Check the University Catalogs website at www.catalogs.umn.edu for the most current course information. The courses in this catalog are not offered every semester. To find out whether a course is offered during a particular semester, consult the online Class Schedule at onestop.umn.edu/registrar/registration/courses.html.

Course Designators

In conjunction with course numbers, departments and programs are identified by a 2-, 3-, or 4-letter designator prefix (e.g., CE for Civil Engineering, POL for Political Science, ECON for Economics). When no designator precedes the number of a course listed as a prerequisite, that prerequisite course is in the same department as the course being described.

Course Numbers

0xxx.......Courses that do not carry credit toward any University degree.

1xxx.......Courses primarily for undergraduate students in their first year of study.

2xxx.......Courses primarily for undergraduate students in their second year of study.

3xxx.......Courses primarily for undergraduate students in their third year of study.

4xxx.......Courses primarily for undergraduate students in their fourth year of study; graduate students may enroll in such courses for degree credit. 4xxx courses can be counted for a Graduate School degree if the course is taught by a member of the graduate faculty or an individual appointed to Limited Teaching Status (LTS).

5xxx.......Courses primarily for graduate students; undergraduate students in their third or fourth year may enroll in such courses.

Course Symbols

The following symbols are used throughout the course prerequisites of most University catalogs to denote common and recurring items of information.

=...........Credit will not be granted if credit has been received for the course listed after this symbol.

&............Concurrent registration is required (or allowed) in the course listed after this symbol.

#............Approval of the instructor is required for registration.

%............Approval of the department offering the course is required for registration.

@............Approval of the college offering the course is required for registration.

,.............In prerequisite listings, comma means “and.”

1-4 cr [max 6]...The course can be taken for 1 to 4 credits and may be repeated for up to 6 credits.

Abbreviations

The following abbreviations are used throughout the course prerequisites of most University catalogs to denote common and recurring items of information.

Prereq..........Course prerequisites.

cr...............Credit.

div.............Division.

DUS...........Director of undergraduate studies.

equiv...........Equivalent.

fr, soph, jr, sr....Freshman, sophomore, junior, senior.

H................Honors. Courses with an H following the course number satisfy honors requirements.

V................Honors and Writing Intensive. Courses with a V following the course number satisfy both honors and liberal education writing intensive requirements.

W................Writing Intensive. Courses with a W following the course number satisfy the writing intensive requirement for liberal education.

A-F only.........A-F grade basis only; course may not be audited or take pass/fail

A-F or Aud........A-F grade basis, or course may be audited for no grade

S-N only.........S-N grade basis only (pass/fail), course may not be audited or taken A-F

S-N or Aud......S-N grade basis (pass/fail), or course may be audited for no grade

No Grade........No grade will be given for the course; typically used for laboratory components of courses

OPT No Aud.....Student selects the grading option; course may not be audited

Stdnt Opt.......Student selects the grading option; course may be audited

Course Listing Sample

Xology (Xolo)

Xology and Diometrics

College of Liberal Education

Xolo 5101. Methods in Xology. (3-4 cr [max 8 cr]; A-F only. =3101. Prereq–3578 or #)

Historical, numerical, sociological, and Freudian methods of research in xology with applications to contemporary problems.

Credit will not be granted if credit has been received for the course listed after this symbol.
American Indian Studies (AMIN)  
Academic Affairs

AMIN 1001. Beginning Dakota Language I.  
(4.0 cr.; fall, every year)  
An introduction to speaking, writing, and reading Dakota language and an overview of Dakota culture.

AMIN 1002. Beginning Dakota Language II.  
(FL; 4.0 cr.; prereq 1001 or #; spring, every year)  
A continuation of 1001 with greater emphasis on conversation and culture.

AMIN 1011. Beginning Anishinaabe Language I.  
(4.0 cr.; fall, every year)  
An introduction to speaking, writing, and reading Anishinaabe language and an overview of Anishinaabe culture.

AMIN 1012. Beginning Anishinaabe Language II.  
(FL; 4.0 cr.; prereq 1011; spring, every year)  
A continuation of 1011 with greater emphasis on conversation and culture.

