY 247QR; MTH 233, 334.

PHY 322 Intermediate Mechanics 3(3-0)

Newtonian mechanics of particles and systems of particles: conservation theorems, gravitation, oscillations, central force motion, Lagrangian and Hamiltonian dynamics, and two-particle collisions. Pre/Co- requisites: PHY 247; MTH 233, 334.

PHY 332 Electricity and Magnetism 3(3-0)

Electrostatic fields in vacuum and in dielectrics, magnetic fields associated with constant and variable currents, magnetic materials, Maxwell's equations. Prerequisite: PHY 247; MTH 233, 334.

PHY 380 Special Topics in Physics 1-6(Spec)

Special topics not included in standard courses in physics. Course may be taken for credit more than once; total credit not to exceed six hours. Prerequisites: See Course Search and Registration.

PHY 442 Introductory Quantum Theory 4(4-0)

Introduction to quantum theory, Schrödinger equation, operators, angular momentum, harmonic oscillator, atomic hydrogen, perturbation theory, identical particles, radiation. Some applications will be considered. Prerequisites: PHY 312, 322, 332.

PHY 450 Thermal Physics 3(3-0)

Introduction to equilibrium thermodynamics and elementary statistical mechanics. Prerequisite: PHY 312, PHY 322.

PHY 480 Special Topics in Physics 1-6(Spec)

Special topics not included in standard courses in physics. Course may be taken for credit more than once; total credit not to exceed six hours. Prerequisite: PHY 332.

PHY 490 Independent Study 1-6(Spec)

Individual study in an area not covered by regular courses. May be taken for credit more than once; total credit not to exceed six hours. Prerequisite: PHY 332 and permission of instructor.

PHY 491WI Senior Physics Project 3(Spec)

Capstone experience for physics majors. Students enroll during their penultimate semester on campus. Writing Intensive. Prerequisites: PHY 312, 322, 332, 578. Prior permission of instructor.

PHY 501 Careers in the Physical Sciences 1(0-2)

Career planning and job application skills for students in physics, astronomy, or a closely related area. Prerequisite: Completion of at least 20 credit hours of coursework in the physical sciences or mathematics, or admission to the PHY M.S. program.

PHY 505 Teaching Chemistry and Physics in the Secondary School 3(3-0)

Exposes pre-service secondary chemistry and physics teachers to theory and practice of teaching in secondary schools, design of instructional units and safety practices. Must be completed prior to student teaching. Identical to CHM 505. Credit may not be earned in more than one of these courses. Prerequisites: CHM 132 or CHM 161; PHY 131 or PHY 146; Tier Two - Admission of Candidacy to Teacher Education; signed major or minor in chemistry, physics, or chemistry-physics (secondary education); Junior standing. Graduate students must be enrolled in a teaching master's program.

PHY 507 Field Experience in Teaching Chemistry/Physics 1(Spec)

Supervised experience in high school chemistry and/or physics classes. Experience will include observation, participation in instruction, and critical analysis of the experience. Identical to CHM 507. Credit may not be earned in more than one of these courses. CR/NC only. Prerequisites: Tier Two - Admission of Candidacy to Teacher Education; junior or senior standing. Graduate students must be enrolled in a teaching master's program. Pre/Co-requisite: CHM 505 or PHY 505.

PHY 517 Computational Physics 3(2-2)

Introduction to standard numerical techniques applied to problems in physics, including numerical differentiation and integration, systems of differential equations, eigenvalues and eigenvectors, and Monte-Carlo simulations. Prerequisites: MTH 233; or graduate standing. Pre/Co- requisites: PHY 322, MTH 334; or graduate standing. Recommended: Basic knowledge of a programming language such as FORTRAN, Java, C, Python, or others.

PHY 552 Nuclear Physics 3(3-0)

Radioactive transformations, detection of radiation, methods of producing high-speed particles, nuclear structure, fission, cosmic radiation and applications of radioactivity. Prerequisite: PHY 442 or graduate standing in Physics.

PHY 554 Optics 3(3-0)

Geometrical and physical optics, electromagnetic theory of light, interference and diffraction from standpoint of Huygens' principle, Fourier formalism, polarized light, principles and applications of lasers. Prerequisites: PHY 332.

PHY 556 Solid State Physics 3(3-0)

Vibrational and electronic properties of crystalline materials as well as more specialized selected topics such as magnetism, optical, and transport properties. Prerequisites: PHY 442 or graduate standing in Physics. Pre/Co-requisites: PHY 450 or graduate standing in Physics.

PHY 578 Experimental Physics 2(0-6)

Selected experiments utilizing the techniques of modern experimental physics. Prerequisite: PHY 277.

PHY 580 Special Topics 1-9(Spec)

Special topics not included in standard courses in physics. Course may be taken more than once; total credit not to exceed six hours. Prerequisite: PHY 442 or graduate standing.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- PHY 614 Methods of Theoretical Physics 3(3-0)**
PHY 619 Continuing Registration for Final Research Project 1(1-0)
PHY 624 Advanced Mechanics 3(3-0)
PHY 634 Advanced Electricity and Magnetism 3(3-0)
PHY 643 Quantum Mechanics I 3(3-0)
PHY 644 Quantum Mechanics II 3(3-0)
PHY 685 Seminar: Contemporary Physics 1-4(Spec)
PHY 698 Plan B Project 1-2(Spec)
PHY 780 Topics in Physics 1-9(Spec)
PHY 790 Independent Study 1-6(Spec)
PHY 798 Thesis 1-6(Spec)

POR - Portuguese

See the Department of World Languages and Cultures for more information.

POR 105 Accelerated Elementary Portuguese 4(4-0)

Designed for students who have had no or little Portuguese. Covers all four basic language and communicative skills. Introduction to the culture of Portuguese-speaking countries. This course may be offered in an online format. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

PSC - Political Science

See the Department of Political Science and Public Administration for more information.

PSC 100 Introduction to Political Science 3(3-0)

An introduction to the historical and theoretical concepts and subject matter of political science, required for all political science majors and minors. May be offered as Writing Intensive. This course may be offered in an online format. (University Program Group III-B: Studies in Social Structures)

PSC 101 Political Behavior 3(3-0)

Focus is on the elements of individual political behavior. Includes rational choice; political involvement, commitment, and participation; elections and voting behavior; and political opinion. May be offered as Writing Intensive. (University Program Group III-A: Behavioral Sciences)

PSC 105 Introduction to American Government and Politics 3(3-0)

Examines the formal institutions of government and how politics actually works in the United States: civil rights, civil liberties, elections, media, interest groups and more. This course may be offered in an online format. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

PSC 125 African-American Politics 3(3-0)

Examines issues of political economy, political participation, political efficacy and alienation, Black Nationalism and Pan-Africanism.

PSC 150 Introduction to International Relations 3(3-0)

Introduction to theoretical tools used in the field of international relations. May be offered as Writing Intensive. This course may be offered in an online or hybrid format. (University Program Group III-B: Studies in Social Structures)

PSC 151 The U.S. and the World 3(3-0)

Prepares the student to confront the issues to be faced as a citizen of the US and as a member of the global society. (University Program Group III-B: Studies in Social Structures)

PSC 180QR Polls, Politics and Policy 3(3-0)

Introduction to quantitative reasoning to provide students with the skills necessary to interpret and critically assess the validity and reliability of political data. This course may be offered in an online or hybrid format. Quantitative Reasoning.

PSC 242 Introduction to Comparative Politics 3(3-0)

An examination of relevant theories, concepts, and methods of comparative political analysis and application of these in the study of selected political systems. This course may be offered in an online format. (University Program Group III-B: Studies in Social Structures)

PSC 261 State and Local Government 3(3-0)

Structure and functions of states, cities and counties, with emphasis on Michigan. May be offered as Writing Intensive. This course may be offered in an online format. (University Program Group III-B: Studies in Social Structures)

PSC 275 Great Political Thinkers 3(3-0)

Discussion of vital issues in the history of Western political thought, such as freedom, justice, equality, and power. Authors include Plato, Aristotle, Machiavelli, Marx. This course may be offered in an online or hybrid format. (University Program Group I-A: Human Events and Ideas)

PSC 280QR Introduction to Empirical Methods of Political Research 3(3-0)

Empirical political research techniques including the scientific method, measurement, descriptive and inferential statistics, literature reviews, data collection, computer assisted data analysis, and research reporting. Quantitative Reasoning. This course may be offered in an online format. Prerequisites: PSC 100, 105, or 150; one other political science course.

PSC 300 Michigan Politics and Elections 3(3-0)

Analysis of Michigan's election campaigns with focus on organization, strategies and tactics. Emphasis on election consequences for state's policy leaders, opinion, interests and government. Prerequisite: PSC 105 or PSC 261.

PSC 301 Law and Policy in Michigan State Government 3(3-0)

Analysis of Michigan's legislative process, policy issues, and state government politics. Emphasis on origination, shaping, negotiating, and content of state policy. Prerequisite: PSC 105 or PSC 261.

PSC 305 Midtier Teaching in Political Science 2(1-2)

The midtier experience provides observations and small-group instructional opportunities for students seeking secondary certification in political science. Course includes both campus instruction and field work. CR/NC only. Prerequisites: completion of EDU 107; 12 hours of political science.

PSC 320 The American Legislative Process 3(3-0)

Analysis of the legislative process, studying formal and informal devices used by legislative bodies in determining policy. Primary emphasis is on the United States Congress. This course may be offered in an online or hybrid delivery format. Prerequisites: PSC 105.

PSC 321 The American Chief Executive 3(3-0)

Development of the executive office of the United States, with emphasis on the Presidency. This course has been approved for offering in a distance learning format.

PSC 322 Judicial Process and Politics 3(3-0)

Focuses on the American judicial process, including federal and state courts, roles of judges and other actors, civil and criminal justice processes, and judicial policymaking. Recommended: PSC 100 or PSC 105.

PSC 323 American Parties and Politics 3(3-0)

Analysis of American political parties as instruments of democratic government. Their structures, functions, and organizations, with emphasis on nomination, campaigns, and elections.

PSC 325 The Civil Rights Movement 3(3-0)

Examines the civil rights movement from 1954 to 1980s; based on PBS series: Eyes on the Prize. Identical to PHL 345, REL 345, SOC 345. Credit may not be earned in more than one of these courses. Prerequisites: Any one of the following: HST 110, HST 111, HST 112, LAR 145, PSC 100, PSC 105, PSC 125, REL 140, SOC 100. (University Program Group IV-C: Studies in Racism and Diversity in the United States)

PSC 326 Women and Politics 3(3-0)

This course will look primarily at empirical studies of women's role in politics in the U.S. but also in other contexts. Identical to WGS 326. Credit may not be earned in more than one of these courses.

PSC 327 Lobbying and Interest Group Behavior 3(3-0)

The reasons for, and the methods of, lobbying government officials in the United States, with an emphasis on implications for democracy. Recommended: PSC 105.

PSC 328 Campaigns and Elections 3(3-0)

Study of campaigns and elections in the United States, including candidate emergence and nominations, campaign organization and strategy, election results, and electoral reform.

PSC 330 Study Abroad: Politics and Culture of Ancient Greece 3(3-0)

Students travel to Greece (Athens, Delphi, Mycenae, Olympia) to study the foundation of Western civilization, especially politics and philosophy, and connect them to modern ideas.

PSC 340 African Political Systems and Processes 3(3-0)

Comparative survey of selected African political systems with focus upon Sub-Saharan Africa.

PSC 341 Comparative Politics: Eastern Europe 3(3-0)

Comparative analysis of selected Eastern European states, including Poland, Czech Republic, Hungary, former Yugoslavia, Romania, Bulgaria. Credit may not be earned in more than one of these classes.

PSC 343 Southeast Asian Political Systems and Processes 3(3-0)

The impact of culture on politics in several countries of Southeast Asia, including Vietnam, Laos, Cambodia, Thailand, Burma, Malaysia, Indonesia, Singapore, Brunei and Philippines.

PSC 344 East Asian Political Systems and Processes 3(3-0)

Emphasis on selected states in East Asia. East Asia consists of China, Japan, and Korea. This course may be offered in an online or hybrid format. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

PSC 345 Middle Eastern Political Systems 3(3-0)

Comparative analysis of the politics of selected Middle Eastern states, including Egypt, Iraq, Saudi Arabia, Algeria, Jordan, Morocco, Iran, Israel and Turkey. This course is approved for offering in a distance learning format.

PSC 346 The Politics of Islam 3(3-0)

Political examination of Islam's revival as a political doctrine that poses a unique reading of modernity, world peace and democracy in the 21st century.

PSC 347 Comparative Politics: Western Europe 3(3-0)

Comparative analysis of selected European states, including Great Britain, France, Italy and Germany.

PSC 348 Latin American Political Systems 3(3-0)

A comparative analysis of politics in contemporary Latin America with focus on the impact of authoritarianism, international intervention, economic underdevelopment, and democratization. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

PSC 351 International Relations 3(3-0)

Classical and contemporary theories of international relations. War, terrorism, and genocide. International law and organizations. Global economics and world poverty. Ethics in international relations.

PSC 352 US - Latin American Relations 3(3-0)

An examination of the political, military, and economic relations between Latin America and the United States.

PSC 353 Model United Nations 3(3-0)

Introduces students to the activities of the United Nations and the protocol and procedures of diplomacy in order to participate in United Nations simulations. Prerequisite: 26 credits completed.

PSC 354 Advanced Model United Nations 1-6(1-0)

Allows advanced students to further their knowledge of the protocol and procedures of diplomacy and participate in United Nations simulations. Prerequisite: PSC 353. Co-requisite: PSC 355.

PSC 355 Model United Nations Lab 1-9(Spec)

This course is a lab for PSC 353 and PSC 354. Can be repeated up to a total of nine credits. CR/NC only. Co-requisite: PSC 353 or 354.

PSC 370 Gurus, Avatars, and Nukes: South Asian Politics 3(3-0)

This course will introduce students to South Asian politics. It will examine the evolution of political institutions, ethnic conflicts, and political crises in the region. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

PSC 371 American Political Thought 3(3-0)

Selective survey of dominant trends in American political thought from the revolutionary era to the present. This course may be offered in an online or hybrid format. (University Program Group I-A: Human Events and Ideas)

PSC 372 American Radical Thought 3(3-0)

Study and analysis of the main social revolutionary ideologies of the left during the past 100 years in the United States.

PSC 375 Modern Ideologies 3(3-0)

This course examines a number of different modern ideologies such as liberalism, socialism, fascism, conservatism, environmentalism, and radical Islamism. This course may be offered in an online format.

PSC 378 Modern Democratic Theory 3(3-0)

Exploration of modern arguments for and against liberal democracy and discussion of the future of liberal democracy in the U.S. and elsewhere. (University Program Group I-A: Human Events and Ideas)

PSC 381 Slavery, Tyranny, Democracy: Classical Origins of Modern Ideas 3(3-0)

This course examines the key concepts and authors of Greek and Roman political theory. Focus is on Plato and Aristotle. May be offered as Writing Intensive. Recommended: PSC 275. (University Program Group I-A: Human Events and Ideas)

PSC 382 Modern Political Theory 3(3-0)

This course examines the key concepts and authors of modern political theory. Focus is on the social contract theorists: Hobbes, Locke, and Rousseau. Recommended: PSC 275. (University Program Group I-A: Human Events and Ideas)

PSC 383 Contemporary Political Theory 3(3-0)

Examines some key authors and concepts of twentieth- and twenty-first century political theory. The course may include Nietzsche, Lenin, Freud, Rawls, or Nozick, among others. Recommended: PSC 275.

PSC 390 Independent Study 1-6(Spec)

Directed reading or research on an approved topic. Prerequisite: Open to students not on academic probation and who shall have completed 12 semester hours in political science, with the permission of the instructor.

PSC 393 Practicum in Citizen Engagement 1-12(Spec)

This course provides experiential learning in a variety of leadership techniques intended to facilitate citizen engagement in public decision making. CR/NC only. Prerequisite: Permission of instructor.

PSC 394 Practicum in Public Polling 1-12(Spec)

This course provides experiential learning in the use of public opinion polling to facilitate democratic processes and governance. CR/NC only. Prerequisites: PSC 280 and permission of instructor.

PSC 395 Internship in Government and Politics 1-12(Spec)

An integrative learning experience where students apply textbook knowledge to governmental and public affairs work experience. CR/NC only. Prerequisite: permission of instructor.

PSC 398 Special Topics in Political Science 1-9(Spec)

Consideration of subject matter not included in courses currently listed in catalog. May be taken more than once.

PSC 405 Methods for Teaching Political Science 3(3-0)

Lesson plans, objectives evaluations, organization and methods of teaching government and politics. Three weeks of mid-tier experiences. Prerequisites: completion of at least 15 hours of political science course work; at least junior status.

PSC 421 Constitutional Law: Powers of Government 3(3-0)

Examines major U.S. Supreme Court decisions concerning judicial review, separation of powers, federalism, fiscal and commerce powers, and economic liberties.

PSC 422 Constitutional Law: Civil Rights and Liberties 3(3-0)

Examines major U.S. Supreme Court decisions regarding the First Amendment, criminal procedure, racial and gender equality, and the right to privacy.

PSC 426 Feminist Theory 3(3-0)

Examination of theories that describe and criticize the social, cultural and political status of women and offer alternatives to the status quo. Identical to WGS 426 and PSC 426. Credit may not be earned in more than one of these courses. Recommended: one course in philosophy or one of PSC 275, 326, 371, 372, 373, 378.

PSC 453 American Foreign Policy 3(3-0)

Analyzes the external interests of the United States and how they are pursued.

PSC 501 Bullets not Ballots: Revolution, Insurgency and Civil War 3(3-0)

This course examines the theory and literature on the causes of violent conflicts such as revolution, insurgency and civil war.

PSC 513 Citizen Engagement in Public Life 3(3-0)

This course examines trends in Americans' participation in public life, as well as various approaches intended to increase their civic and political engagement. Prerequisite: PSC 105 or graduate status.

PSC 514 American Public Policy Making 3(3-0)

This course serves to integrate political institutions and levels of government in terms of policy development and implementation. Prerequisites: PSC 105 or graduate standing. This course is approved for offering in a distance learning format.

PSC 515 Comparative Public Policy 3(3-0)

Techniques of cross-national and other comparative policy analysis applied to social and economic policies of industrialized nations, especially Western Europe. This course may be offered in an online or hybrid format. May be offered as Writing Intensive.

PSC 516 Environmental Politics and Policy 3(3-0)

Analysis of relationships between politics and public policy in the environmental arena. Emphasis upon policy making process, political strategies, and alternative decision modes. Prerequisites: complete minimum of 56 credit hours of university course work.

PSC 520 American National Government and Politics 3(3-0)

This course will examine the major theoretical frameworks used in the study of American national government and politics and survey current research in the area. Prerequisites: a minimum of 9 hours of political science coursework, including PSC 105.