AMIN 1101. Introduction to American Indian Studies.  
(HDIV; 4.0 cr.; fall, every year)  
An introduction to American Indian histories, literature and other creative endeavors, and cultures. An interdisciplinary course emphasizing sovereignty, effects of government policies, and diversity of American Indian societies.

(IP; 4.0 cr.; =HIST 1813, HIST 1701); fall, offered periodically)  
Same as HIST 1701. Modern technology has transformed our world and encouraged global nations to become increasingly connected. These international connections contain a unique and exciting history that complicates and enriches our worldview. The movement to gain recognition in the United Nations has prompted Indigenous peoples into a new political awareness of Intertribalism. Acquire an introductory knowledge about Indigenous histories beyond the borders of the United States. Navigating the globe, learn about the Māori of New Zealand, Aboriginal rights in Australia, the great Polynesian, Asian, and African Empires. Debate complex issues of colonization, gender, sustainability, urbanization, science, law, economics, race, and nationalism. Also investigate contemporary political movements, activism, and art forms employed by Indigenous communities to maintain their life-ways and sovereignty.

AMIN 1801. American Indian Song and Dance.  
(IC; 2.0 cr.; prereq new college student in the first semester of enrollment at UMM; fall, offered periodically)  
An academic and active exploration of song and dance traditions from American Indian tribes.

(HUM; 4.0 cr.; prereq 1012 or placement or #; fall, offered periodically)  
Review of the essential structural patterns of the Anishinaabe language; continued development of oral, aural, reading, and writing skills based on cultural and literary texts appropriate to this level.

AMIN 2012. Intermediate Anishinaabe Language II.  
(HUM; 4.0 cr.; prereq 2011 or placement or #; spring, offered periodically)  
Review of the essential structural patterns of the Anishinaabe language; continued development of oral, aural, reading, and writing skills based on cultural and literary texts appropriate to this level.

AMIN 2993. Directed Study.  
(1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, summer, every year)  
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

American Sign Language (ASL)  
Division of Humanities

ASL 1001. Beginning American Sign Language I.  
(4.0 cr.; credit will not be granted if credit has been received for Ed 1011; fall, every year)  
Students develop a working vocabulary of conceptually based signs. Emphasis is on receptive abilities. Students develop an awareness of the history of sign language and explore various signing systems, their most common uses, and the cultural rules and values of American Deaf culture.

ASL 1002. Beginning American Sign Language II.  
(FL; 4.0 cr.; prereq 1001 or placement or #; credit will not be granted if credit has been received for Ed 1012; spring, offered periodically)  
Continuation of the sequence beginning with 1001. Students develop a working vocabulary of conceptually based signs, receptive ability, and an awareness of the history of sign language. They also explore various signing systems, their most common uses, and the cultural rules and values of American Deaf culture.

Anthropology (ANTH)  
Division of Social Sciences

ANTH 1111. Introductory Cultural Anthropology.  
(SS; 4.0 cr.; fall, spring, every year)  
Varieties and range of human behavior as revealed through the comparative study of cultures throughout the world. Concepts developed by anthropologists to explain both the unity and diversity of humankind.

ANTH 1811. Contemporary Chinese Culture and Society.  
(IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)  
Overview of the cultural unity and diversity of contemporary Chinese society in relation to globalization and modernization. Focus is largely on the social changes and everyday life in the post-reform era (1978 to the present). Topics include Chinese politics, economic development, labor migration, family life, marriage, religion, ethnicity, and popular culture. Also, examination of the globalizing forces that help produce cross-cultural imageries of China.

(IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)  
Consider fictional representations of human societies in the fantasy, science fiction, and alternate history genres. Compare these to ethnographic and archaeological readings, exploring the diversity of human societies all around the world, from our earliest human ancestors through the modern era, with particular focus on social/political structures, gender roles, religion, and ethnicity. Consider what factors most strongly affect the structure of human societies, how these are or are not reflected in fiction, and how fiction reflects the authors’ beliefs of what constitute the fundamental aspects of humankind, human personalities, and human societies.

(1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)  
Individualized on- or off-campus project or other learning activity not covered in the regular Anthropology curriculum. Topic determined by the student and instructor.

ANTH 2101. Physical Anthropology.  
(SCI-L; 4.0 cr.; A-F only; spring, every year)  

ANTH 2103. Archaeology.  
(SS; 4.0 cr.; fall, every year)  
Survey of prehistoric and early historic cultures from around the world. Covers the development of hunting and gathering societies, origins of agriculture, and growth of urbanization and state-level societies. (two 65-minute lectures, one 120-minute lab session)
ANTH 2202. Men and Masculinities. (SS; 4.0 cr.; prereq some academic background or knowledge about gender and sexuality is recommended; fall, offered periodically) Introduction to the field of men and masculinity. Examines cultural construction of masculinity in sports, family, work, media, and other social realms, with a focus on contemporary American, Chinese, Mexican, and Japanese societies. Highlights the multiple masculinities that exist, showing which are privileged and what effects this hierarchy of masculinities has. Topics include men's movements and networks, men's socialization, male sexuality and fertility, manhood and violence, the idea of machismo, intimacy and friendship among males, fatherhood, men's experiences with sports and work, media representations of boys and men, and the social construction of masculinities in different historical and cultural contexts. Helps students understand how masculinity as a social concept affects their relationships with the people in their lives, approaching gender problems in a rational way, and developing cultural sensitivity toward masculinity issues.

ANTH 2604. China in the Era of Globalization. (IP; 4.0 cr.; spring, offered periodically) A seminar exploring the multifaceted nature of contemporary globalization and the transnational forces that have greatly contributed to the social, cultural, political, and economic changes in post-reform (1978-present) China and the diasporic Chinese communities. Examines the key concepts and theoretical frameworks of globalization, transnationalism, and economic development. Major topics include the interconnected relationship between the global economy and China's domestic labor migration; increasing social stratification and gender inequality in mainland China; the rise of consumerism and the emergence of a global market for Chinese cultural media; cross-cultural romance, marriages, and families; nationalism and collective identity in China and the Chinese diaspora, and so on. Offers important bases for a critical evaluation of the significant roles that contemporary Chinese economy and society play in the era of globalization.

ANTH 2605. Anthropology of Globalization. (SS; 4.0 cr.; prereq knowledge about or background in anthropology or behavioral sciences is recommended; spring, offered periodically) Globalization is one of the fundamental keywords of contemporary human life, yet there is a substantial debate about its nature, impact, trajectory, and future. Explore some of the most important aspects of globalization and seek to understand how various peoples around the world have experienced the process of globalization. Introduction to three interconnected frameworks on globalization: 1) take an initial economic approach to globalization, and examine how globalization reshapes local, regional, and national economies; 2) explore how globalization is also a cultural process, affecting ideas of citizenship and identity; 3) look into the impact of globalization on other areas of social, political, and ecological life and explore alternative approaches to large-scale development and globalization.

ANTH 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) Individualized on-or off-campus research project or other learning activity not covered in the regular anthropology curriculum. Topic determined by the student and instructor.

ANTH 3204. Culture, Food, and Agriculture. (ENVT; 4.0 cr.; =SOC 3204; prereq 1111 or Soc 1101 or #; spring, every year) Examines the globalization of food systems utilizing a political ecology perspective to understand global and local dimensions of production, marketing, and consumption. Emphasis on connections between food production and national identity, relations of power, genetic engineering, environmental destruction, the politics of world hunger, and local efforts to achieve sustainability.

ANTH 3206. Ecological Anthropology. (ENVT; 4.0 cr.; prereq 1111 or 2101 or 2103; fall, every year) Exploration of human ecology and the causes and effects of environmental change, using data from archaeology, biological anthropology, and cultural anthropology. Emphasis on understanding the social and economic context of human adaptations to the environment. Examination of cultures worldwide and through time that have (or have failed to) live sustainably.