PSC 522 Regulatory Processes and Administrative Law 3(3-0)

Survey of the principles of administrative law and the politics of the U.S. regulatory processes. This course is approved for offering in a distance learning format.

PSC 540 Cultural Heritage and Politics of Eastern Europe 3(3-0)

Comparative study of political systems of Soviet bloc countries and Yugoslavia.

PSC 551 Seminar in International Relations 3(3-0)

Significant aspects of international relations on the basis of timeliness and importance. This course is approved for offering in a distance learning format.

PSC 555 International Law I 3(3-0)

Processes of international law; role in international relations and organizations; effects on individual rights in peacetime through cases, treaties, customs, and legal rules. This course is approved for offering in a distance learning format.

PSC 556 International Law II 3(3-0)

This course supplements the study of the international legal regime examined in International Law I by focusing upon the newly established international criminal law regime. Recommended: PSC 555.

PSC 557 War and Peace Studies 3(3-0)

This course examines the theory and literature on the causes and consequences of violent conflicts and the uses of non-violent means to conflict resolution.

PSC 563 Politics and Policy in Urban Communities 3(3-0)

Examination of large and small city governments. Their political process, behavior and citizen participation. Emerging public policies and intergovernmental cooperation.

PSC 566 Intergovernmental Relations in the United States 3(3-0)

An analysis of the administrative and fiscal relationships between the national, state, and local governments, with emphasis on grants-in-aid and revenue sharing.

PSC 571WI The Military and Politics 3(3-0)

This course examines the role of the armed forces in politics. Theories about civil-military relations, coups d'états, and transitions to democracy will be analyzed. Writing Intensive. Recommended: PSC 242 or graduate status.

PSC 583 Survey Research 3(3-0)

Development and utilization of quantitative data, with emphasis on behavioral research, public opinion polling, and statistical analysis.

PSC 590 Independent Study 1-6(Spec)

Explorations of special problems in subject areas found within Political Science individually agreed upon by student and instructor. May be repeated for a maximum of six hours. This course may be offered in an online format. Prerequisite: Undergraduates must have a major or minor in PSC and/or PAD and at least 12 hours completed in PSC and/or PAD, as well as approval by instructor and department chair before registration. Graduate students must have approval by instructor and department chair before registration.

PSC 598 Special Topics in Political Science 1-12(Spec)

Subject matter not included in courses currently listed in Bulletin.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

PSC 615 Politics and Regulation of Health Care Policy 3(3-0)**PSC 619 Continuing Registration for Final Research Project 1(1-0)****PSC 640 Seminar in Comparative Politics 3(3-0)****PSC 642 Problems and Processes of International Development I 3(3-0)****PSC 651 Comparative Political & Economic Systems 3(3-0)****PSC 670 Justice, Freedom, Equality: Essential Political Ideas 3(3-0)****PSC 675 Public Sector Emergency and Crisis Organizational Theory 3(3-0)****PSC 676 Emergency and Crisis Prevention, Preparedness and Response 3(3-0)****PSC 677 The Public Sector Role in Post-Disaster Recovery 3(3-0)****PSC 680 Methodology of Political Research 3(3-0)****PSC 681 Qualitative Research in Political Science and Public Administration 3(3-0)****PSC 682 Techniques of Political Research 3(3-0)****PSC 761 Seminar in American State Government 3(3-0)****PSC 790 Advanced Readings I 1-6(Spec)****PSC 793 Practicum in Citizen Engagement 1-12(Spec)****PSC 794 Practicum in Public Polling 1-12(Spec)****PSC 798 Thesis 1-6(Spec)****PSY - Psychology**

See the Department of Psychology for more information.

PSY 100 Introduction to Psychology 3(3-0)

Survey of concepts, methods, and fields of psychology. This course may be offered in an online or hybrid format. (University Program Group III- A: Behavioral Sciences)

PSY 200 Special Issues: Title to be listed 1-12(Spec)

Subjects of contemporary psychology not covered by regular curriculum. Prerequisites: See Course Search and Registration.

PSY 211 QR Introduction to Psychological Statistics 3(3-0)

Basic descriptive and inferential statistics are considered, including measures of central tendency and variability, the normal distribution, the t-test, ANOVA, correlation, and chi-square. This course may be offered in an online or hybrid format. Quantitative Reasoning. Prerequisites: PSY 100 and completion of Mathematics Competency.

PSY 220 Developmental Psychology 3(3-0)

Research-based findings on the development of human behavior from conception through late adulthood. This course may be offered in an online or hybrid format. Prerequisite: PSY 100.

PSY 225 Foundations of Cognitive Science 3(3-0)

Introduction to cognitive science, the problems it addresses, its evolving models of the mind, its interdisciplinary nature, and its broader ramifications. Identical to PHL 225. Credit may not be earned in more than one of these courses.

PSY 250 Abnormal Psychology 3(3-0)

Nature, causes, and treatment of mental disorders. This course may be offered in an online or hybrid format. Prerequisite: PSY 100.

PSY 285 Research Methods 3(3-0)

An introduction to the various research methodologies in Psychology. May be offered as Writing Intensive. This course may be offered in an online format. Prerequisite: PSY 100; one of the following with a grade of C or better: PSY 211, BIO 500, HSC 544.

PSY 301 Sports Psychology 3(3-0)

The relationship between psychology and sport from the perspective of theory, research, and practice. Topics include personality, cognition, motivation-emotion, social processes, and youth sport. This course may be offered in an online or hybrid format. Prerequisite: PSY 100.

PSY 310 Psychological Testing 3(3-0)

Theory and foundations of testing with some emphasis on the interpretation of test results. Examination of a variety of different tests. This course may be offered in an online or hybrid format. Prerequisite: PSY 100.

PSY 322 Psychology of Infancy and Early Childhood 3(3-0)

Human development from conception through preschool years. Emphasis on research relevant to understanding development and implications of research for preventing and lessening common developmental problems. Prerequisites: PSY 220 or HDF 100 or EDU 280.

PSY 324 Childhood and Adolescence 3(3-0)

Psychological development from childhood through the college years. Main topics are personality, social, and cognitive development. This course may be offered in an online or hybrid format. Prerequisite: PSY 220 or HDF 100 or EDU 280.

PSY 325 Psychology of Aging 3(3-0)

Empirical approach to understanding changes and continuities in physiological, cognitive, perceptual, behavioral, and social functioning in later life. Prerequisites: PSY 220 or signed Gerontology Minor.

PSY 330 Social Psychology 3(3-0)

Empirical approach to understanding individual social behavior. Deals with the person and the social environment with a focus in attitudes, interpersonal behavior, and group processes. Prerequisite: PSY 100. This course is approved for offering in a distance learning format.

PSY 332 Evolutionary Psychology 3(3-0)

Examines human behavior from an evolutionary perspective. Topics include evolutionary theory, sex and mating, child rearing, social relationships, and evolutionary applications to health and work. Prerequisite: PSY 100 or ANT 171. Recommended: BIO 151.

PSY 334 Psychology of Women 3(3-0)

Explores psychological issues pertaining specifically to women in the following areas: affective and cognitive functioning, personality theories, adult role behaviors, sexuality and physical and mental health. Identical to WGS 334. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format.

PSY 336 Industrial/Organizational Psychology 3(3-0)

The psychology of work and organizations. Introduction to the use and application of psychology in the workplace. Prerequisite: PSY 100. This course is approved for offering in a distance learning format.

PSY 337 Psychology of Advertising 3(3-0)

Psychological principles and concepts applied to advertising and selling, promotion, buyer attitudes, consumer behavior, psychological measurement, and prediction in advertising. Prerequisite: PSY 100.

PSY 339 Psychology and Law 3(3-0)

Introduction to the application of principles and theories of psychological research in the legal system. Prerequisite: PSY 100.

PSY 340 Studies in Personality 3(3-0)

A survey of the major theories and principles that are used to describe/explain the individual. The primary focus will be on evaluating and testing theories via research findings. This course may be offered in an online or hybrid format. Prerequisite: PSY 100.

PSY 350 Clinical Interviewing and Counseling 3(3-0)

Theory and practice of psychological interviewing and counseling. Recommended: PSY 220, PSY 250. Prerequisites: PSY 100.

PSY 370 Applied Behavior Analysis 3(3-0)

Applied behavior analysis is the use of principles of learning to address behavior problems of individuals in their natural environments. Prerequisite: PSY 100.

PSY 379 Health Psychology 3(3-0)

Study of the relationship between psychological variables and health, including physiological factors, psychological influences affecting health, behavior and chronic disease, psychology's contribution to health promotion. This course may be offered in an online or hybrid format. Prerequisite: PSY 100. Recommended: HSC 106.

PSY 382 Perception 3(3-0)

Perception as the result of psychological and physiological processes. Some of the topics covered are vision, audition, pain perception, illusions, pattern recognition and perceptual development. Prerequisites: PSY 100; a University Program Group II course; competency in written English and mathematics.

PSY 383 Learning and Memory 3(3-0)

Introduction to the major theoretical-empirical views that characterize the area of learning and memory. This course may be offered in an online or hybrid format. Prerequisite: PSY 100.

PSY 384 Behavior Analysis 3(2-2)

Study of empirically-derived principles of behavior and their application to parenting, education, therapy, self-management and the treatment of the developmentally disadvantaged. Has animal lab component. Prerequisite: PSY 100.

PSY 385 Applications of Research Methods 3(3-0)

Second course in psychological research methodology. Students design, execute, interpret, and report psychological research. This course may be offered in an online or hybrid format. May be offered as Writing Intensive. Prerequisites: PSY 285 with a grade of C or better; ENG 201.

PSY 387 Behavioral Neuroscience 3(3-0)

Overview of the neurological processes underlying organismic behavior. Surveys neurobiological explanations of sensation, movement, motivation, emotion, sleep, learning, neurological disorders, recovery mechanisms. This course may be offered in an online or hybrid format. Prerequisites: One of the following: PSY 100, BIO 101, BIO 105, BIO 110, BIO 151, HSC 211.

PSY 400 Special Issues: Title to be listed 1-12(Spec)

Subjects of contemporary psychology not covered by regular curriculum. Prerequisite: See Course Search and Registration.

PSY 409 History of Psychology 3(3-0)

The historical roots of psychology and their present day manifestations are analyzed. Emphasis is on the more direct antecedents of current thought and practice. Prerequisites: PSY 285, PSY 383.

PSY 450 Clinical Psychology 3(3-0)

Introduction to the diagnostic, therapeutic, and research activities of the clinical psychologist. Prerequisite: PSY 250.

PSY 459 Stress 3(3-0)

Defines stress and how to measure it, evaluates evidence about causes/correlates of stress, and introduces strategies to deal with stress. This course is approved for offering in a distance learning format. Prerequisites: PSY 100.

PSY 487 Neuroscience Seminar 1-2(Spec)

Analysis of current research in specified areas of neuroscience; critiquing and discussing primary literature and the students' current research relating to specific topics. Students will repeat this course for a maximum of 2 credits. Identical to BIO 487. Credit may not be earned in more than one of these courses. Prerequisites: signed neuroscience major and prior or concurrent neuroscience research experience through BIO 403 or PSY 496.

PSY 496 Directed Research 1-6(Spec)

For students who desire to investigate a research problem in psychology. Prerequisite: Must file a written proposal approved by a faculty sponsor in the departmental office prior to registration.

PSY 497 Independent Study 1-4(Spec)

For students who accept responsibility for studying a psychological problem on their own. Prerequisite: Must file a written proposal approved by a faculty sponsor in the departmental office prior to registration.

PSY 498 Undergraduate Honors Thesis 3(Spec)

The student, with guidance from two faculty sponsors, researches and writes an undergraduate thesis. Prerequisites: PSY 211 or STA 282 or STA 382 with a grade of B or better; PSY 285 with a grade of B or better; overall GPA 3.0; permission of instructor.

PSY 500 Special Issues 1-12(Spec)

Subjects of contemporary psychology not covered by regular curriculum. Prerequisites: See Course Search and Registration.

PSY 501 Workshop 1-18(Spec)

Study of problem-oriented subjects for persons already working in psychological services with the intent of continuing their professional growth. Prerequisite: See Course Search and Registration.

PSY 502 Teaching Assistant in Psychology 1-3(Spec)

Development of practical skills for effective teaching of psychology. No more than 3 hours of PSY 502 may be applied to a student's psychology major or minor. Prerequisite: permission of instructor.

PSY 503 Principles and Applications of Sign Language and Manual Systems 3(3-0)

Focused study in the principles of the application of signed and manual communication with Deaf and other populations for educational, clinical and human service settings.

PSY 509 Behavioral Pharmacology 3(3-0)

This course covers basic principles of pharmacology, receptor theory, drug classes, methods in basic pharmacology and behavioral pharmacology, and research and theory in behavioral pharmacology. Prerequisites: PSY 100; PSY 383 or 384 or 387 or graduate status.

PSY 510 Principles of Psychological Measurement 3(3-0)

Problems and procedures in scaling and in correlational methods related to testing reliability, validity, and measurement error. Prerequisite: PSY 310, PSY 211.

PSY 511 Statistics in Psychology 3(3-1)

An extension of topics introduced in PSY 211QR, with emphasis upon hypothesis testing and statistical inference. Prerequisite: PSY 211QR or graduate standing.

PSY 531 Group Dynamics 3(3-0)

Conceptual and empirical background in the dynamics of face-to-face groups and related interpersonal areas. Emphasis is cognitive-theoretical rather than experiential. Prerequisite: PSY 330 or graduate standing.

PSY 533 Psychology of Racism 3(3-0)

This course explores racism from a psychological viewpoint. The processes involved in the development, maintenance and change of racist attitudes are considered. Prerequisites: Junior or higher standing; PSY 330 or SOC 201, a Social Science methods class.

PSY 534 Psychology and the Courtroom 3(3-0)

The application of psychological principles and theories to the courtroom. Prerequisites: coursework in basic statistics (e.g., PSY 211) and research methods (e.g., PSY 285); or graduate standing.

PSY 535 Organizational Psychology 3(3-0)

The study of organizations as complex social systems with analyses of individual and group behavior in organizations and responses of organizations to their environment. Prerequisite: PSY 336 or graduate standing.

PSY 536 Personnel Psychology 3(3-0)

This course examines the identification, measurement, and development of individual differences. Topics include job analysis, criterion development, personnel selection, training, and performance evaluation. Prerequisites: PSY 211, 336; or Graduate Standing. Recommended: PSY 310.

PSY 537 Organizational Behavior Management 3(3-0)

Behavior analysis in business, industry, and human service settings. Applied research in organizations is emphasized. Empirical rather than theoretical approach. Prerequisites: PSY 336 or PSY 370 or PSY 384 or graduate standing.

PSY 538 Occupational Health Psychology 3(3-0)

The study of health and stress in organizations as a complex process, with analyses of resources, stressors, coping, stress responses, and consequences. Prerequisites: PSY 336 and 379, or graduate standing.

PSY 544 Theories of Personality 3(3-0)

Theories regarding the structure and functions of personality. Prerequisite: PSY 340.

PSY 555 Psychopathology of Children 3(3-0)

Problems of children deviating from the norm in behavior and adjustment. Prerequisites: PSY 220, PSY 250.

PSY 559 Rehabilitation Psychology 3(3-0)

Psychological concepts in understanding physical disability from the perspectives of the individual, family and society will be emphasized. Designed for advanced students in health professions. Prerequisites: PSY 100, 220; or graduate standing.

PSY 562 Therapeutic Intervention: Foundations 3(3-0)

Foundational skills for therapeutic intervention including theory and technique. Prerequisite: PSY 350 or graduate standing.

PSY 563 Psychology of Reading 3(3-0)

Reviews the cognitive processes that operate in skilled reading and focuses on reading development and reading difficulties in K-6th grade. Prerequisite: PSY 220, 285, 383; or graduate status.

PSY 570 Behavioral Assessment and Treatment Planning 3(3-0)

This course provides an overview of behavioral assessment procedures. Specific topics include functional behavior assessment, functional analysis, task analysis, data collection, and function-based intervention design. Prerequisite: PSY 370, 384, or graduate status.

PSY 571 Research Methods in Behavior Analysis 3(3-0)

Introduction to the fundamentals of behavior analytic research methods. Prerequisite: PSY 370, 384; or graduate standing.

PSY 575 Autism Spectrum Disorder: Characteristics and Etiology 3(3-0)

This course reviews characteristics and etiology of individuals with autism spectrum disorders. This course may be offered in an online format. Identical to SPE 530. Credit may not be earned in more than one of these courses. Prerequisites: Junior standing or graduate status.

PSY 579 Behavioral Medicine 3(3-0)

Applications of behavior analysis and social learning in medicine, dentistry, and physical health. Prevention, treatment, and long-term maintenance are all considered. Prerequisite: PSY 384 or PSY 370 or graduate standing.

PSY 583 Motivation and Emotion 3(3-0)

Survey of the theories, systems and concepts of motivation and emotion. Prerequisites: Fifteen hours of psychology or graduate standing.

PSY 584 Cognitive Neuroscience 3(3-0)

Converging evidence from human neuroanatomy and neurophysiology, cognitive psychology, neuropsychology, and neuroimaging research will be examined for topics in attention, perception, memory, language, and emotion. Prerequisites: PSY 387 or graduate standing.

PSY 585 Psychophysiology 3(3-0)

Introduction to psychophysiological methods, measures, and applications. Topics include: basic neuroanatomy and neurophysiology; electrophysiological recording; inference using brain, cardiovascular, somatic measures; biofeedback; ergonomic, and other applications. Prerequisite: PSY 387 or graduate standing.

PSY 586 Applied Behavioral Analysis in Education 3(3-0)

The use of applied behavior analysis with children and adolescents to promote academic skill development and reduce interfering behaviors. Prerequisites: PSY 370 or graduate standing.

PSY 587 Physiological Psychology 3(3-0)

Physiological events which underlie human and animal behavior. Prerequisite: PSY 387 or graduate standing.

PSY 588 Functional Neuroanatomy 3(3-0)

Function of the nervous system in behavior. Emphasis is on how various CNS structures function to mediate behavior. Prerequisite: PSY 387 or graduate standing.

PSY 589 Cognitive Psychology 3(3-0)

Introduction to cognitive processes; survey of theory and research in memory, thinking, concept formation, problem solving, and language. Prerequisites: PSY 383.

PSY 592 Supplemental Supervision in Applied Behavior Analysis 1-12(Spec)

Supervised field experience for Behavior Analyst Certification Board certification. This course may be offered in an online or hybrid format. Prerequisites: Permission of Instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

PSY 600 Special Issues 1-12(Spec)**PSY 605 Assessment of Affective and Behavioral Disorders of Children and Youth 3(3-0)**

PSY 609 History and Systems of Psychology 3(3-0)
 PSY 611 Research Design 3(3-0)
 PSY 612 Applied Multiple Regression and Correlation 3(3-0)
 PSY 613 Multivariate and Correlational Methods 3(3-0)
 PSY 614 Seminar in Research Methods and Statistics for Psychology 3-12(3-0)
 PSY 619 Continuing Registration for Final Research Project 1(1-0)
 PSY 624 Advanced Developmental Psychology 3(3-0)
 PSY 630 Advanced Social Psychology 3(3-0)
 PSY 636 Advanced Personnel Psychology 3(3-0)
 PSY 641 Objective Personality Assessment 3(2-2)
 PSY 642 Clinical Research Methods 3(3-0)
 PSY 653 Intervention I: Adult 3(3-0)
 PSY 655 Introduction to Intelligence Testing 2(2-2)
 PSY 656 Advanced Intellectual Assessment 2(2-2)
 PSY 657 Assessment I: Adult 3(3-1)
 PSY 658 Assessment II: Child and Adolescent 3(3-1)
 PSY 660 Intervention II: Child and Adolescent 3(3-0)
 PSY 661 Neuropsychological Assessment 3(3-0)
 PSY 662 Advanced Therapeutic Interventions 3(3-1)
 PSY 667 Assessment and Development of Academic Skills I 3(3-1)
 PSY 677 Assessment and Development of Academic Skills II 3(3-0)
 PSY 680 Learning 3(3-0)
 PSY 681 Sensation and Perception 3(3-0)
 PSY 682 Psychology of Child Development 3(3-0)
 PSY 686 Engineering Psychology 3(3-0)
 PSY 687 Physiological Foundations 3(3-0)
 PSY 690 Research Seminar: Experimental Psychology 1-3(Spec)
 PSY 696 Directed Research 1-12(Spec)
 PSY 697 Independent Study 1-8(Spec)
 PSY 700 Special Issues 1-12(Spec)
 PSY 724 Psychology of Aging 3(3-0)
 PSY 727 Developmental Neuropsychology 3(3-0)
 PSY 736 Interventions in Social Systems 3(3-0)
 PSY 737 Seminar in I/O Psychology 3-12(Spec)
 PSY 751 Psychopathology 3(3-0)
 PSY 760 Seminar A: School Services 3(3-0)
 PSY 761 Advanced Seminar in Ethical-Legal Issues for School Psychologists 1(1-0)
 PSY 765 Seminar: Ethics and Professional Issues 3(3-0)
 PSY 766 Seminar: Consultation Skills 3(Spec)
 PSY 767 Assessment and Intervention for Developmental Disabilities 3(3-1)
 PSY 780 Behavior Therapy 3(2-2)
 PSY 781 Seminar: Perception 4(Spec)
 PSY 785 Seminar: Cognitive-Behavior Therapy 3(3-0)
 PSY 789 Seminar in Applied Experimental Psychology 1-9(Spec)
 PSY 790 Practicum I A: Professional Services 3(Spec)
 PSY 791 Practicum I B: Professional Services 3(Spec)
 PSY 792 Supplemental Supervision 1-3(Spec)
 PSY 795 Internship in School Psychology A 3(Spec)
 PSY 796 Internship in School Psychology B 3(Spec)
 PSY 798 Thesis 1-12(Spec)
 PSY 800 Research in Applied Experimental Psychology 1-12(Spec)
 PSY 818 Program Evaluation 3(Spec)
 PSY 850 Ethnic and Minority Issues in Therapy 3(3-0)
 PSY 890 Practicum II A: Professional Services 3(Spec)
 PSY 891 Practicum II B: Professional Services 3(Spec)
 PSY 892 Practicum III A: Professional Services 3(Spec)
 PSY 893 Practicum III B: Professional Services 3(Spec)
 PSY 898 Doctoral Dissertation: Design 1-12(Spec)
 PSY 899 Doctoral Dissertation: Implementation 1-12(Spec)
 PSY 990 Internship A: Professional Services 1-6(Spec)
 PSY 991 Internship B: Professional Services 1-6(Spec)

PTH - Physical Therapy

See the School of Rehabilitation and Medical Sciences for more information.
 For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

PTH 617 Clinical Pathophysiology & Pharmacology I 2(2-0)
 PTH 618 Human Physical Development 2(2-0)
 PTH 619 Continuing Registration for Final Research Project 1(1-0)

PTH 620 Clinical Management of Geriatric Patients 2(2-0)
 PTH 621 Clinical Pediatrics 2(2-0)
 PTH 622 Clinical Pathophysiology & Pharmacology II 2(2-0)
 PTH 623 Clinical Pathophysiology & Pharmacology III 2(2-0)
 PTH 624 Clinical Pathophysiology and Pharmacology IV 2(2-0)
 PTH 625 Imaging in Physical Therapy 1(1-0)
 PTH 626 Neuroanatomy in Physical Therapy 3(3-0)
 PTH 633 Clinical Education I 3(1-3)
 PTH 634 Clinical Education II 6(Spec)
 PTH 635 Examination and Diagnosis I 2(1-2)
 PTH 636 Examination and Diagnosis II 2(1-2)
 PTH 645 Foundations of Patient Care 5(3-4)
 PTH 646 Therapeutic Interventions 5(3-4)
 PTH 650 Research & Evidence-Based Practice I 3(3-0)
 PTH 655 Teaching and Learning in Physical Therapy 2(2-0)
 PTH 661 Manual Therapy I 1(0-2)
 PTH 662 Manual Therapy II 2(0-4)
 PTH 663 Proprioceptive Neuromuscular Facilitation 2(2-0)
 PTH 665 Physical Therapy Seminar I 1(1-0)
 PTH 666 Physical Therapy Seminar II 1(1-0)
 PTH 672 Clinical Anatomy and Kinesiology of Human Joints 4(3-3)
 PTH 680 International Learning Experience 3(Spec)
 PTH 690 Motor Learning in Neurorehabilitation 2(2-0)
 PTH 695 Ethics in Physical Therapy 3(3-0)
 PTH 700 Aquatic Therapy 1(1-1)
 PTH 701 Dynamic Therapeutic Taping Techniques 1(1-1)
 PTH 703 Introduction to Hippotherapy 1(Spec)
 PTH 710 Principles in Clinical Administration 2(2-0)
 PTH 725 Research & Evidence-Based Practice II 1(1-0)
 PTH 732 Clinical Education III 3(1-3)
 PTH 735 Examination and Diagnosis III 2(1-2)
 PTH 736 Examination and Diagnosis IV 1(1-0)
 PTH 745 Therapeutic Interventions II 5(3-4)
 PTH 746 Therapeutic Interventions III 5(4-2)
 PTH 765 Physical Therapy Seminars III 1(1-0)
 PTH 766 Physical Therapy Seminars IV 1(1-0)
 PTH 790 Clinical Research I 4(Spec)
 PTH 791 Independent Study 1-3(Spec)
 PTH 792 Special Topics in Physical Therapy 1-9(1-9)
 PTH 825 Health Promotion in Physical Therapy Practice 2(2-0)
 PTH 832 Clinical Education IV 12(Spec)
 PTH 845 Clinical Decision Making in Advanced Therapeutic Exercise 2(1-2)
 PTH 850 Evidence-Based Practice in Physical Therapy 2(2-0)
 PTH 870 Rehabilitation Care Management 3(3-0)
 PTH 890 Clinical Research II 4(Spec)
 PTH 891 Fall Assessment and Prevention 1(1-0)
 PTH 894 Issues and Practice in Gender Health 1(1-0)
 PTH 932 Clinical Education V 12(Spec)

REL - Religion

See the Department of Philosophy and Religion for more information.

REL 101 World Religions: An Introduction to the Study of Religion 3(3-0)
 Basic forms of religious thought, practice, and expression studied as a component of human life; includes a survey of major religious traditions. This course may be offered in an online format. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 130 Religion in America 3(3-0)

An introduction to the varieties of religious thought, practice, and expression in America; emphasis on the interactions between religious traditions and American culture and politics. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 140 Religion, Race and Discrimination in America 3(3-0)

Introduction to the religious expressions of Americans who have experienced racial discrimination, with emphasis on Native American, African-American, and Hispanic-American communities. May be offered as Writing Intensive. (University Program Group IV-C: Studies in Racism and Diversity in the United States)

REL 207 Women in Religion 3(3-0)

Roles and images of women in major religious traditions; emphasis on religious reform, creation of alternative institutions, new concepts of spirituality. Identical to WGS 207. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 220 Religious Traditions of China 3(3-0)

Study of the basic character of Chinese religious traditions. Examines Chinese Buddhism, Confucianism, Chinese folk religions, and Daoism. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

REL 221 Religious Traditions of Japan 3(3-0)

Study of Japanese religious traditions including Japanese Buddhism, Shinto, Japanese folk religions, and the New Religions of Japan. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

REL 222 Religious Traditions of India 3(3-0)

Major features of the religious traditions arising from India, including Hindu, Jaina, Buddhist, and Sikh traditions. Stresses the significance of religious practice in Indian society. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

REL 235 Religion and Social Issues 3(3-0)

Introduction to religious and ethical thought in personal, social and institutional contexts. Topics such as violence, sexism/heterosexism, racism, ecology or poverty may be examined. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 240 African-American Religion 3(3-0)

Origins, development, and contemporary character of African-American religion, including Christianity, Islam, and new religious movements. May be offered as Writing Intensive. (University Program Group IV-C: Studies in Racism and Diversity in the United States)

REL 250 Creation, Conquest, and Chaos: Introduction to the Old Testament 3(3-0)

The literature, history, and religion of ancient Israel in its Near Eastern context as disclosed through study of the Hebrew Bible in English translation. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 260 From Gospel to Apocalypse: Introduction to the New Testament 3(3-0)

Intensive study of selected portions of New Testament literature, with an introduction to the Hellenistic-Roman age through study of selected background documents. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 301 Myth and Meaning 3(3-0)

Study of myth and myth-making as expressions of humankind's quest for order and meaning in life. Examines myth in general and in specific cultural settings.

REL 302 Witchcraft, Magic, and Occult Phenomena 3(3-0)

The history and theory of European witchcraft and demonology. Includes the study of anthropology of witchcraft in non-Christian societies, gender and intersectionality, and new religious movements like Wicca. Identical to WGS 302. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. Recommended: ENG 201.

REL 303 Goddesses 3(3-0)

Interdisciplinary study of goddesses in selected cultures, ancient and modern. Uses intersectionality to analyze opportunities and challenges inherent in gendering gods, including borrowing/reinventing goddesses today. Identical to WGS 303. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. Recommended: ENG 201.

REL 304 Religion and Psychology 3(3-0)

Surveys classic and contemporary psychological theories of religion, including the behavioral, comparative, and cognitive perspectives; also explores the psychological role of religion in human life.

REL 305 Mysticism 3(3-0)

Exploration of mystic experience, including consideration of its place in religious life, its modes of expression, and the major mystical figures in the world's religions.

REL 313 Christianity 3(3-0)

Development of the Christian religious tradition from Jesus of Nazareth to its major contemporary branches: Orthodoxy, Roman Catholicism, and Protestantism. May be offered as a Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 314 Islam 3(3-0)

Muhammad and the Qur'an, the Sunni and Shi'a split; nine subcultures of the Muslim world; Shari'a; women in Islam; jihad; terrorism; Islamism, and Sufism. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

REL 315 Judaism 3(3-0)

Judaism as a multifaceted approach to identity and lifestyle, both personal and societal; religious expressions such as Torah, myth, ritual, festivals, holy days. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 320 The Buddhist Tradition 3(3-0)

The general nature of the Buddhist tradition, with attention to particular developments within it (e.g., tantra, Zen). Primarily examines Buddhism's role in selected Asian cultures. This course may be offered in an online or hybrid format. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

REL 334 Death and Dying 3(3-0)

Religious and cultural explanations of death and responses to dying, death and mourning; religious, ethical, biomedical ethical and legal issues, e.g., health care, suicide, abortion, euthanasia. This course may be offered in an online or hybrid delivery format. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

REL 336 Religion and Film 3(3-0)

Examines the interrelations of film and religion, including the representation of religion in film and the ways film functions religiously in modern media culture. Prerequisites: 45 credit hours completed.

REL 340 Modern Religious Thought 3(3-0)

Studies major issues in modern religious thought: e.g., religion and science; theologies of liberation; Christianity and the encounter of world religions.

REL 342 From Spirituals to Gospel 3(3-0)

The development of African-American religion from 19th century to the present through an examination of the nature and function of religious song. No knowledge of music theory required.

REL 345 The Civil Rights Movement 3(3-0)

Examines the civil rights movement from 1954 to 1980s; based on PBS series: Eyes on the Prize. Identical to PHL 345, PSC 325, SOC 345. Credit may not be earned in more than one of these courses. Prerequisites: Any one of the following: HST 110, HST 111, HST 112, LAR 145, PSC 100, PSC 105, PSC 125, REL 140, SOC 100. (University Program Group IV-C: Studies in Racism and Diversity in the United States)

REL 347 African American Reflections on Racism 3(3-0)

Impact of and resistance to racism treated in theoretical works (theology, ethics, social sciences) and illustrated in the lives and creative works of African Americans.

REL 351 Prophecy and Prophets 3(3-0)

Psychological and spiritual phenomenon of prophetism in the Ancient Near East; intensive study of Old Testament prophetic literature; historical context, literary form, theological content.

REL 361 Sinners and Saints of Colonial Latin America 3(3-0)

Examines the interaction of European, African, and Native American religions and the "heresies" that developed as a result of their interaction during the colonial period. Identical to HST 361. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

REL 362 The Apocalyptic Message and Method 3(3-0)

Exploration of apocalyptic thought and literature; examination of its significance and continuing influence; evaluation of its method and approach.

REL 363 Ethics and Morality in the Bible 3(3-0)

Examination of representative biblical codes of conduct, their underlying ethical principles, and their application to perennial moral issues, such as killing, sexuality, and economic justice.

REL 365 The Sayings of the Historical Jesus 3(3-0)

Study of Jesus' teaching, its environment, sources and methods used for its recovery, literary forms in which it was transmitted, and reconstruction of its contents.

REL 367 Paul: His Life, Letters and Legacy 3(3-0)

Study of Paul's environment, life, work, and letters and his influence on the subsequent history of Christian thought.

REL 375 Terrorism, Jihad, and Islamism 3(3-0)

Historical introduction to Muslim terrorists, jihad, and Islamism; exploration of the psychology of terrorism and of the contested designations of martyrdom and suicide. Prerequisite: 45 credit hours completed.

REL 376 Women in Muslim Cultures 3(3-0)

A survey of women's lives, roles, and issues such as gender segregation, education, and veiling among the peoples of Muslim societies and cultures. Prerequisite: 45 credit hours completed.

REL 377 Sufism: Mystical Islam 3(3-0)

A survey of the various phenomena that comprise Sufism: mystical knowledge, spiritual practice, and culture; inner spirituality; master-disciple relationships; Sufi fellowships; and saint veneration. Prerequisite: 45 credit hours completed.

REL 382 History of Israel 3(3-0)

Israel and Palestine from ancient times to the present, including background to contemporary Zionism and the conflict with Arab nationalism. Identical to HST 382. Credit may not be earned in more than one of these courses.

REL 397 Special Studies 1-9(Spec)

Each offering studies a selected topic using readings, discussions, lectures, and research as appropriate.

REL 492 Readings in World Religion 1-9(Spec)

Advanced independent study for the interested and qualified student. Prerequisite: permission of instructor.

REL 493 Readings in American Religion 1-9(Spec)

Advanced independent study for the interested and qualified student. Prerequisite: permission of instructor.

REL 494 Readings in Religion and Society 1-9(Spec)

Advanced study for the interested and qualified student. Prerequisite: permission of instructor.

REL 495 Readings in Biblical Studies 1-9(Spec)

A scholarly study of a limited portion of the Bible, making use of historical, linguistic, and archaeological studies. Prerequisite: permission of instructor.

REL 498 Readings in the Greek Bible 1-9(Spec)

The direct study of the Greek Old and/or New Testament. Prerequisite: permission of instructor.

REL 501WI Seminar in the Study of Religion 3(3-0)

The study of religion as an academic discipline, including a selection of leading scholarly approaches to the investigation of religious phenomena. Writing Intensive. Prerequisites: 9 credit hours in Religion.

REL 505WI Research Seminar 3(3-0)

A seminar supporting research projects in religion, primarily intended for seniors who are religion majors. Writing Intensive. Prerequisite(s): for undergraduates, a signed Religion major with completion of REL 501. For graduate studies, permission of instructor.

REL 597 Special Topics 1-6(Spec)

Advanced study of selected topics using readings, discussions, lectures, and research as appropriate.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

REL 642 African-American Sacred Song 3(3-0)**RLA - Recreation and Leisure Activities**

See the Department of Recreation, Parks, and Leisure Services Administration for more information.

Note: a limitation of 6 hours of PED and RLA courses may be applied toward the requirements for graduation.

RLA 116 Introduction to Fly Fishing 1(1-0)

Introduction to basic fly fishing techniques and methods. Not to be applied to an RPL major or minor. CR/NC only.

RLA 120 Introduction to Fly Tying 1(1-0)

Introduction to beginning fly tying methods to attract freshwater game fish in lakes and streams. Not to be applied to RPL major or minor. CR/NC only.

RLA 150 Canoe Camping and Touring 1(1-0)

Fundamentals of canoe camping and touring on lakes and rivers. Not to be applied to RPL major or minor. CR/NC only.

RLA 155 Introduction to Sailing 1(1-0)

Introduction to the concepts and skills of sailing. Not to be applied to RPL major or minor. CR/NC only.

RLA 158 Whitewater Rafting 1(1-0)

Introduction to the fundamentals of whitewater rafting. Focus on river reading skills, strokes, rescues, and safety. Not to be applied to a RPL major or minor. CR/NC only.

RLA 160 Introduction to Recreational Kayaking 1(1-0)

Introduction to beginning kayaking skills for kayak touring. Not to be applied to RPL major or minor. CR/NC only.

RLA 165 Introduction to Freestyle (Skate) Cross Country Skiing 1(1-0)

Introduction to the techniques of freestyle (skate) cross country skiing. Not to be applied to a RPL major or minor. CR/NC only.

RLA 168 Introduction to Snowshoeing 1(1-0)

Introduction to the concepts, equipment, and skills of snowshoeing. Not to be applied to a RPL major or minor. CR/NC only.

RLA 170 Beginning Rock Climbing 1(1-0)

Basic concepts of rock climbing and rappelling. Focus will be on belaying, knot tying, gear selection, and movement on the rocks. Not to be applied to an RPL major or minor. CR/NC only.

RLA 180 Introduction to Backpacking 2(1-1)

Basic concepts of backpacking for the recreational backpacker, focusing on equipment, packing, cooking, hiking, and environmental ethics. Not to be applied to RPL major or minor. CR/NC only.

RLA 200 Special Activity Topics in Recreation 1-3(Spec)

Designed for students to be introduced to recreation activity topics and skills as lifetime leisure pursuits. Repeatable up to 3 credits when content previously studied is not duplicated. Not to be applied to RPL major or minor. CR/NC only.