ANTH 3352. Representation and Power in Contemporary China. (SS; 4.0 cr.; prereq some knowledge or background about China, Chinese history, and Chinese society is recommended; spring, offered periodically) Look into contemporary Chinese society and culture, along with recent debates in social theory and theories of representation. Critically examine the categories and assumptions we bring to the study of contemporary China and how we might rethink them. Explore a wide range of topics, including the "birth" of middle-class subjectivity, the varied modes of nostalgia about the socialist past, the discourse of "quality" (suzhi) as a marker of modernity, the constitution of gendered identities, the signifying economy of the everyday, the commodification of the body, and so on. Overall, study the complicated politics of representation in relation to China's consistent pursuit of modernity and drastic social transformation in the past few decades.

ANTH 3402. Representations from the Field: American Indian Ethnography and Ethnohistory. (HDIV; 4.0 cr.; =HIST 3402; fall, offered periodically) Same as Hist 3402. An analysis of ethnographic and ethnohistoric materials focusing on specific American Indian cultures.

ANTH 3455. North American Archaeology. (SS; 4.0 cr.; prereq 1111 or 2103; fall, spring, offered periodically) The archaeology of the societies located in the current United States and Canada prior to European colonization. Includes the earliest human colonization of North America (circa 12,000 years ago), early hunting and gathering societies, the development of agriculture, and the formation of complex chiefdoms. Emphasis on the diversity of cultures, languages, economics, and environments found throughout precontact North America.

ANTH 3601. Social Justice and Human Rights in Latin America. (IP; 4.0 cr.; =SOC 3601; prereq 1111 or Soc 1101 or #; fall, every year) Same as Soc 3601. Examination of social, economic, and political transformations in Latin America with an emphasis on social justice and human rights. Critical approaches to understand U.S.-Latin American relations, labor struggles, rebellions to define alternative development, indigenous resistance to encroachment on resources and ways of life, civil war and genocide, and efforts to create a more environmentally and socially sustainable development.

ANTH 3602. Women in Latin America. (IP; 4.0 cr.; =SOC 3602; prereq 1111 or Soc 1101 or #; spring, every year) Same as Soc 3602. Study of the social, economic, and political positions of women in Latin American countries. Topics include class and ethnic differences, women in the labor force, and women's participation in political movements through the lens of feminist theory.

ANTH 3603. Latin American Archaeology. (SS; 4.0 cr.; prereq 2101 or Biol 2102; fall, odd years) Latin America from the earliest human colonization to European contact. Includes societies from northern Mexico through Tierra del Fuego, as well as the Caribbean. Covers early hunting gathering societies, origins of agriculture, the rise of powerful states and empires, and their influence on later Colonial-period societies.

ANTH 3701. Forensic Anthropology. (SCI-L; 4.0 cr.; prereq 2101 or Biol 2102; fall, odd years) Recovery, identification, and analysis of human skeletal remains, including investigation techniques, identification of age, sex, ancestry, and cause of death. Two 65-min lectures and one 2-hour lab weekly.

ANTH 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) Individualized on-or off-campus research project or other learning activity not covered in the regular anthropology curriculum. Topic determined by the student and instructor.

ANTH 4411. Seminar in Anthropological Methodology. (E/CR; 4.0 cr.; A-F only; prereq 1111 or Soc 1101, 4 addtl cr in Anth or Soc; fall, every year) Exploration and evaluation of methods used in cultural anthropology; qualitative methods; research ethics; and design of qualitative research project.

ANTH 4501. Archaeological Fieldschool. (SS; 4.0 cr. [max 8.0 cr.]; prereq #, summer, offered periodically)
Experience in archaeological fieldwork, including excavation, survey, artifact processing, and living under field conditions.

ARTH 4901. Seminar in Anthropological Theory. (4.0 cr.; A-F only; prereq 1111 or Soc 1101, 4 addtl cr in Anth or Soc; spring, every year)
Examines the historical development of anthropological theory, influences that shaped historical and contemporary anthropological theories, and major debates regarding their interpretation.