RLA 217 Advanced Fly Fishing 1(1-0)

Advanced techniques of fly casting and fly fishing for trout and warm water game fish. Not to be applied to a RPL major or minor. CR/NC only. Prerequisite: RLA 116.

RLA 220 Advanced Fly Tying 1(1-0)

Advanced techniques of fly tying for freshwater fish. Not to be applied to RPL major or minor. CR/NC only. Prerequisite: RLA 120.

RLA 225 Recreational Crafts 2(2-0)

Leading and designing innovative, cost effective and creative recreational crafts for a variety of cultural and ability groups. Not to be applied to RPL major or minor. CR/NC only.

RLA 270 Advanced Rock Climbing 2(2-0)

Learning advanced concepts of rock climbing, focusing on climbing anchors, advanced movement techniques, and safety. Not to be applied to RPL major or minor. CR/NC only. Prerequisite: RLA 170.

RPL - Recreation, Parks, Leisure Services Administration

See the Department of Recreation, Parks, and Leisure Services Administration for more information.

RPL 102 Leisure in Your Life 3(3-0)

A study of leisure and its implications for an individual's quality of life.

RPL 118 Introduction to Recreation, Parks, and Leisure Services 2(2-0)

The nature, scope, and significance of recreation, parks, and leisure in today's world. A survey of professional opportunities.

RPL 200 Special Topics in Recreation 1-6(Spec)

Concentrated study of a current recreation topic.

RPL 204 Introduction to Community Recreation Administration 3(3-0)

An introduction to the interrelationships of community organizations sharing a recreation responsibility.

RPL 205 Outdoor Leadership 3(2-2)

Introduction to outdoor leadership; study of leadership in outdoor and camp settings.

RPL 206 Recreation Activity Facilitation 3(3-0)

Methods, techniques, facilitation styles, and organization of recreational activities including sports, crafts, cultural arts, games, and teambuilding initiatives.

RPL 209 Inclusive Recreation with Diverse Populations 2(2-0)

Introduction of inclusive recreation and activity programming with diverse populations. Recommended: RPL 118.

RPL 210 Introduction to Therapeutic Recreation 3(3-0)

An introduction to the use of recreational activity as a therapeutic or treatment intervention for individuals with chronic health issues or disability. Recommended: RPL 118.

RPL 216 Introduction to Outdoor Recreation 3(3-0)

Introduction to history and development of Outdoor Recreation as a profession. Overview of federal, state, and local governments as providers of outdoor recreation.

RPL 218 Teaching of Outdoor Skills 3(3-0)

Techniques of teaching four traditional outdoor recreation pursuits (shooting sports, fishing, canoeing, map and compass). Emphasis on assisting people to develop lifetime outdoor recreation skills.

RPL 219 Camp Counseling and Leadership 3(3-0)

Introduction to techniques and practices for camp counseling and leadership positions.

RPL 222 Introduction to Recreation and Event Management 3(3-0)

An introduction to the broad areas of, and career opportunities in, recreation and event management.

RPL 261 Introduction to Private and Commercial Recreation 3(3-0)

An introduction to the broad areas of, and career opportunities in, commercial recreation and facility management.

RPL 303 Independent Reading 1(Spec)

In-depth exploration of one or more aspects of the field of the leisure services profession through individual study.

RPL 307 Management Skills in Leisure Services 3(3-0)

The development of conceptual and human relations skills necessary to the successful management of a leisure service agency. Prerequisites: RPL 118; One of the following: RPL 204, 216, 222, 261.

RPL 310 Pre-Internship in Leisure Services 1(1-0)

Preparation for participation in the internship experience. Should be taken two semesters prior to internship. CR/NC only. Prerequisites: RPL 204 or 210 or 216 or 261.

RPL 318 Field Course in Recreation Specialization 1-15(Spec)

Supervised practical, field work experience within a leisure services organization.

RPL 320 Professional Internship in Recreation 1-30(Spec)

In-depth, capstone internship experience in commercial, community, therapeutic, or outdoor recreation. Prerequisite: RPL 310.

RPL 321 International Practicum in Leisure Services 1-30(Spec)

In-depth, practical field experience for international students with a leisure or recreation agency.

RPL 333 Production of Festivals and Events 2(1-2)

The production and management of events and festivals through student application and fieldwork. Required attendance at course-identified event for service learning component. Prerequisites: RPL 430; signed Event Management Minor or Recreation, Parks & Leisure Services Administration major.

RPL 340 Therapeutic Recreation: Developmental Disabilities 3(3-0)

Assessment, planning, and therapeutic recreation programming for individuals with intellectual and developmental disabilities. Prerequisite: RPL 210; Admission to the therapeutic recreation program.

RPL 341 Therapeutic Recreation: Physical Disabilities 3(3-0)

Assessment, planning, and therapeutic recreation programming for individuals with physical disabilities. Prerequisite: RPL 210; Admission to the therapeutic recreation program.

RPL 342 Therapeutic Recreation: Behavioral Health 3(3-0)

Assessment, planning, and therapeutic recreation programming for individuals with behavioral health impairments. Prerequisite: RPL 210, admission to the therapeutic recreation program.

RPL 343 Tourism 3(3-0)

An examination of where and why the hospitality services industry client travels domestically and abroad, and the economic impact of tourism expenditures. Identical to HSA 343. Credit may not be earned in more than one of these courses.

RPL 345 Therapeutic Recreation: Gerontology 3(3-0)

Assessment, planning, and therapeutic recreation programming for individuals with age related disabilities. Prerequisite: RPL 210; Admission to the therapeutic recreation program.

RPL 346 Recreation for Senior Citizens 3(3-0)

Proposing, organizing, administering, and conducting recreation activities for older adults.

RPL 347 Special Olympics: Management, Coaching, and Volunteerism 3(3-0)

Organize, conduct, coach or direct athletes involved in Special Olympic competition. Students will work with Special Olympics Michigan. CR/NC only.

RPL 348 Aquatic Therapy Seminar 1(1-0)

Explore the benefits and techniques of aquatic therapy when servicing individuals with neurological, neuromuscular, and orthopedic disorders. All students will practice techniques in the water. Pre/Co-Requisite: RPL 341, HSC 214. Prerequisite: RPL 210, the ability to swim.

RPL 349 Facilitation Techniques in Therapeutic Recreation 3(3-0)

An in-depth review of the unique facilitation techniques, interventions, or modalities implemented by the recreational therapist. Prerequisites: RPL 118, 210 and two of the following: RPL 340, 341, 342, 345.

RPL 350 Administration and Operations of Aquatic Facilities 3(3-0)

This course provides operational knowledge and skills for the administration, operations and programming of aquatic facilities for private or public sector leisure service agencies. Prerequisite: Junior class standing.

RPL 351 Pharmacology for Therapeutic Recreation 1(1-0)

Essentials of pharmacology for therapeutic recreation and other allied health professions. Prerequisites: Two of the following: RPL 340, 341, 342, 345.

RPL 358 Foundations of Outdoor and Environmental Education 3(3-0)

Introduction to the foundational concepts, principles, and teaching methods of outdoor and environmental education for non-formal and formal education settings. May be offered as Writing Intensive.

RPL 359 Advanced Expedition Planning 3(3-0)

Advanced concepts of wilderness expedition planning. The course focuses on equipment, techniques, and the leadership of land and water based expeditions. Prerequisites: RPL 205, 216. Recommended: prior backpacking experience.

RPL 360 Advanced Wilderness Adventure Trip Facilitation 3(Spec)

Development of wilderness adventure facilitation skills including group management, group goal setting, environmental ethics, advanced camping, and wilderness navigation skills. Prerequisite: RLA 180. Recommended: Prior backpacking and camping experience.

RPL 365 Wilderness First Responder 3(3-0)

In-depth emergency medical training for wilderness settings. Prerequisite: RPL 216.

RPL 370 Leave No Trace Ethics 1(1-0)

Examines the seven principles of Leave No Trace. Instruction in effective Leave No Trace teaching techniques and certification as professional Leave No Trace Trainers. Prerequisite: RPL 216 and RPL signed major/minor.

RPL 400 Special Issues in Leisure Services 1-6(Spec)

In-depth study of a special issue in leisure services. May be repeated up to six credits for different topics. Prerequisites: One of the following: RPL 204, 261, 216 or 210; or a signed RPL minor; or a signed Event Management minor.

RPL 405 Administration of Community Leisure Services 3(3-0)

The organization and administration of community leisure services. Prerequisites: RPL 118; one of the following: RPL 204, 216, 261.

RPL 420 Planning and Facility Design for Leisure 3(3-0)

Basic concepts related to master planning for leisure services; planning and design of recreation areas and sites; planning, design, and construction of recreation facilities.

RPL 430 Planning Recreation Programs and Events 3(3-0)

Development and implementation of recreation programs and events for diverse populations in a variety of leisure service settings. May be offered as Writing Intensive. Prerequisites: One of the following: RPL 204, 216, 261, 222.

RPL 431 Planning Community Recreation Programs & Events 3(3-0)

Development and implementation of recreation programs and events for diverse populations in a variety of community and/or nonprofit leisure service settings. Prerequisite: One of the following: RPL 204, 216, 261, signed Event Management minor.

RPL 435 Leadership in Adventure Education Programming 3(3-0)

Leadership in trip-planning, risk management, and outdoor etiquette in adventure education. In-depth content in facilitation, processing, campcraft skills, and environmental ethics. Weekend trips required. Prerequisites: RPL 205.

RPL 436 Facility Operations and Maintenance 3(3-0)

Operation and maintenance of areas and facilities for parks, recreation, and leisure services including specialized facilities, e.g. aquatics, ice arenas, sport fields, and natural areas. Prerequisites: RPL 204 or 216 or 261 or 222; signed Recreation Major. Recommended: RPL 307 or 405.

RPL 438 Meeting and Exposition Planning 3(3-0)

The development of skills and knowledge necessary for successful planning and management of conventions, meetings, and expositions in a recreation and event management setting. Prerequisite: RPL 430.

RPL 440 Special Event Administration 3(3-0)

Explore the dynamics of the event industry. Develop skills in event administration, logistics, revenue development, proposals, design, planning and coordination of large-scale special events. Prerequisites: RPL 430. Cannot take RPL 438 and RPL 440 in the same semester.

RPL 460 Quality Service Systems in the Leisure Service Industry 3(3-0)

Develop an orientation toward and philosophy of quality service principles and practices as they relate to a variety of leisure service industries. Fee required. Prerequisites: RPL 118; RPL 204 or 261; or signed Event Management minor.

RPL 470 Park and Natural Resource Management 3(3-0)

Management of federal, state, and local park systems, and natural resource areas. Focuses on environmental issues, administration, planning, and visitor management. May be offered as Writing Intensive. Prerequisites: RPL 118; one of the following: RPL 204, 216, 261.

RPL 497 Seminar in Recreation Professional Development 1(1-0)

Advanced level capstone course focusing on recreation and event management trends and issues, continuing professional development, and resources for continuing education. Prerequisites/Co-requisites: Students must be in their last semester of on campus enrollment prior to the Internship with a minimum of 24 RPL credits and have a signed RPL: Recreation and Event Management major.

RPL 498 Independent Study 1-6(Spec)

Student-initiated project or study of a topic related to recreation, parks, or leisure services guided by a faculty member. Prerequisite: Permission of instructor.

RPL 499 Independent Research in Leisure Services 1-3(Spec)

Research on a topic of interest to the student. Topic, outcomes, and hours must be approved prior to enrollment. CR/NC only. Prerequisites: Permission of instructor.

RPL 508QR Budgeting & Funding for Leisure Service Agencies 3(3-0)

Budgetary and fund development procedures for leisure service agencies. Quantitative Reasoning. Prerequisite: One of the following: RPL 204, 216, 222, 261, graduate status. Pre/Co-requisite: One of the following: RPL 358, 430, 431.

RPL 511 Liability and Risk Management in Leisure Services 3(3-0)

Situational analysis of the legal systems impacting the delivery of recreation and leisure services. Emphasis on applied legal understanding and loss control strategies. This course may be offered in an online or hybrid format. Prerequisite: 6 credits in RPL or signed Event Management Minor; or Graduate Status.

RPL 518 Research & Philosophy in RPL 3(3-0)

This course explores the philosophical, social, and historical foundations of parks, recreation and leisure. Develops skills for research in leisure service settings. Prerequisites: 14 credits in RPL or graduate status.

RPL 521 Fund Development & Grant Writing for Public & Non-profit Organizations 3(3-0)

Processes and applied skills for fund development and grant writing for public and nonprofit organizations. This course may be offered in an online or hybrid format. Pre/Co-requisites: RPL 405 or 508 or senior or graduate status.

RPL 545 Marketing of Leisure Services 3(3-0)

Provides the foundation and basis for applying marketing principles and techniques to the provision of leisure service experiences. May be offered as Writing Intensive. Prerequisites: 6 Credits of RPL or Event Management Minor.

RPL 552 Environmental Interpretation 3(3-0)

Development of the skills to produce and implement interpretive programs in parks, camps, natural areas, and visitor and nature centers located in urban and rural areas. Prerequisites: RPL 358 or Graduate status.

RPL 570 Wilderness Issues and Policy 3(3-0)

Exploration of wilderness as a unique natural resource context. Examines legislative origins, policy decisions, and management philosophies in relation to current issues and trends. Prerequisites: RPL 216 or graduate status.

RPL 580WI Programming for Therapeutic Recreation 3(3-0)

Clinical programming techniques for therapeutic recreation. Writing intensive. Prerequisites: RPL 210 and any two of the following: RPL 340, RPL 341, RPL 342, or RPL 345.

RPL 581 Therapeutic Recreation: Management Issues 3(3-0)

Current issues in the administration of therapeutic recreation services including: credentialing, accreditation, coverage, budgeting, quality assurance, risk management, marketing, human resource management, and professional advancement. Prerequisites: RPL 118, 210; two of the following RPL 340, 341, 342, 345. Pre/Co-requisites: RPL 349, 351, 580.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

- RPL 600 Advanced Issues in Recreation 1-6(Spec)**
RPL 603 Advanced Independent Reading in Recreation 1(Spec)
RPL 605 Administration of Leisure Services Systems 3(3-0)
RPL 610 Leisure Research 1(1-0)
RPL 611 Evaluation in Recreation and Leisure Services 3(3-0)
RPL 615 Practicum in Recreation Supervision and Administration 1-6(Spec)
RPL 618 Issues in Leisure 3(3-0)
RPL 619 Continuing Registration for Final Research Project 1(1-0)
RPL 620 Planning for Parks and Recreation Facilities 3(3-0)
RPL 636 Recreation Facility Operations and Management 3(3-0)
RPL 640 Recreation Program and Event Administration 3(3-0)
RPL 652 Outdoor Recreation 3(3-0)
RPL 698 Graduate Internship 1-6(Spec)
RPL 699 Graduate Project 1-6(Spec)
RPL 791 Independent Study 2(Spec)
RPL 798 Thesis 1-6(Spec)

RUS - Russian

See the Department of World Languages and Cultures for more information.

- RUS 101 Elementary Russian I 4(4-0)**
 Designed for students who have had no Russian. Basic language skills. Introduction to the culture of the Russian-speaking countries. Students who have completed more than one year of Russian in secondary schools will not receive credit.
- RUS 102 Elementary Russian II 4(4-0)**
 Basic language skills. Continuation of RUS 101. Prerequisite: RUS 101.
- RUS 201 Intermediate Russian I 4(4-0)**
 More practice in hearing and speaking Russian, and exercises in reading and writing the language. Prerequisite: RUS 102.
- RUS 202 Intermediate Russian II 4(4-0)**
 Continuation of RUS 201. Prerequisite: RUS 201.

SAM - Science of Advanced Materials

See the Graduate Bulletin for information on the program.

- SAM 560 Introduction to Rheology 3(3-0)**
 Introduction to the flow and deformation of materials under stress. Applications to polymeric and biological materials. Prerequisites: MTH 233, 334; or graduate standing. Recommended: CHM 345 or CHM 331 or PHY 312 or EGR 358.
- SAM 570 Multiscale Modeling and Simulation of Materials 3(3-0)**
 Simulation, modeling, and their applications of polymers, colloids, biomaterials, gels, liquid crystals, drug interactions, and nanomaterials on the molecular, mesoscopic, and bulk level. Prerequisites: MTH 233, 334; or graduate standing. Recommended: CHM 345 or 331 or PHY 332 or EGR 355.
- For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.*
- SAM 619 Continuing Registration for Final Research Project 1(1-0)**
SAM 620 Chemical Principles in the Science of Materials 3(3-0)
SAM 630 Physical Principles in the Science of Materials 3(3-0)
SAM 685 Current Topics in the Science of Advanced Materials 1-5(1-0)
SAM 690 Special Topics in Science of Advanced Materials 1-9(Spec)
SAM 700 Advanced Materials I: Inorganic and Nanomaterials 3(3-0)
SAM 710 Advanced Materials II: Polymers, Composites and Biomaterials 3(3-0)
SAM 720 Inorganic and Nanomaterials Laboratory 4(2-6)
SAM 721 Polymeric and Biomaterials Laboratory 4(2-6)
SAM 722 Material Surface Characterization Laboratory 3(1-6)
SAM 723 Engineering Materials Laboratory 4(2-6)
SAM 785 Seminar in the Science of Advanced Materials 1(1-0)
SAM 790 Independent Study in Advanced Materials 1-3(Spec)
SAM 795 Internship in the Science of Advanced Materials 1-6(Spec)
SAM 796 Directed Research in the Science of Advanced Materials 1-36(Spec)
SAM 899 Dissertation 1-12(Spec)

SCI - Sciences

See the College of Science and Engineering for more information.

- SCI 109 Critical Thinking in Science and Technology 1-3(Spec)**
 Critical thinking and problem solving skills developed within the context of current topics in science and technology. A freshman experience course in Science and Technology.

SCI 197 Special Studies in Science 1-12(Spec)

Primarily for freshmen or sophomores. Prerequisite: permission of instructor.

SCI 285 Earth Systems Science for Elementary Teachers 3(2-2)

Inquiry based survey of Earth systems (solid Earth, surface, and atmospheric) tailored to students pursuing a degree in Elementary Education. Quantitative skills are emphasized. Satisfies University Program Group II laboratory requirement. Recommended: PHS 265, CHM 265. (University Program Group II-B: Quantitative and Mathematical Sciences)

SCI 320 Fundamentals of Fermentation Science 3(3-0)

The science of brewing focusing on the biochemistry and microbiology involved in the process of brewing beer. Prerequisites: BIO 101 or 112; CHM 120 or 132.

SCI 321 Fermentation Analyses 3(1-4)

Laboratory techniques in brewing analyses. Quantitative and qualitative laboratory analysis of brewing ingredients, processes, and products. Pre/Co-requisite: SCI 320.

SCI 322 Applied Fermentation Science 3(1-5)

A practical application of fermentation science principles in the production and analysis of beer. Pre/Co-requisites: SCI 320, 321, 323.

SCI 323 Brewery Facilities and Operations 3(3-0)

Study of the design, equipment, operation, and maintenance of a modern brewery. Pre/co-requisite: SCI 320.

SCI 397 Special Studies in Science 1-12(Spec)

Primarily for juniors and seniors. Prerequisite: permission of instructor.

SCI 400 Teaching Integrated Science in Secondary School 3(2-2)

Methods of teaching integrated science in the secondary school, including development of lessons in accord with best practices and state content expectations. Course must be completed prior to student teaching. Prerequisites: AST 111; BIO 208; CHM 132; GEL 201 or 230; GEO 201; PHY 130; EDU 325; Tier Two - Admission of Candidacy to Teacher Education.

SCI 410 Teaching Integrated Science K-8 3(3-0)

Development of teaching methods and laboratory skills necessary for teaching science in grades K-8. Prerequisites: BIO 101; CHM 120; PHS 151; GEL 130; GEO 105 or 201; EDU 345; Tier Two - Admission of Candidacy to Teacher Education.

SCI 420 Internship in Fermentation Science 4(Spec)

Internship in a production brewery or other brewing-related industry. Prerequisites: SCI 320, 321, 322, 323.

SCI 490 Contemporary Issues in Earth Science 1(1-0)

A capstone course for earth science education majors. Students will investigate connections and interrelationships between Earth system components and how these affect civilization and society. This course has been approved for offering in a distance learning format. Prerequisites: 36 credits of required and cognate courses on the earth science education major completed with a minimum average GPA of 2.7.

SCI 497 Topics in Science Education 1-4(Spec)

Topics of special interest for integrated science majors that are not normally included in existing courses. Specific topics and instructor's prerequisites will be announced in Course Search and Registration. Prerequisites: See Course Search and Registration.

SCI 597 Special Studies in Science 1-12(Spec)

Primarily for graduate students. Prerequisite: permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

SCI 710 Biomolecular Structure and Function-Proteins and Nucleic Acids 4(4-0)

SCI 720 Advances in Cell/Molecular Biology and Genetics 4(4-0)

SCI 730 Seminar 1(1-0)

SCI 731 Biochemistry, Cell and Molecular Biology Colloquium 1-2(Spec)

SCI 740 Research Ethics and Responsible Conduct of Research 1(1-0)

SCI 750 Directed Research in Biochemistry, Cell and Molecular Biology 1-30(Spec)

SCI 770 Careers in Biomedical Sciences 1(1-0)

SCI 790 Research in Science Education 2-4(Spec)

SCI 791 Special Topics in Biochemistry, Cell and Molecular Biology 1-9(Spec)

SCI 798 Thesis 1-6(Spec)

SCI 799 Master's Thesis 1-9(Spec)

SCI 899 Doctoral Dissertation 1-12(Spec)

SCJ - Social and Criminal Justice

See the Department of Sociology, Anthropology and Social Work for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

SCJ 620 Justice Theory and Practice 3(3-0)

SCJ 640 Victimology 3(3-0)

SEP - Sustainability and Environmental Policy

Contact the College of Humanities and Social & Behavioral Sciences for more information.

SEP 300QR Sustainability and Environmental Policy 3(3-0)

This course uses quantitative reasoning and analyses to explore and evaluate sustainable systems and critical environmental issues of the day from an interdisciplinary perspective. Quantitative Reasoning.

SLP - Speech-Language Pathology

See the Department of Communication Sciences & Disorders for more information.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

SLP 632 Counseling Issues in Communication Disorders 3(3-0)

SLP 637 Special Topics in Communication Disorders 3(Spec)

SLP 638 Adult and Pediatric Swallowing and Feeding Disorders 3(3-0)

SLP 639 Hypopharyngeal Visualization 2(1-2)

SLP 640 Cadaveric Anatomy for Communication 3(2-2)

SLP 702 Infant-Toddler Communication: Assessment and Intervention 2(2-0)

SLP 704 Language Disorders in Preschool Children 3(3-0)

SLP 705 Cognitive-Communicative Disorders of Traumatic Brain Injury 3(3-0)

SLP 708 Language Disorders in School-Age Children 3(3-0)

SLP 711 Craniofacial Disorders 2(2-0)

SLP 712 Physiological Phonetics 2(2-0)

SLP 713 Voice/Resonance Disorders/Laryngectomy Rehabilitation 3(3-0)

SLP 714 Motor Speech Disorders 3(3-0)

SLP 717 Aphasia 3(3-0)

SLP 722 Cognitive-Communicative Disorders of Dementia 3(3-0)

SLP 734 Applied Speech Science 3(3-0)

SLP 735 Augmentative and Alternative Communication 3(3-0)

SLP 736 Speech Sound Disorders in Children 3(3-0)

SLP 739 Stuttering 3(3-0)

SLP 749 Clinical Practicum in Speech-Language Pathology or Audiology 1-15(Spec)

SLP 795 Internship 3-6(Spec)

SLP 798 Thesis 1-6(Spec)

SOC - Sociology

See the Department of Sociology, Anthropology and Social Work for more information.

Note: Prerequisites for any undergraduate course in sociology may be waived by permission of the department chair and the instructor.

SOC 100 Introductory Sociology 3(3-0)

Systematic introduction to the field of sociology, its theories, concepts, and methods. Explores social relationships within the context of social structure. This course may be offered in an online or hybrid format. (University Program Group III-B: Studies in Social Structures)

SOC 150QR Public Opinion, Social Sciences, and Social Welfare 3(3-0)

Data to understand public opinion and social welfare. Measurement of concepts. Ways of interpreting data with tables, graphs, and statistics. Computer applications. Identical to SWK 150. Credit may not be earned in more than one of these courses. Quantitative Reasoning.

SOC 200 Introduction to Social Research and Analysis 3(3-0)

First in a two-part methods sequence with SOC 350. Basic research issues. Univariate, bivariate, multivariate analysis techniques in sociology and social work. Computer applications. Prerequisites: SOC 100; completion of math competency.

SOC 201 Social Psychology 3(3-0)

Examines the links between social structure and self. Substantive topics may include: agency, emotions, socialization, attitudes, gender, inequality, deviance, conflict, and social change. (University Program Group III-A: Behavioral Sciences)

SOC 205 Social Justice in a Global Society 3(3-0)

Introduction to key concepts in global social justice, foundational human rights instruments and processes, contemporary manifestations of social injustice, and the role of social action. Identical to ANT 205; credit may not be earned in more than one of these courses. (University Program Group III-B: Studies in Social Structures)

SOC 210 Sociology of Science and Technology 3(3-0)

Social aspects of science and technology including their organization, personnel, social effects, relationship to government and education, and policy implications. Prerequisites: SOC 100 or 201 or 221.

SOC 214 Sociology of Sexuality 3(3-0)

Sociological examination of human sexuality, sexual identity and community. Identical to WGS 214; credit may not be earned in more than one of these courses. Prerequisite: SOC 100.

SOC 215 Youth, Deviance, and Institutions 3(3-0)

Sociological theories and research on youth considered "deviant" and their experiences with social institutions. Emphasis - topics such as runaways, prostitution, foster children, anorexia, addictions, sexuality. Prerequisite: SOC 100 or 201 or 221.

SOC 220 Introduction to Social and Criminal Justice 3(3-0)

Components of the justice system. Social, criminal, and community-based focus. History, structure, functions, and philosophy of criminal justice system, and relationships to a just society. Prerequisite: SOC 100

SOC 221 Social Problems 3(3-0)

Explores the nature and extent of major social problems. Examines structural, institutional, constructionist and normative elements, and encourages critical engagement with types of proposed solutions. (University Program Group III-B: Studies in Social Structures)

SOC 222 Juvenile Delinquency 3(3-0)

Nature, distribution, social construction, and theories of delinquency. Social reactions to delinquency including development of juvenile court and actions of juvenile justice agencies. Prerequisite: SOC 100 or SOC 201 or SOC 221.

SOC 223 Urban Structures and Change 3(3-0)

Culture and social system of the city. Demographic structures, patterns of conflict and cooperation, and problems peculiar to urban social organization. May be offered as Writing Intensive. Prerequisite: SOC 100 or 221.

SOC 250 Pro-Seminar in Sociology 1(1-0)

Resources, professional development, and careers for sociology majors. Prerequisite: SOC 100. Recommended: SOC 200.

SOC 301 Sociological Theory 3(3-0)

A review of sociological thought within its social and historical context, focusing on Marx, Weber, Durkheim, and the perspectives of symbolic interactionism and feminism. Prerequisites: SOC 100 or 201 or 221.

SOC 302 Social Inequality 3(3-0)

Class, race, and gender and other forms of social strata. The bases, consequences, and correlates of position in the system of stratification. Prerequisites: SOC 100 or 201 or 221; or SOC/ANT 101 and a signed Global Justice Minor.

SOC 303 Sociology of Population 3(3-0)

Quantitative and qualitative aspects of the population of societies, including their composition, distribution, and movement. Prerequisite: SOC 100 or 221.

SOC 304 Collective Behavior 3(3-0)

Behavior in situations where institutionalized norms do not apply, such as panics, riots, and social movements. Prerequisites: SOC 200 and 350; SOC 301.

SOC 307 Social Movements, 1960s to the Present 3(3-0)

A survey of social movements of the past several decades that have promoted progressive social change, equal rights, liberation, and peace. Prerequisites: SOC 100 or 201 or 221; or SOC/ANT 101 and a signed Global Justice Minor.

SOC 311 Sociology of Education 3(3-0)

Contributions of sociology to an understanding of education as a social process. Prerequisite: SOC 100 or SOC 201 or SOC 221.

SOC 317 Sociology of Sex and Gender 3(3-0)

Analysis of the role of gender in institutions such as the economy, the family, and the schools. Gender inequality and factors that promote its reproduction. Identical to WGS 317. Credit may not be earned in more than one of these courses. Prerequisite: SOC 100 or 201 or 221.

SOC 320 Sociology of Aging and Retirement 3(3-0)

Aging as a social phenomenon; with focus on aging in industrial societies. Prerequisite: SOC 100 or 201 or 221.

SOC 321 Deviant Behavior 3(3-0)

Relationship between social structure and deviant behavior. Prerequisite: SOC 100 or 201 or 221.

SOC 323 Racism and Inequality 3(3-0)

Relations among dominant and subordinate groups focusing on racism as structural inequality. This course may be offered in an online or hybrid format. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

SOC 324 Criminology 3(3-0)

Nature, distribution, social construction, and theories of crime. Introduction to criminal justice processes. Prerequisite: SOC 100 or SOC 201 or SOC 221.

SOC 326 Inequalities and Justice Processes: Race, Class and Gender 3(3-0)

Empirical and theoretical critique of class, race, and gender inequalities in justice processes that impede effective solutions to social problems. Prerequisite: SOC 100 or SOC 201 or SOC 221.

SOC 330 Social Issues through the Prism of a Prison 3(3-0)

Examination of core sociological areas of study including theory, class/gender/sexualities/race, collective action, and deviance. The course is offered inside a correctional institution. Prerequisites: SOC 100; permission of instructor.

SOC 333 Government and Corporate Crime 3(3-0)

Definitions, concepts, theories and contemporary examples of organizational corporate and government (state) crime will be explored from a sociological perspective. Prerequisite: SOC 100. Recommended: SOC 220.

SOC 345 The Civil Rights Movement 3(3-0)

Examines the civil rights movement from 1954 to 1980s; based on PBS series: Eyes on the Prize. Identical to PHL 345, PSC 325, REL 345. Credit may not be earned in more than one of these courses. Prerequisites: Any one of the following: HST 110, HST 111, HST 112, LAR 145, PSC 100, PSC 105, PSC 125, REL 140, SOC 100. (University Program Group IV-C: Studies in Racism and Diversity in the United States)

SOC 350 Social Research Methodologies 3(3-0)

Second in methods sequence with SOC 200. Research methodologies. Observation and surveys; two from: experiments/single subject design; program evaluation; interviewing/focus groups; ethnography/community studies. Prerequisites: SOC 100; 200 with a grade of "C" (2.0) or better; or for PSY majors, PSY 211 with a grade of "C" (2.0) or better; six additional hours of sociology and/or social work.

SOC 370 Global Environmental Issues 3(3-0)

Social and cultural dimensions of global population issues, food and energy policies, destruction of indigenous lifeways, roles of multinational organizations, environmental racism, and environmental movements. Identical to ANT 370. Credit may not be earned in more than one of these courses.

SOC 397 Independent Study 1-12(Spec)

Directed reading or research on an approved topic. Not open to students on academic probation. Prerequisites: SOC 100 or 201 or 221; permission of instructor.

SOC 399 Special Topics in Sociology 1-12(Spec)

Consideration of subject matter not included in courses currently listed in catalog.

SOC 402 Analysis of Social Change 3(3-0)

Factors explaining large-scale change in the Western and non-Western worlds. Change in smaller units such as the family and community. Prerequisite: SOC 100 or 201 or 221.

SOC 403 Political Sociology 3(3-0)

Social bases of American politics. Sociological theories and research on political behavior and distribution of power in the United States. Prerequisites: SOC 200, 301, 350; or PSC 280 and at least one PSC course at the 300-level or above.

SOC 409 Victimology 3(3-0)

Victimology is the scientific study of victims. Different forms of victimization, victim-offender relationships, and the interactions between victims and social systems/institutions are examined. Prerequisite: SOC 100.

SOC 410 Women, Crime and Deviance 3(3-0)

Exploring the theories, concepts, and social constructions fundamental to the conceptualization of women as victims, offenders, and workers in the criminal justice system. Identical to WGS 410. Credit may not be earned in more than one of these courses. Prerequisites: SOC 301, 350.

SOC 411 The Family 3(3-0)

Family as a contested social institution embedded in changing social and cultural contexts. Explores kinship systems, family diversity, social organization, social conflict, family policy, and change. Prerequisites: SOC 100 or 201 or 221.

SOC 412 Sociology of Adolescence 3(3-0)

Transition from childhood to adulthood. Emphasis on topics such as identity, peers, relationships with parents, school, and the media. Prerequisite: SOC 100 or 201 or 221.

SOC 413 Sociology of Work 3(3-0)

Work and professions in post-industrial society: historical perspectives, work ideology, work organization, employment relations, and globalization. Prerequisites: 9 hours in Sociology.

SOC 414 Sociology of Motherhood 3(3-0)

Sociological analysis of the institution of motherhood, including ideologies, social policies, motherhood and wage earnings, teenage and single mothers, medicalization, and social stressors. Prerequisites: SOC 100 or 201 or 221.

SOC 415 Sociology of Sport 3(3-0)

Social structure and consequences of sport as an institution in societies. Prerequisite: SOC 100 or 201 or 221.

SOC 418 Sociology and Popular Culture 3(3-0)

Sociological analysis of popular culture in the U.S. Elements of popular culture include television, radio, recording, advertising, spectator sports, hobbies, food, and fashions. Prerequisite: SOC 100 or SOC 201 or SOC 221.

SOC 422 Youth Welfare 3(3-0)

Issues pertaining to youth welfare are related to broader organizational and structural features of society, including historical and comparative (international) perspectives. Identical to SWK 422. Credit may not be earned in more than one of these courses. Prerequisites: SOC/ANT 101 and a signed Global Justice Minor; or SOC 100 and a signed Youth Studies Minor; or SOC 200, SOC 301, and SOC 350.

SOC 425 Sociology of Childhood 3(3-0)

Explores peer culture, social problems, children in families, social policy, and social change of children ages 3-12. Also emphasizes race, class, and gender studies. Prerequisites: SOC 100 or 201 or 221.

SOC 444 Human Trafficking 3(3-0)

This course examines modern-day human trafficking within the context of social justice and human rights. Prerequisite: SOC 100 or ANT 205 or SOC 205 or PSC 351.

SOC 450 Ethnographic Methods and Research Design 3(3-0)

Ethnographic methods, ethics, and research design in cultural anthropology. Identical to ANT 450. Credit may not be earned in more than one of these courses. Prerequisite: ANT 170.

SOC 457 Globalization and Society 3(3-0)

Effects of the global economy on the division of labor, transnational migration, social inequality, ethnic identities, gender relations, and other aspects of social organizations. Identical to ANT 457. Credit may not be earned in both of these courses. Prerequisites: SOC 100 or 201 or 221 or ANT 170

SOC 465 Sociology Capstone 3(3-0)

A capstone seminar for advanced students within the Sociology major encompassing research and service learning or other sociologically-relevant projects, approved in advance by the instructor. Prerequisites: SOC 200, 301, 350; signed Sociology major; Junior or Senior standing; permission of instructor.

SOC 501 Development of Sociological Theory 3(3-0)

In-depth analysis of classical sociological theory focusing on Marx, Durkheim, Weber, and Mead. The historical and intellectual context in which these theorists wrote is emphasized. Prerequisites: SOC 100, 201, 221; or graduate standing.

SOC 502 Theories of Race Relations in Sociology 3(3-0)

Contributions to sociological theories of race and ethnic relations by major theorists. This course may be offered in an online or hybrid delivery format. Prerequisites: SOC 301, 323, 350; or regular admission to the Sociology graduate program.

SOC 506 Comparative Cultural Systems 3(3-0)

Explores theories of cultural development, with particular emphasis on urban and post-industrial cultures. Students investigate cultures different from their own. Identical to ANT 506. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format. Prerequisite: One anthropology or sociology course.

SOC 507 Class and Poverty in America 3(3-0)

Examination of theories of social class and their application to American society. Review of empirical literature on class and poverty in the U.S. Prerequisites: SOC 300 or SOC 200, 350; SOC 301; or admission to Graduate Program.

SOC 512 Industrial Sociology 3(3-0)

Characteristics of industrial societies. Relationship of the organization of industrial work to that of nonwork culture, institutions, and roles. Prerequisites: SOC 300 or both SOC 200 and 350; SOC 301; or regular admission to the Sociology Graduate Program.

SOC 514 Sociology of Health and Illness 3(3-0)

Social forces that affect the health of populations and individuals, as well as the operations of a major social institution, that of medical care. Prerequisites: Completion of a University Group IIB Course or regular admission to the Sociology Graduate Program.

SOC 515 Custodial Institutions 3(3-0)

The structural, organizational, and functional dimensions of custodial institutions in American society, emphasizing social process of jails, prisons, training schools, mental hospitals, and nursing homes. Prerequisites: SOC 300 or SOC 200, 350 or PSC 280; SOC 301; or regular admission to the Sociology Graduate Program.

SOC 521 Advanced Study of Deviant Behavior 3(3-0)

Contemporary issues in deviance theory and research. Prerequisites: SOC 300 or both SOC 200 and 350, SOC 301; SOC 321; or regular admission to the Sociology Graduate Program.