ARTH 4993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)
Individualized on- or off-campus research project or other learning activity not covered in the regular anthropology curriculum. Topic determined by the student and instructor.

Art Education Methods (ARTE)
Division of Education

ARTE 4123. Methods of Teaching Art K-12. (4.0 cr.; A-F only; prereq admission to the secondary teacher education program, coreq SeEd 4102, SeEd 4103, SeEd 4104, SeEd 4105; fall, every year)
Objectives, curricula, special methods, materials, and evaluation appropriate for teaching art in K-12.

Art History (ARTH)
Division of Humanities

ARTH 1101. Principles of Art. (FA; 4.0 cr.; fall, spring, every year)
An introduction to the theories, methods, and vocabulary of art history. Involves development of basic skills of research, analysis, and interpretation of individual works of art. Helps the student to understand the intrinsic as well as the historical-cultural meanings of works of art.

ARTH 1111. Ancient to Medieval Art. (FA; 4.0 cr.; fall, every year)
Survey of the major works of art of western Europe from its origins in the Paleolithic period through to the full development of the Gothic era. Includes the monuments of ancient Mesopotamia, Egypt, Greece, and Rome as well as those of the Early Christian and Romanesque periods. Also includes some treatment of non-Western traditions in this era.

ARTH 1121. Renaissance to Modern Art. (FA; 4.0 cr.; spring, every year)
Survey of the major works of art of western Europe and the United States from 1400 to the present.

ARTH 180. Memorials and Memorialization. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
In what ways have cultures throughout time sought to commemorate life and death through visual form? And why has memorialization become so potent in recent decades? Consider various forms of memorials, including monuments, tombstones, quilts, and tattoos, and examine how these visual media express that which may elude words.

ARTH 3101. Art and Archaeology of Ancient Greece. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, odd years)
Beginning with the Bronze Age civilizations of the Aegean (Minoan, Cycladic, and Mycenaean), this course follows the development of the painting, sculpture, and architecture of ancient Greece, concentrating on the classical period in Athens and the Hellenistic period in the Mediterranean.

ARTH 3111. Art and Archaeology of Ancient Rome. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, odd years)
In-depth study of Roman art and archaeology beginning with the Villanovans and Etruscans who preceded the Romans and ending with the rise of Early Christian art. Concentration on the public and political art of the various emperors.

ARTH 3112. Art and the Byzantine Empire. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, even years)
A chronological and socio-political exploration of the development of art within the Byzantine Empire. The various roles that this art took within and beyond the borders of Byzantium.

ARTH 3113. Islamic Art and Culture. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, even years)
An investigation of Islamic art and architecture in both the secular and religious realm. Examination of these works in the context of the cultures and historical periods that produced them. Begins with the birth of Islamic art and continues up until today.

ARTH 3123. Castles and Cathedrals. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, odd years)
An investigation of the two major forms of architectural construction in the Middle Ages. Exploration of the development of the cathedral and castle as architectural forms and examination of the circumstances surrounding their evolution through the medieval period. Examples are drawn from continental Europe, the British Isles, and the Levant.

ARTH 3133. Boundaries and Transitions in Medieval Art. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, even years)
A thematic look at medieval art and architecture beyond the traditional focuses of inquiry such as Constantinople, Rome, and Paris. An examination of the art and architecture of the periods and areas of transition that are typically ignored or glossed over as derivative such as Late Antique, Crusader, and Ottoman.

ARTH 3142. Art of the Italian Renaissance, 1300-1520. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, odd years)
A variety of methods (including stylistic, gender, and contextual theories) are used to explore the painting and sculpture of such artists as Giotto, Donatello, Leonardo, Raphael, and Michelangelo.

ARTH 3143. Medieval Art in the Mediterranean: Cross-Cultural Exchanges and Interactions. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, offered periodically)
A chronological examination of Byzantine, Islamic, and Western medieval art in the Mediterranean basin between the 4th and 15th centuries. Introduction to the interactions and exchanges between different visual and material cultures. Topics include devotional art, the rise of Islam, court culture, pilgrimage, relics, and crusades.