SOC 523 Community Corrections and Alternative Sentencing 3(3-0)

Justice policies and practices of community corrections and alternative sentencing are featured, including intermediate sanctions, probation, parole, and prisoner reentry. Prerequisites: SOC 300 or both SOC 200 and 350; SOC 301; SOC 220 and an additional 9 hours of social and criminal justice coursework; or regular admission to the Sociology Graduate Program.

SOC 524 Sociology of Law 3(3-0)

The association of law and social justice, social organization, stratification, and social control. Current issues in justice, law, and conflict resolution. Prerequisites: SOC 200, 350 (or SOC 300); SOC 301; or graduate standing.

SOC 525 Internship in Social and Criminal Justice 6(Spec)

Supervised practical experience in a criminal or social justice organization. CR/ NC only. Prerequisites: SOC 523 with a grade of C or better; permission of the course instructor.

SOC 526 Police and Community Relations 3(3-0)

Community and police perceptions of police role in democratic society, police discretion, use of force, community policing, and related topics. Prerequisites: SOC 301, 350.

SOC 527 Community-Based Justice 3(3-0)

Interdisciplinary approach to community as locus of justice, and justice as locus of community. Review of intellectual heritage of community study; community development; peacebuilding practices. Prerequisites: SOC 200, 301, 350 or regular admission to the Sociology Graduate Program.

SOC 530 Capstone Experience in Youth Studies 3(3-0)

Capstone experience for Sociology Major: Youth Studies concentration students to work with youth in community settings and meet on campus to reflect on field experience. Prerequisites: SOC 100, 215, 411, 412, 425; ANT 200 or SOC 311; SOC 422 or SWK 422. Co-requisites: Concurrent enrollment in one of the following is permitted: SOC 311, 411, 412, 422, 425, or SWK 422.

SOC 531 Capstone Experience in Global Justice 3(3-0)

Capstone course synthesizes course work on the issues of global social justice/injustice. Explores roots, consequences, types, policy approaches, and strategies for pursuing global justice. Identical to ANT 531. Credit may not be earned in more than one of these courses. Prerequisites: SOC/ANT 101; 15 hours in the Global Justice Minor; Completion of the Service Learning component of the Global Justice Minor; and Approval of the Global Justice Advisor. May be taken by SOC or ANT Majors with the approval of the Global Justice Advisor. Or, graduate standing.

SOC 532 Global Aging: Cross-Cultural Aging in a Globalized World 3(3-0)

Comparative study of cultural shapings, expressions and experiences of contemporary aging. Social and cultural responses to perceived problems of aging. Transformations of aging under globalization. Cross listed with ANT 532. Credit may only be earned for one of these courses. Prerequisite: Six credits of cultural anthropology, gerontology and/or sociology.

SOC 590 Gender, Culture & Society 3(3-0)

Analysis of gender roles in various cultures; theoretical approaches to explaining gender role variation. Identical to ANT 590 and WGS 590. Credit may not be earned in more than one of these courses. Prerequisites: 6 hours of anthropology and/or sociology and/or women's studies.

SOC 599 Special Topics in Sociology 1-10(Spec)

Consideration of subject-matter not included in courses currently listed in catalog.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

SOC 601 Contemporary Sociological Theory 3(3-0)**SOC 602 Professional Seminar 3(3-0)****SOC 605 Sociology of Knowledge 3(3-0)****SOC 607 Methodology of Sociological Research 3(3-0)****SOC 611 Human Diversity Within and Between Families 3(3-0)****SOC 619 Continuing Registration for Final Research Project 1(1-0)****SOC 621 Social Control and Justice Systems 3(3-0)****SOC 631 Workshop on Qualitative Research 3(3-0)****SOC 632 Techniques of Sociological Research 3(3-0)****SOC 699 Special Topics in Sociology 1-10(Spec)****SOC 795 Independent Reading 1-6(Spec)****SOC 796 Independent Research 1-6(Spec)****SOC 798 Thesis 1-6(Spec)****SPE - Special Education**

See the Department of Counseling and Special Education for more information.

SPE 126 Introduction to Special Education 3(3-0)

This course is an introduction to the education of students with exceptionalities.

SPE 210 History of Disability 3(3-0)

This course is an introduction to the history of disabilities in America, providing an overview of major historical themes influencing cultural perceptions of disability. This course may be offered in an online format. May be Writing Intensive. (University Program Group III- B: Studies in Social Structures)

SPE 270 Disability and Society 3(3-0)

This course explores disability from a sociological standpoint by critically evaluating the influence of social systems, institutions, and professional understandings of disability. This course may be offered in an online format. May be offered as Writing Intensive. (University Program Group III-B: Studies in Social Structures)

SPE 322 Curriculum and Instruction for Students with High Incidence Disabilities 6(6-0)

Special education instructional design and methodology. Includes evidence-based instruction, classroom management, and technology. Grade of C+ or better required. Prerequisites: SPE 126 with grade of C or better.

SPE 323 Classroom Management for Students with Special Needs 3(3-0)

Intervention approaches to design positive classroom environments. Includes identification of behavioral/affective issues, social skills instruction, and proactive classroom management approaches. Prerequisite(s): SPE 126 with a grade of C or better; SPE 322 with a grade of C+ or better. Co-requisite(s): SPE 323 may be taken as a co-requisite with SPE 324.

SPE 324 Special Education Classroom-Based Assessment 6(2-8)

This course is designed to present information on the most current trends in classroom-based assessment, with emphasis placed on Curriculum-Based Assessment Methods. NOTE: Application to register for this course must be filed during the semester prior to registration for approval. Prerequisites: SPE 126 with a grade of C or better; SPE 322 and 323 with a grade of C+ or better; Tier Two - Admission of Candidacy to Teacher Education. Pre/Co-requisite: SPE 323 may be taken as a co-requisite with SPE 324.

SPE 455 Special Education Student Teaching Seminar 3(3-0)

This seminar provides review and discussion of a variety of topics related to the special education student teaching experience at the elementary through secondary level. CR/NC only. Prerequisite(s): Students must have 75 percent of major/minor coursework completed; GPA of 2.7 or better in major/minor coursework; overall GPA of 2.5 or better. Co-requisite(s): SPE 456 or SPE 458.

SPE 456 Special Education Clinical Experience: Emotional Impairment 9(Spec)

This course provides a 16-week clinical experience working with students with emotional impairment in a classroom appropriate to the special education endorsement. CR/NC only. Prerequisites: Elementary Regular Education Students: EDU 107, 330, 380, and 393 with a C+ or better. Minimum of C+ in all EDU courses. Secondary Regular Education Students: EDU 107, 290, 310, 325 with C+ or better. Minimum of C+ in all EDU classes. Both: Approval by major and minor departments indicating that 75 percent of coursework is completed with GPA of 2.7 or better. Overall GPA of 2.7 or better. SPE 126 with a C or better; SPE 322, 323, 324, 578 and 579 all with a C+ or better; Tier Two: Admission of Candidacy to Teacher Education. Co-requisite: SPE 581.

SPE 458 Special Education Clinical Experience: Cognitive Impairment 9(Spec)

This course provides a 16-week clinical experience working with students with cognitive impairment in a classroom appropriate to the special education endorsement. CR/NC only. Prerequisites: Elementary Regular Education Students: EDU 107, 330, 380, and 393 with a C+ or better. Minimum of C+ in all EDU courses. Secondary Regular Education Students: EDU 107, 290, 310, 325 with C+ or better. Minimum of C+ in all EDU classes. Both: Approval by major and minor departments indicating that 75 percent of coursework is completed with GPA of 2.7 or better. Overall GPA of 2.7 or better. SPE 126 with a C or better; SPE 322, 323, 324, 578 and 579 all with a C+ or better; Tier Two: Admission of Candidacy to Teacher Education. Co-requisite: SPE 522.

SPE 466 Independent Study 1-3(Spec)

Individualized research or project dealing with a problem in special education. This course may be offered in an online format. Prerequisite: permission of department chairperson.

SPE 500 Parent and Professional Relationships in Special Education 3(3-0)

Establishing and maintaining collaborative relationships with parents and professionals. Study of effects of disability on the child and family and strategies for meeting their needs. This course may be offered in an online format. Prerequisite: Junior standing or graduate status.

SPE 504 Teaching Students in Inclusive Settings 3(3-0)

Theory and practice of the instruction of students who have disabilities in general education settings. This course may be offered in an online format. Prerequisite: Junior standing or graduate status.

SPE 510 Advanced Technology in Education 3(2-3)

Students will study and practice the integration of technology in classroom instruction and management, with emphasis upon software evaluation and lesson design. Identical to EDU 590. Credit may not be earned in more than one of these courses. This course is approved for offering in a distance learning format. Prerequisite: EDU 290 or graduate status.

SPE 519 Students with Cognitive Impairment 3(3-0)

Causes, diagnostic procedures, and research concerning individuals with cognitive impairment from historical, current, and potential future perspectives. Grade of C+ or better required to count toward degree. This course may be offered in an online format. Prerequisites: SPE 126 with a grade of C or better; SPE 322 and 323 with grades of C+ or better; Tier Two - Admission of Candidacy to Teacher Education. Graduate students may be admitted with permission of instructor.

SPE 521 Teaching Students with Cognitive Impairment 3(3-0)

Special techniques and materials used in the instruction of students identified with cognitive impairment. Grade of C+ or better required to count toward degree. This course may be offered in an online format. Prerequisites: SPE 126 with a grade of C or better; SPE 322 and 323 with grades of C+ or better; Tier Two: Admission of Candidacy to Teacher Education. Graduate students may be admitted with permission of instructor.

SPE 522 Seminar in Advanced Methods for Teaching Students with Cognitive Impairment 3(3-0)

This course involves the practical application of pedagogical knowledge for teaching students with cognitive impairment. Students must receive a C+ or better in this course. This course may be offered in an online format. Prerequisites: SPE 126 with a C or better; SPE 322, 323, 324, 519, 521 all with a C+ or better; Tier Two: Admission of Candidacy to Teacher Education. Co-Requisite: SPE 458.

SPE 530 Autism Spectrum Disorder: Characteristics and Etiology 3(3-0)

This course reviews characteristics and etiology of individuals with autism spectrum disorders. This course may be offered in an online format. Identical to PSY 575. Credit may not be earned in more than one of these courses. Prerequisites: Junior standing or graduate status.

SPE 531 Autism Spectrum Disorder: Educational Implications 3(3-0)

Presentation of special techniques and materials used in best practice instruction of students with autism spectrum disorders. This course may be offered in an online format. Prerequisites: SPE 530; senior standing or graduate status.

SPE 532 Applied Behavior Analysis for Teachers 3(3-0)

Applied behavior analysis (ABA) as it relates to learners with autism spectrum disorders in inclusive settings. This course may be offered in an online format. Prerequisite: SPE 530; senior standing or graduate status.

SPE 533 Promoting Independence for Students with Autism Spectrum Disorder 3(3-0)

Presentation of special techniques and materials used in promoting independence through functional living skills and transition for students with autism spectrum disorders. This course may be offered in an online format. Prerequisite: SPE 530; senior standing or graduate status.

SPE 536 Field Experience: Autism 3(Spec)

Practice and application of knowledge and strategies for teaching students with autism under faculty supervision. Application to register for this course must be filed during the semester prior to registration for approval. Prerequisites: SPE 530, SPE 531, PSY 586, PSY 682, CDO 550, and graduate status.

SPE 545 Special Education Workshop 1-6(Spec)

Study of trends, alternative approaches, and innovative curricula in programming for the exceptional student. This course is a variable credit topical workshop. This course may be offered in an online format. Prerequisite: Junior standing or graduate status.

SPE 550WI Teaching Diverse Students in Educational Settings 3(3-0)

Survey of sociocultural influences on the performance of students from varying backgrounds, and educational provisions made for them in public schools including an anti-bias framework. This course may be offered in an online format. Writing Intensive. Prerequisites: Sophomore standing or graduate status.

SPE 570 Career Development and Transitions 3(3-0)

Lifespan issues for persons with disabilities, stressing curriculum content and instructional strategies that promote interdisciplinary career development and transition education at all age levels. This course may be offered in an online format. Prerequisites: SPE 126 with a C or better; Junior standing or graduate status.

SPE 577 Introduction to Specific Learning Disability 3(3-0)

Systematic introduction to characteristics of specific learning disability (SLD) including eligibility determination and evidence-based instructional approaches for teaching students with SLD. This course may be offered in an online format. Prerequisite: Junior standing or graduate status.

SPE 578 Students with Emotional Impairment 3(3-0)

Diagnostic procedures, therapy, and research concerning children and youth with emotional impairment. Grade of C+ or better required to count toward degree. This course may be offered in an online format. Prerequisites: SPE 126 with a grade of C or better; SPE 322 and 323 with grades of C+ or better; Tier Two - Admission of Candidacy to Teacher Education.

SPE 579 Teaching Students with Emotional Impairment 3(3-0)

Intervention approaches to design positive classroom environments. Includes identification of behavioral/affective issues, social skills instruction, and proactive classroom management approaches. Grade of C+ or better required. This course may be offered in an online format. Prerequisites: SPE 126 with a grade of C or better; SPE 322, 323 with grades of C+ or better; Tier Two - Admission of Candidacy to Teacher Education. Graduate students may be admitted with permission of instructor.

SPE 581 Seminar in Advanced Methods for Teaching Students with Emotional Impairment 3(3-0)

This course involves the practical application of pedagogical knowledge for teaching students with emotional impairment. Students must receive a C+ or better in this course. This course may be offered in an online format. Prerequisites: SPE 126 with a C or better; SPE 322, 323, 324, 578, 579 all with a C+ or better; Tier Two: Admission of Candidacy to Teacher Education. Co-Requisite: SPE 456.

SPE 585 Early Childhood Special Education 3(3-0)

Current issues in early childhood special education aligned with developmentally appropriate practices, working with families, professionals, and curriculum focused on children birth to eight. This course may be offered in an online or hybrid format. Prerequisites: HDF 100 or EDU 280; or junior standing; or graduate status.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

SPE 600 Current Issues and Historical Trends in Special Education 3(3-0)**SPE 619 Continuing Registration for Final Research Project 1(1-0)****SPE 640 Administration of Special Education 3(3-0)****SPE 645 Special Education Workshop 1-6(Spec)****SPE 650 Promoting Self-Determination and Self-Regulation in Students with SLD 3(3-0)****SPE 665 Independent Study 1-3(Spec)****SPE 675 Literacy Instruction for Students with Specific Learning Disabilities 3(3-0)****SPE 679 Behavioral and Curricular Interventions for Individuals with Mild Disabilities 3(3-0)****SPE 689 Graduate Practicum in Special Education 6(Spec)****SPE 690 Mathematics Instruction for Students with Specific Learning Disabilities 3(3-0)****SPE 695 Research for Special Education 3(3-0)****SPE 750 Consultation and Collaboration in Special Education 3(3-0)****SPE 785 Assessment and Program Improvement in Special Education 3(3-0)****SPE 790 Special Education Graduate Capstone 3(3-0)****SPE 798 Thesis 1-6(Spec)****SPN - Spanish**

See the Department of World Languages and Cultures for more information.

SPN 101 Elementary Spanish I 4(4-0)

Designed for students who have had no Spanish. Basic language skills. Introduction to the culture of the Spanish-speaking countries. Students who have previous preparation in Spanish are required to take a placement exam. Students who have had more than two years of high school Spanish may enroll only with permission of instructor. May be offered in an online or hybrid format. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

SPN 102 Elementary Spanish II 4(4-0)

Designed for students who have had Spanish 101 or the equivalent. Basic language skills. Introduction to the culture of the Spanish-speaking countries. Students who have previous preparation in Spanish are required to take a placement exam at www.chsbs.cmich.edu/fls using the password chip-pewas1. Students who have had more than two years of high school Spanish may enroll only with permission of instructor. This course may be offered in an online or hybrid format. Recommended: SPN 101. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

SPN 105 Accelerated Elementary Spanish 4(4-0)

Intended for students with high school or other preparation in Spanish who are not ready to begin Intermediate Spanish. Combines SPN 101 and 102. Students with previous preparation in Spanish are required to take a placement exam. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

SPN 110 Study Abroad 1-8(Spec)

Intended for beginning students studying abroad. Prerequisite: permission of instructor.

SPN 201 Intermediate Spanish I 4(4-0)

Further development of all language and reading skills, a review of grammar, and exploration of Hispanic culture. May be offered as Writing Intensive. Recommended: SPN 102. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

SPN 202 Intermediate Spanish II 3(3-0)

Designed to develop fluency in reading Spanish; cultural emphasis. May be offered as Writing Intensive. Recommended: SPN 201. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

SPN 210 Study Abroad 1-12(Spec)

Intended for intermediate students of Spanish studying abroad. Prerequisite: SPN 102.

SPN 214 Intermediate Conversation and Composition 3(3-0)

Designed to develop fluency and accuracy in written and oral expression. May be offered as Writing Intensive. Recommended: SPN 202; or may be taken concurrently with SPN 202. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

SPN 310 Study Abroad 1-12(Spec)

Intended for advanced students studying abroad. Prerequisite: SPN 202; permission of instructor.

SPN 320 Spanish Pronunciation 3(3-0)

Provides an understanding of Spanish articulatory phonetics and helps students improve pronunciation by training them in Spanish articulatory habits to make their pronunciation more native-like. Recommended: SPN 202.

SPN 331 Advanced Grammar and Composition 3(3-0)

Designed to develop greater accuracy in grammar and fluency in written expression in Spanish. Prerequisites: SPN 202.

SPN 335 Spanish for Business 3(3-0)

Designed for students interested in acquiring practical Spanish vocabulary related to business, and in developing writing, reading and speaking skills through business documents in Spanish. Recommended: SPN 202.

SPN 341 Intercultural Conversations 3(3-0)

Intended for those with some skill in speaking Spanish who wish to achieve greater fluency. Recommended: SPN 202.

SPN 350 Spanish for the Professions 3(3-0)

Course designed to enhance Spanish communication skills and cultural knowledge for use in professional settings including business, public health, and law. This course may be offered in an online format. Recommended: SPN 202.

SPN 370 Advanced Studies in Spanish 1-12(Spec)

Special topics may include language, literature and/or culture. May be repeated when the content is not a duplication of a previous special topics offering. Prerequisite: SPN 331.

SPN 375 Introduction to Spanish/English Translation 3(3-0)

Introduction to the history, theory, and practice of translation in Spanish. Special attention will be paid to the translation principles concerning a variety of texts. Prerequisite: SPN 331.

SPN 376 Culture and Civilization of Spain 3(3-0)

Spanish culture and civilization focusing on political, social, intellectual, and artistic developments and their influence on the history and present of Spain. May be offered as Writing Intensive. Prerequisite: SPN 331.

SPN 377 Culture and Civilization of Latin America 3(3-0)

Historical and cultural development of Latin America from the pre-Columbian era through the present. May be offered as Writing Intensive. Prerequisite: SPN 331.

SPN 386 Survey of Spanish Literature (Beginning to 1700) 3(3-0)

Literature of Spain from the Middle Ages to 1700. Prerequisite: SPN 331.

SPN 387 Survey of Spanish Literature (1700 to Present) 3(3-0)

Literature of Spain from the eighteenth century to the present. Prerequisite: SPN 331.

SPN 388 Survey of Spanish-American Literature (Beginnings to Modernism) 3(3-0)

General acquaintance with the literature of Spanish America from its beginnings to the modernist movement. Selections from representative authors. Prerequisite: SPN 331.

SPN 389 Survey of Spanish-American Literature (Modernism to Present) 3(3-0)

General acquaintance with the literature of Spanish America from modernism to the present. Selections from representative authors. Prerequisite: SPN 331.

SPN 390 Chicano/Latino Experience in the US 3(3-0)

An examination of the Chicano/Latino experience in the US, including broader issues of inequality, race, ethnicity and discrimination. Taught in Spanish. This course may be offered in an online or hybrid format. Recommended: SPN 331. (University Program Group IV-C: Studies in Racism and Cultural Diversity in the United States)

SPN 404 Drama of the Siglo de Oro 3(3-0)

A study of major and lesser playwrights of the 17th century. Recommended: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 405WI Modern and Contemporary Spanish Novel 3(3-0)

Development of the novel in Spain from the nineteenth century to the present. Writing Intensive. Prerequisites: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 406 The Generation of 1898 3(3-0)

A study of the literary works of this group as masterpieces of literature and as a reflection of national and spiritual values. Recommended: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 410 Study Abroad 1-12(Spec)

Intended for advanced students studying abroad. Prerequisites: Six hours of Spanish at the 300 level; permission of instructor.

SPN 411 Practicum in Teaching Spanish 3(2-1)

Techniques for teaching and testing foreign language skills, planning lessons and units, and selecting materials for secondary-level classrooms. Practical experience through mini-teaching situations. Prerequisites: Two 300-level courses; passing the competency exam; departmental permission.

SPN 412 Practicum: Secondary Field Experience 1(Spec)

Pre-student teaching experience in middle or high school teaching situation. CR/NC only. Co-requisite: SPN 411.

SPN 415WI Spanish-American Novel 3(3-0)

Representative masterpieces of the novel as they reflect the political and social conditions of the Spanish-American countries. Writing Intensive. Prerequisite: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 416 Spanish-American Drama and Essay 3(3-0)

Representative masterpieces of the two genres as they reflect the political and social conditions of the Spanish-American countries. Recommended: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 417 Spanish-American Poetry and Short Story 3(3-0)

Representative masterpieces of the two genres as they reflect the political and social conditions of the Spanish-American countries. Recommended: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 421 Foreign Language in Elementary Schools 1(1-0)

Techniques for teaching and testing foreign language skills, planning lessons and units, and selecting materials for the elementary school classroom. Practical experience through mini-teaching situations. Co-requisites: SPN 411.

SPN 422 Practicum: Elementary Field Experience 1(Spec)

Pre-student teaching experience in elementary school teaching situation. CR/NC only. Co-requisite: SPN 421.

SPN 431WI Advanced Writing in Spanish 3(3-0)

Writing Spanish in different registers, giving special consideration to the command of grammar, vocabulary, spelling, and style. Emphasis on expository and argumentative texts. Writing Intensive. Prerequisites: SPN 331 with B- or better; SPN 376 or 377.

SPN 470 Advanced Studies in Spanish 1-12(Spec)

Special topics may include language, literature and/or culture. May be repeated when the content is not a duplication of a previous special topics offering. Recommended: SPN 376 or 377; One of: SPN 386, 387, 388, 389.

SPN 495 Professional Internship in Spanish 1-6(Spec)

Supervised internship with an approved organization in the U.S. or a Spanish-speaking country to reinforce and build upon skills learned in Spanish courses. Prerequisites: Six hours of Spanish at the 300 level; permission of instructor.

SPN 508 Contemporary Spanish Novel and Short Story 3(3-0)

Outstanding novels and short stories of Spain since 1940 reflecting politics, society, economics, and culture of Spain after the Civil War. Recommended: Three (3) credits in Spanish at the 400 level.

SPN 585 Introduction to Hispanic Linguistics 3(3-0)

Seminar on the major aspects of Hispanic Linguistics such as sound patterns, word-formation, sentence structure, meaning and context, discourse structure, regional and social variation. Prerequisite: One 400-level SPN course; or graduate standing in the M.A. Spanish Program.

SPN 591 Special Topics in Spanish 1-9(Spec)

Special topics may include language, literature and/or culture. May be repeated when the content is not a duplication of a previous special topics offering. Recommended: Three (3) credits in Spanish at the 400-level; or graduate standing in M.A. Spanish Program.

SPN 595 Theory and Practice of Translation 3(3-0)

Seminar on the historical, theoretical and practical aspects of translation. The link between linguistic and cultural factors and their relationship to translation will be emphasized. This course may be offered in an online or hybrid format. Prerequisites: SPN 375; one SPN 400 level course; or graduate standing in M.A. Spanish Program.

SPN 597 Independent Study 1-6(Spec)

The in-depth study of a topic under the direction of a faculty member who together with a student designs the format of the study. Prerequisites: permission of instructor and department chairperson; three (3) credits in Spanish at the 400 level.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

SPN 610 Studies in U.S. Latino Cultures 3-6(3-0)**SPN 615 Themes in Latin American Cultural Studies 3-9(Spec)****SPN 619 Continuing Registration for Final Research Project 1(1-0)****SPN 620 Special Topics in Spanish-American Literature 3-9(Spec)****SPN 621 Colonial to 19th-Century Spanish American Literature 3(3-0)****SPN 622 20th and 21st-Century Spanish American Literature 3(3-0)****SPN 623 Critical Thinking through Hispanic Literature 3(3-0)****SPN 630 Themes in Spanish Peninsular Literature and Cultures 3-9(Spec)****SPN 631 Medieval and Golden Age Spanish Literature 3(3-0)****SPN 632 Eighteenth to Twenty-first Century Spanish Literature 3(3-0)****SPN 640 History of the Spanish Language 3(3-0)****SPN 650 Stylistics 3(3-0)****SPN 655 Spanish Pragmatics and Critical Discourse Analysis 3(3-0)****SPN 660 Spanish Phonology 3(3-0)****SPN 665 Second Language Acquisition: Theory and Practice 3(3-0)****SPN 670 Study Abroad: Latin America 3-6(Spec)****SPN 680 Study Abroad: Spain 3-6(Spec)****SPN 697 Individual Study for the Comprehensive Examination 3(3-0)****SSC - Social Sciences**

See the College of Humanities and Social & Behavioral Sciences for more information.

SSC 197 Special Studies in Social Science 1-12(Spec)

Primarily for freshmen or sophomores. Prerequisite: permission of instructor.

SSC 397 Special Studies in Social Science 1-12(Spec)

Primarily for juniors and seniors. Prerequisite: permission of instructor.

SSC 597 Special Studies in Social Science 1-12(Spec)

Primarily for graduate students. Prerequisite: permission of instructor.

STA - Statistics

See the Department of Mathematics for more information.

STA 103QR Evidence-based Problem Solving in Modern Society 3(3-0)

Evidence-based problem solving strategies useful for everyday life. Focuses on the use of data and evaluation of risks and uncertainty in modern society. Quantitative Reasoning.

STA 282QR Introduction to Statistics 3(3-0)

Descriptive statistics, probability, sampling distributions, statistical inference, regression. Course does not count on major, minor in mathematics. Credit may not be earned in more than one of these courses: STA 282, STA 382, STA 392. Quantitative Reasoning. This course may be offered in an online or hybrid format. Recommended: MTH 105 or competency.

STA 382QR Elementary Statistical Analysis 3(3-0)

An introduction to statistical analysis. Topics will include descriptive statistics, probability, sampling distributions, statistical inference, and regression. Credit may not be earned in more than one of these courses: STA 282, STA 382, STA 392. Quantitative Reasoning. Prerequisite: MTH 130 or 132 or 133. (University Program Group II-B: Quantitative and Mathematical Sciences)

STA 392 Probability and Statistics for Engineers 3(3-0)

An introduction to statistical analysis emphasizing engineering applications. Topics include descriptive statistics, probability, sampling distributions, estimation, hypothesis testing, regression, quality control, and reliability. Credit may not be earned in more than one of these courses: STA 282, 382, and 392. Prerequisite: MTH 133.

STA 575 Statistical Programming for Data Management and Analysis 3(3-0)

Introduction to statistical programming for managing and analyzing data, including programming logic, data manipulation, missing data handling, basic techniques for analyzing data and creating reports. This course may be offered in an online or hybrid format. Prerequisites: STA 282 or 382 or 392; or graduate standing.

STA 580 Applied Statistical Methods I 3(3-0)

Applications of statistical analysis methods including the usage of computer software packages. Topics include simple and multiple regression, diagnostics, forecasting, and analysis of variance. This course may be offered in an online or hybrid format. Prerequisites: STA 282 or 382 or 392; or graduate standing.

STA 582 Experimental Designs 3(3-0)

Randomized block designs, Latin square designs, factorial designs, fractional factorial designs, response surface methods, robust designs. Prerequisite: STA 580.

STA 583 Nonparametric Statistics 3(3-0)

Theory and applications of nonparametric methods. Topics include one, two, and several sample problems, rank correlation and regression, Kolmogorov-Smirnov tests and contingency tables. Prerequisites: STA 282 or 382 or 392; or graduate standing.

STA 584 Mathematical Statistics I 3(3-0)

Probability defined on finite and infinite samples spaces, conditional probability and independence, random variables, expectations, moment-generating functions, probability models, limit theorems. Prerequisite: MTH 233.

STA 585 Mathematical Statistics II 3(3-0)

Introductory topics from mathematical theory of statistics: population distributions, sampling distributions, point and interval estimation, tests of hypotheses. Prerequisite: STA 584.

STA 586 Clinical Trials and Survival Analysis 3(3-0)

Simple and advanced statistical techniques used in the analysis and interpretation of clinical research data. Emphasis on statistical techniques commonly used in chronic disease analysis. Prerequisite: STA 282 or 382 or 392; or graduate standing.

STA 587 Statistical Theory and Methods for Quality Improvement 3(3-0)

Statistical theory and methods for optimizing quality and minimizing costs: classical and recently developed on-line methods and Taguchi's off-line quality and robust designs. Prerequisites: STA 580.

STA 588 Sampling Techniques 3(3-0)

Principles of sampling; simple random sampling; stratified random sampling; systematic sampling; cluster sampling; sample size determination; ratio and regression estimates; comparisons among the designs. Prerequisites: STA 282 or 382 or 392; or graduate standing.

STA 589 Time Series Forecasting 3(3-0)

Introduction to basic time series forecasting techniques. Topics include forecasting, Box-Jenkins models, time series regression, and transfer function models. Prerequisite: STA 580.

STA 590 Applied Statistical Methods II 3(3-0)

Linear models with autocorrelated errors, non-linear regression, logistic regression, multiway ANOVA, simultaneous comparison procedures, ANOVA diagnostics, analysis of covariance, unbalanced data and missing data analysis. Prerequisites: MTH 223; STA 580; or graduate standing.

STA 591 Data Mining Techniques I 3(3-0)

Data mining techniques for analyzing large and high dimensional data. Topics include data mining strategy, exploratory analysis, predictive modeling techniques, model assessment and comparison. This course may be offered in an online or hybrid format. Prerequisites: STA 580 or graduate standing.

STA 592 Six Sigma: Foundations and Techniques for Green Belts 3(3-0)

Six Sigma problem solving strategy for continuous improvement. Topics include DMAIC and PDSA strategies and applications, tools and statistical techniques used in the strategies. Prerequisites: STA 282 or 382 or 392; or graduate standing.

STA 595 Introduction to Bayesian Statistics 3(3-0)

Introduction to Bayesian analysis and applications. Topics include principles of Bayesian statistics, Bayesian linear models and generalized linear models. Prerequisites: STA 580, 584 or graduate standing.

STA 596 Special Topics in Statistics 1-6(Spec)

Subject matter not included in regular courses. May be taken for credit more than once, total credit not to exceed 6 hours. Prerequisite: permission of the instructor.

STA 597 Independent Study 1-6(Spec)

The in-depth study of a topic in statistics under the direction of a faculty member. May be taken for credit more than once, total credit not to exceed six hours. Prerequisite: Permission of instructor.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

STA 675 Advanced Statistical Data Management and Simulation 3(3-0)**STA 678 Categorical Data and Survival Analysis 3(3-0)****STA 682 Linear Models 3(3-0)****STA 684 Theory of Statistical Inference 3(3-0)****STA 686 Multivariate Analysis 3(3-0)****STA 691 Advanced Data Mining Techniques 3(3-0)****STA 694 Theory and Applications of Bayesian Statistics 3(3-0)****STA 695 Practicum/Internship 3(Spec)****STA 696 Special Topics in Statistics 1-6(Spec)****STA 697 Independent Study 1-9(Spec)****STA 782 Generalized Linear Models 3(3-0)****STA 784 Theory of Estimation 3(3-0)****STA 797 Independent Study 1-9(Spec)****SWK - Social Work**

See the Department of Sociology, Anthropology, and Social Work for more information.

SWK 100 Introduction to Social Work 3(3-0)

Principles and values of social work, community resources and social service agencies, helping methods, and the role of the professional social worker. This course may be offered in an online or hybrid format.

SWK 150QR Public Opinion, Social Sciences, and Social Welfare 3(3-0)

Data to understand public opinion and social welfare. Measurement of concepts. Ways of interpreting data with tables, graphs, and statistics. Computer applications. Identical to SOC 150. Credit may not be earned in more than one of these courses. Quantitative Reasoning.

SWK 250 Social Welfare Policies and Services I 3(3-0)

History of social welfare and social action. Analysis of American social welfare systems. Links between social policy and needs and impacts on vulnerable groups. Prerequisite: SWK 100.

SWK 270 Introduction to Community Development 3(3-0)

Theoretical and practical overview of community development as a core social work competency, focusing on critical issues confronting communities in the 21st century. May be offered in an online or hybrid format.

SWK 302 Social Work Practice in Gerontology 3(3-0)

Theories, interventions, and issues in social work practice in gerontology. Prerequisites: SWK 100; SOC 100; PSY 100 or HDF 247.

SWK 315 Social Work Generalist Practice I 3(3-0)

Generalist communication skills through interviewing and information exchange with micro, mezzo and macro client systems. Develop ability to assess information obtained. Prerequisites: Must have minimum of 2.5 GPA; signed Social Work Major; applied to the Social Work Program; SWK 100; completion of 50 credit hours. Pre/Co-requisites: SWK 250; SWK 350. Co-requisite: SWK 374.

SWK 321 Social Work Generalist Practice II 3(3-0)

Knowledge, skills, and values for social work generalist practice within micro, mezzo, and macro client systems. Emphasis on culturally-competent and evidence-based practice. Prerequisites: Admitted to the Social Work Program; all SWK program required volunteer hours completed; SWK 315, 374. Co-requisite: SWK 375.

SWK 331WI Social Work Generalist Practice III 3(3-0)

Generalist social work practice with micro, mezzo and macro systems continued from SWK 315 and SWK 321 with emphasis on the strengths perspective. Writing Intensive. Prerequisites: Admitted to the Social Work Program; all SWK program required volunteer hours completed; SWK 315, 321. Co-requisite: SWK 470.

SWK 350 Social Work Research Methodologies 3(3-0)

Data collection methodologies and issues for evidence-based practice and applied social work research including: experiments/single subject design, program evaluation, interviewing, community studies. Prerequisite: SWK 100; SOC 200 or PSY 211 or STA 282, with a C or better. Pre/Co-requisites: SWK 250 or SOC 221 or 302.

SWK 374 Social Work and Human Behavior I 3(3-0)

Critique and analysis of theory explaining human behavior in individuals and families. Use of theory in social work practice with diverse and/or oppressed populations. Prerequisites: Must have minimum of 2.5 GPA; signed Social Work Major; applied to the Social Work Program. Pre/Co-requisites: SWK 250; BIO 151 or HSC 211.

SWK 375 Social Work and Human Behavior II 3(3-0)

Theories explaining human behavior in groups, organizations, communities, and global systems. This course may be offered in an online or hybrid format. Prerequisites: Admitted to the Social Work Program; C or better in SWK 374. Co-requisite: SWK 321 OR completion of 86 hours in Bachelor of Science with an Option in Community Development.

SWK 397 Independent Study 1-12(Spec)

Directed reading or research on approved topic. Prerequisite: permission of instructor.

SWK 399 Special Topics in Social Work 1-12(Spec)

Consideration of subject matter not included in courses currently listed in the Bulletin.

SWK 422 Youth Welfare 3(3-0)

Issues pertaining to youth welfare are related to broader organizational and structural features of society, including historical and comparative (international) perspectives. Identical to SOC 422. Credit may not be earned in more than one of these courses. Prerequisites: SOC/ANT 101 and a signed Global Justice Minor; or SOC 100 and a signed Youth Studies Minor; or SOC 200, SOC 301, and SOC 350.

SWK 450 Social Welfare Policies and Services II 3(3-0)

Analysis and evaluation of social policies welfare services. Emphasis on social action, social and economic justice and impact on at-risk groups. May be offered as Writing Intensive. Prerequisites: Admitted to the Social Work Program; SWK 250; SOC 221 or 302; SWK 470. Co-requisites: SWK 480.

SWK 470 Social Work Practicum I 4(Spec)

200 hours of supervised experience in a social work setting. CR/NC only. Prerequisites: Admitted to the Social Work Program; SWK 321, 375. Co-requisite: SWK 331, 471.

SWK 471 Social Work Practicum Seminar I 2(2-0)

Students consciously and critically integrate knowledge with direct practice observed in a field agency and compare generalist practice as implemented in different agencies. Prerequisites: Admitted to the social work program; Co-requisite: SWK 470.

SWK 480 Social Work Practicum II 4(Spec)

Continuation of 200 hours of supervised experience in a social work setting. CR/NC only. Prerequisites: Admitted to the Social Work Program; SWK 470, 471 with a B- or better. Pre/Co-requisite: SWK 450. Co-requisite: SWK 481.

SWK 481 Social Work Practicum Seminar II 2(2-0)

Students consciously and critically integrate knowledge with direct practice as performed in a field agency and compare generalist practice as implemented in different agencies. Prerequisites: SWK 471 with a B- or better, SWK 470. Pre/Co-requisite: SWK 450. Co-requisite: SWK 480.

SWK 490 Community Development: A Critical Approach 3(3-0)

Integrative capstone experience that synthesizes knowledge, skills, and applications in community development and community-based social work in an applied agency project proposal. May be offered in an online or hybrid format. Pre/Co-requisite: SWK 470 (for Social Work students) or Prerequisite: 86 semester hours and signed major in Bachelor of Science degree with an option in Community Development.

SWK 597 Independent Study 1-12(Spec)

Directed reading or research on approved topic. Prerequisite: Completion of at least 75 undergraduate credits or graduate standing. Recommended: SWK 100.

SWK 599 Special Topics in Social Work 1-12(Spec)

Consideration of subject matter not included in courses currently listed in the Bulletin. Prerequisite: Completion of at least 75 undergraduate credits or graduate standing. Recommended: SWK 100.

TAI - Theatre and Interpretation

See the Department of Communication and Dramatic Arts for more information.

TAI 170 Oral Interpretation of Literature 3(3-0)

General education approach to the art of oral interpretation as a dynamic means of analyzing and experiencing literature while communicating it with others. (University Program Group I-B: The Arts)

TAI 175 Appreciation of the Theatre 3(3-0)

A survey course that explores the development of theatre by looking at the art, craft, and business of the theatre. (University Program Group I-B: The Arts)

TAI 177 Stagecraft and Stage Lighting 4(4-0)

Basic principles of scenery construction. Theory and principles of basic stage lighting.

TAI 178 Special Topics in Theatre 3-9(Spec)

Current topics for each semester listed in Course Search and Registration. May be repeated for a maximum of 9 credit hours.

TAI 182 Acting I 3(3-0)

Introductory voice and body work with special emphasis through exercises given to energy control and concentration.

TAI 277 Stage Management 3(3-0)

Principles and practices of stage management. Duties and responsibilities of the stage manager with emphasis on stage management in academic, community, and professional theatre. Prerequisites: TAI 177; 182.

TAI 278 Stage Makeup 3(2-2)

Theory and practice in straight and character makeup.

TAI 282 Acting II 3(3-0)

Introduction to emotional technique and characterization through exercises and scenes in individual projects. Prerequisite: TAI 182.

TAI 300 Improvisation 3(2-2)

Creation of spontaneous performances, emphasizing scenes, monologues, and storytelling. Prerequisite: TAI 182.

TAI 302 Voice and Diction 3(3-0)

Theory and practice of principles necessary for improving the speaking voice. Primary emphasis on individual speech improvement.

TAI 305 Studio: Acting/Performance 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of acting/performance. Prerequisite: written permission of instructor.

TAI 306 Studio: Directing 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of directing. Prerequisite: written permission of instructor.

TAI 307 Studio: Movement 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of movement. Prerequisite: written permission of instructor.

TAI 308 Studio: Script Creation 1-4(Spec)

Script creation through adaptation of nondramatic materials or creation of original dramatic material for potential use in laboratory theatre or oral interpretation activities. Prerequisite: written permission of instructor.

TAI 309 Studio: Stage Management 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of stage management. Prerequisite: written permission of instructor.

TAI 310 Studio: Sound 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of sound. Prerequisite: written permission of instructor.

TAI 311 Studio: Properties 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of properties. Prerequisite: written permission of instructor.

TAI 312 Studio: Scenery Construction and Rigging 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of scenery construction and rigging. Prerequisite: written permission of instructor.

TAI 313 Studio: Scenery Design 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of scenery design. Prerequisite: written permission of instructor.

TAI 314 Studio: Lighting 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of lighting. Prerequisite: written permission of instructor.

TAI 315 Studio: Lighting Design 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of lighting design. Prerequisite: written permission of instructor.

TAI 316 Studio: Technical Direction 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of technical direction. Prerequisite: written permission of instructor.

TAI 317 Studio: Costuming 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of costuming. Prerequisite: written permission of instructor.

TAI 318 Studio: Wardrobe Management 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of wardrobe management. Prerequisite: written permission of instructor.

TAI 319 Studio: Makeup 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of stage makeup. Prerequisite: written permission of instructor.

TAI 320 Studio: Theatre Management 1-4(Spec)

Major participation in faculty/staff-supervised university theatre or oral interpretation activities in the area of box-office management. Prerequisite: written permission of instructor.

TAI 321 Studio: Dramaturgy 1-4(Spec)

Major participation in faculty and/or staff-supervised university theatre or oral interpretation activities in the area of dramaturgy. Prerequisite: Written permission of instructor.

TAI 352 Music Theatre Scene Study 3(1-2)

Analysis and presentation of musical theatre scenes (duets, trios, groups). Study of character development in various music theatre styles. Prerequisites: MUS 250; TAI 182.

TAI 371 Readers Theatre 3(3-0)

Scripting and directing alternative texts for performance, including narrative fiction, lyric poetry, personal narratives, and nonfictional prose. Prerequisite: TAI 170

TAI 373 Oral Interpretation for Children 3(3-0)

General education approach to the art of oral interpretation as a dynamic means of experiencing literature for children and communicating it to children.

TAI 376 Interpretation of Drama 3(3-0)

Specialized study of dramatic literature with particular attention to analysis, performance, styles of drama, stage speech, and appropriate dialects. Prerequisite: TAI 170.

TAI 377 Costuming I 3(3-0)

Survey of costume history, Egyptian to the present; introduction to design and construction techniques.

TAI 378 Stage Combat 3(2-2)

Basic principles of stage combat as they apply to hand-to-hand, quarter-staff, and rapier-and-dagger techniques. Prerequisite: TAI 182.

TAI 379 Acting for the Camera 3(3-0)

The creative process and special technical aspects of acting for the camera. Prerequisites: TAI 182.

TAI 380 Musical Theatre History 3(3-0)

Examination of American Musical Theatre history and forms from 1866 to the present.

TAI 382 Acting III 3(3-0)

Period movement patterns, pantomime techniques, and regional and cultural dialects, with individual scenes prepared for critical evaluation. Prerequisite: TAI 182, TAI 282.

TAI 383 Voice for the Actor 3(3-0)

Vocal techniques for actors. Designed to provide the student with a general understanding of vocal technique and theory, as they apply to characterization and acting. Prerequisites: TAI 182; TAI 302.

TAI 384 Movement for the Actor 3(3-0)

Movement techniques for actors. Designed to provide the student with a general understanding of movement technique and theory, as it applies to characterization and acting. Prerequisite: TAI 182.

TAI 385 Audition Techniques 3(3-0)

Practical audition skills including monologue selection, analysis and performance, cold readings, audition etiquette and protocol. Prerequisites: TAI 182, 282.

TAI 399 Theatre and the Holocaust 3(3-0)

This course examines how theatre was/is used to represent and respond to the Holocaust and Nazi culture. Historical, political, ethical, and aesthetic questions are explored. (University Program Group IV-B: Studies in Cultures Outside of the Anglo-American Tradition)

TAI 452 Music Theatre Performance 3(2-2)

Preparation and performance of musical theatre scenes and vignettes. Synthesis of performance techniques in music, dance, and theatre in relation to various musical theatre styles. Prerequisites: DAN 136, DAN 137, DAN 138, DAN 232; MUS 284, MUS 350; TAI 282, TAI 380.

TAI 460 BFA Capstone Project 3(0-6)

Major capstone project in theatre (including music theatre) and/or interpretation. Prerequisite: Must be approved by TAI or Music Theatre faculty/staff advisor(s) prior to registration. Must be completed in final year of study.

TAI 476 Lighting Design 3(3-0)

Theory and application of basic principles used in designing lighting for the theatre. Prerequisite: TAI 177. Recommended: TAI 314.

TAI 477 Scene Design 3(3-0)

Theory and application of basic principles used in designing scenery for the theatre. Prerequisite: TAI 177.

TAI 478 Theatre Management 3(3-0)

Concepts and methods of theatre management and promotion: box-office procedures, house management, and publicity.

TAI 481 Directing 3(3-0)

Responsibilities, philosophies, and techniques of the stage director. Emphasis on preparation of scenes for evaluation. Prerequisite: TAI 182.

TAI 490 Independent Study 1-4(Spec)

Student-initiated study guided by faculty member or faculty committee. Undergraduate prerequisites: an overall B average, permission of advisor and instructor (and completion of form).

TAI 499 Senior Capstone 3(3-0)

Capstone course that integrates academic and production experiences in theatre with students' career goals. Prerequisites: senior standing and completion of 30 hours of the TAI major.

TAI 518 Advanced Make-up 3(2-2)

Practical application of advanced make-up materials and techniques, including both two-dimensional and three-dimensional make-up. Prerequisite: TAI 278. Recommended: ART 260, 261.

TAI 569 History of American Theatre 3(3-0)

Development of drama and theater in America from colonial times to the present. Prerequisites: 6 hours of TAI coursework.

TAI 570 Oral Interpretation of Prose Fiction 3(3-0)

Specialized study of the short story and novel, in both individual and group performances. Prerequisites: one course in oral interpretation; one course in fictional literature.

TAI 571 Oral Interpretation of Poetry 3(3-0)

Specialized study of poetry. Prerequisites: one course in oral interpretation and one course in poetic literature.

TAI 572 Special Topics in Oral Interpretation 1-9(Spec)

Current topics for each semester listed in Course Search and Registration. 3 hours each; maximum credit 9 hours. Prerequisite: one course in oral interpretation and/or a major in English.

TAI 573 Seminar: Interpretative Reading 3(3-0)

History of the art of interpretative reading, its current theories and possible trends. Prerequisite: one course in interpretative reading.

TAI 574 History of Drama and Theatre I 3(3-0)

Development of drama and theatre in Western Culture from ancient origins to 1700. Prerequisites: 6 hours of TAI coursework.

TAI 575 History of Drama and Theatre II 3(3-0)

Continuation of TAI 574, History of Drama and Theatre I. Development of drama and theatre in Western Culture from 1700 to 1945. Prerequisites: 6 hours of TAI coursework.

TAI 577 Special Topics in Technical Theatre 1-9(Spec)

Current topics for each semester listed in Course Search and Registration. 3 hours each; maximum credit 9 hours. Prerequisites: Two from the following: TAI 177, TAI 278, TAI 377, TAI 477.

TAI 578 Special Topics in Theatre 1-9(Spec)

Current topics for each semester listed in Course Search and Registration. 3 hours each; maximum credit 9 hours. Prerequisites: Two undergraduate courses in theatrical production.

TAI 579 Costume Design and Construction 3(3-0)

Concentration in the problems of design, pattern drafting, and construction of costumes for the theatre. Prerequisites: TAI 377; FMD 140.

TAI 580 Dramatic Theory and Criticism 3(3-0)

Analysis of significant theories of theatre and drama. Prerequisite: TAI 574 or TAI 575.

TAI 581 Advanced Directing 3(3-0)

Continuation of TAI 481, Directing. Emphasis on the rehearsal and performance of one-act plays for public presentation. Prerequisites: TAI 177 and TAI 481. Admission by approval of instructor only (contact CDA office for procedure).

TAI 583 Women in the Contemporary American Theatre 3(3-0)

Examines the contributions of women producers, directors, playwrights, actors, designers, and critics to the development of the contemporary American theatre. Prerequisites: 6 hours of TAI coursework.

TAI 584 Field Course in Theatre 1-4(Spec)

A travel course to metropolitan theatrical productions and institutions. Required are a pre-travel reading program and final reaction/evaluation paper.

TAI 585 Creative Dramatics 3(2-2)

Techniques of guiding children through original dramatizations. Primarily for the classroom teacher.

TAI 586WI Playwriting 3(3-0)

Theory and practice in writing original plays; discussion and critical evaluation of student plays. Writing Intensive. Prerequisites: ENG 201; ENG 294 or one course in history of drama and theatre.

TAI 587 Irish Theatre and Drama 3(3-0)

Development of theatre and drama in Ireland. Course requires travel to Dublin during Spring Break. Prerequisites: Permission of Instructor.

TAI 588 Contemporary Theatre 3(3-0)

Development of drama and theater in Western Culture from 1945 to the present. Prerequisites: 6 hours of TAI coursework.

TAI 589 Theatre Workshop 2-6(Spec)

Theoretical and practical work in productions of the University Theatre. Prerequisite: minimum of one course in theatre.

TAI 590 Summer Repertory Theatre 3(3-0)

Intensive practical theatre experience in the repertory situation under professional direction and guidance. Prerequisite: applicant admitted to course only through audition.

For graduate level course descriptions above 600, consult the current College of Graduate Studies Bulletin.

TAI 602 Modern Performance Theory 3(3-0)**TAI 619 Continuing Registration for Final Research Project 1(1-0)****TAI 790 Advanced Independent Study 1-4(Spec)**

UNV - Prior Learning

Contact Global Campus for more information.

UNV 297 Prior Learning 1-60(Spec)

UNV 497 Prior Learning 1-60(Spec)

UNV 697 Prior Learning 1-10(Spec)

WGS - Women and Gender Studies

See the *Interdisciplinary Women's Studies Major and Minor* for more information, or contact the *Women's Study office*.

WGS 100 How Gender Affects Our Lives 3(3-0)

An interdisciplinary course on the creation of gender inequalities. Students will delve into the complexities of gender identity from historical, contemporary, intersectional, and international perspectives. May be offered as Writing Intensive. May be offered in an online or hybrid format. (University Program Group III-B: Studies in Social Structures)

WGS 207 Women in Religion 3(3-0)

Roles and images of women in major religious traditions; emphasis on religious reform, creation of alternative institutions, new concepts of spirituality. Identical to REL 207. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

WGS 213 Introduction to Human Sexuality 3(3-0)

Human sexual development throughout the human life cycle. Emphasis on understanding and acceptance of self as a sexually functioning person. Identical to HDF 213. Credit may not be earned in more than one of these courses.

WGS 214 Sociology of Sexuality 3(3-0)

Sociological examination of human sexuality, sexual identity and community. Identical to SOC 214. Credit may not be earned in more than one of these courses. Prerequisite: SOC 100.

WGS 230 Women in the Economy 3(3-0)

A study of the past and present role of women in the economy, as workers, both inside and outside the labor market. Identical to ECO 230. Credit may not be earned in more than one of these courses.

WGS 280 Queer Fashion 3(3-0)

Examination of LGBTQ experiences via historical fashion analysis. Emphasis on LGBTQ identity fashioned through sartorial choice. Gay aesthetic, camp culture, and LGBTQ designer contributions. Identical to FMD 280. Credit may not be earned in more than one of these courses. This course may be offered in an online format. (University Program Group IB: The Arts)

WGS 297 Special Topics in Women and Gender Studies 3-6(Spec)

Course covers special topics of interest to Women and Gender Studies not covered in existing courses. Course title will be listed on student's transcript.

WGS 302 Witchcraft, Magic, and Occult Phenomena 3(3-0)

The history and theory of European witchcraft and demonology. Includes the study of anthropology of witchcraft in non-Christian societies, gender and intersectionality, and new religious movements like Wicca. Identical to REL 302. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. Recommended: ENG 201.

WGS 303 Goddesses 3(3-0)

Interdisciplinary study of goddesses in selected cultures, ancient and modern. Uses intersectionality to analyze opportunities and challenges inherent in gendering gods, including borrowing/reinventing goddesses today. Identical to REL 303. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. Recommended: ENG 201.

WGS 317 Sociology of Sex and Gender 3(3-0)

Analysis of the role of gender in institutions such as the economy, the family and the schools. Gender inequality and factors that promote its reproduction. Identical to SOC 317. Credit may not be earned in more than one of these courses. Prerequisite: SOC 100 or 201 or 221.

WGS 319 Women and Sport 2(2-0)

An investigation of the motivational and social implications of women's participation in sport. Identical to PES 319. Credit may not be earned in more than one of these courses.

WGS 326 Women and Politics 3(3-0)

This course will look primarily at empirical studies of women's role in politics in the U.S. but also in other contexts. Identical to PSC 326. Credit may not be earned in more than one of these courses.

WGS 327 Women Writers: Gender, Sexuality, and Literature 3(3-0)

Examination of women writers in a variety of historical and cultural traditions, approached through the lenses of feminist and queer theory. Identical to ENG 327. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. Prerequisite: ENG 201 with a grade of C or better.

WGS 328 Women in America 3(3-0)

Study of the traditional position of women in American society as documented in historical, literary, and biographical sources. Identical to HST 326. Credit may not be earned in more than one of these courses. May be offered as Writing Intensive. (University Program Group I-A: Human Events and Ideas)

WGS 334 Psychology of Women 3(3-0)

Explores psychological issues pertaining specifically to women in the following areas: affective and cognitive functioning, personality theories, adult role behaviors, sexuality and physical and mental health. This course is approved for offering in a distance learning format. Identical to PSY 334. Credit may not be earned in more than one of these courses.

WGS 354 Women in European History 3(3-0)

Surveys and analyzes the traditional and nontraditional roles of women in European history, using new historical research. Identical to HST 354. Credit may not be earned in more than one of these courses.

WGS 362 Gender Communication 3(3-0)

Focuses on the role of communication in the creation and perpetuation of gender stereo types. Emphasis on personal growth and awareness in a variety of contexts. Identical to COM 362. Credit may not be earned in more than one of these courses.

WGS 382 Gender and Art 3(3-0)

Examines how gender identity has played a role in art. Examines artists, patrons, viewers, and subjects of representations as gendered and historically specific entities. Identical to ART 382. Credit cannot be earned in more than one of these courses. Prerequisite: Completion of 26 credit hours.

WGS 410 Women, Crime and Deviance 3(3-0)

Exploring the theories, concepts, and social constructions fundamental to conceptualization of women as victims, offenders, and workers in the criminal justice system. Identical to SOC 410. Credit may not be earned in more than one of these courses. Prerequisites: SOC 301, 350.

WGS 426 Feminist Theory 3(3-0)

Examination of theories that describe and criticize the social, cultural and political status of women and offer alternatives to the status quo. Identical to PHL 426 and PSC 426. Credit may not be earned in more than one of these courses. Recommended: one course in philosophy or one of PSC 275, 326, 371, 372, 373, 378.

WGS 430 Women and Aging 3(3-0)

This course assumes multiple theoretical perspectives to examine older women's, psychological, social, and physical development, family and social roles, and policy implications. Identical to HDF 430. Credit may not be earned in more than one of these courses. This course may be offered online. Prerequisites: HDF 100 or 247 or PSY 325.

WGS 496 Capstone Seminar in Women's Studies 3(3-0)

An interdisciplinary capstone seminar in Women's Studies integrating feminist theory, research and practice with particular attention to analysis of global movements, cultural institutions and science. Prerequisites: WGS 328/ HST 326, WGS/PHL/PSC 426, and six additional hours in Women's Studies.

WGS 497 Special Topics in Women and Gender Studies 3-6(Spec)

Course covers special topics of interest to Women and Gender Studies not covered in existing courses. Course title will be listed on student's transcript. Recommended: 6 hours of coursework at the 300-level OR permission from instructor.

WGS 590 Gender, Culture, and Society 3(3-0)

Analysis of gender roles in various cultures; theoretical approaches to explaining gender role variation. Identical to ANT 590 and SOC 590. Credit may not be earned in more than one of these courses. Prerequisites: 6 hours of anthropology and/or sociology and /or women's studies.