ARTH 3161. 16th-Century Italian Art. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, odd years)
An investigation of the fascinating trends of Mannerist and Venetian Renaissance art, considered through the lenses of art theory, biography, social history, and style.

ARTH 3171. Baroque Art. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, odd years)
A sociohistorical consideration of the stylistic and thematic diversity present in the works of such 17th-century masters as Caravaggio, Bernini, Velazquez, Rembrandt, and Vermeer.

ARTH 3191. American Art to 1900. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, odd years)
A thematic exploration of the role of painting, sculpture, and the decorative arts in American society, from colonial times to 1900. Topics include the landscape and Manifest Destiny, American icons, folk art, and the representation of American Indians, African Americans, and women.

ARTH 3201. 19th-Century European Art through Post-Impressionism. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, odd years)
Survey of major movements from Neoclassicism through Romanticism, Realism, and Impressionism to Post-Impressionism. Attention is given to iconographical and formal analysis as well as to the social conditions in which artists lived and worked.

ARTH 3211. Early Modernist Art: Symbolism to Surrealism. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, odd years)
Survey of the major early modernist movements from Symbolism through Cubism, Futurism, Expressionism, Constructivism, De Stijl, and the Bauhaus to Surrealism. Attention is given to theories of modern art as well as to formal and iconographical analyses and to the social conditions in which modern art was created and experienced.

ARTH 3221. American Art from the End of Modernism to the Postmodern Present. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, even years)
An examination of selected artists and movements from the 1940s through the present. Equal emphasis is given to the art and the social context in which it was made and experienced, and to modernist and postmodernist aesthetic and critical thought.

ARTH 3231. History of Photography. (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, even years)
Survey of European and American photography from the period of invention to the present. Major artists and movements are examined in the context of a variety of aesthetic, social, and technical issues.

**ARTH 3241. African American Art.** (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, every year)

Survey of African American art from colonial times to the present, focusing on social context and aesthetic and biographical issues.

**ARTH 3261. Chinese Art.** (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; spring, even years)

Survey of Chinese arts from the Neolithic times to the 20th century, presented in the context of Chinese culture.

**ARTH 3281. Women and Art.** (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, odd years)

A historical survey of women's roles as creators and patrons of the visual arts in Western European and American societies, from antiquity to the present.

**ARTH 3291. Facing the Past: Portraiture and Social History.** (FA; 4.0 cr.; prereq any 1xxx ArtH course or jr status or #; fall, spring, offered periodically)

This seminar examines functions and formats of portraits created primarily in Western Europe between 1400-1800, in order to gain greater insight as to how various social identities (such as that of husband and wife, child, friend, and freak of nature) were visually constructed and verbally interpreted.

**ARTH 3311. Italian Renaissance and Baroque Art in Context.** (1.0 cr.; spring, offered periodically)

An opportunity to view and interpret art of the Renaissance and Baroque periods (c. 1400-1700) in its original contexts in Italy and to better comprehend how powerfully art can affect a viewer.

**ARTH 3993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq any 1xxx ArtH class or jr status or #; fall, spring, every year)

Content and nature of the course to be determined by faculty and student consultation. May include individual research and writing, working in relation to the Art Gallery program, or travel and study.

**ARTS 1001. Visual Studies for Non-Majors: Drawing.** (ART/P; 3.0 cr. [max 6.0 cr.]; =ARTH 1080, ARTS 1070); no elective cr for ArtS majors or minors; fall, spring, offered periodically)

Preparation for advanced work in studio art. Elements of two-dimensional design and color theory, introduction to painting and printmaking.

**ARTS 1103. Basic Studio 2-D Design.** (ART/P; 2.0 cr.; coreq 1101, 1102, 1103; one 1xxx ArtH course recommended during the same year; spring, every year)

Preparation for advanced work in studio art. Elements of three-dimensional design, introduction to sculpture.

**ARTS 1241. Practicum in Art History Pedagogy.** (1.0-4.0 cr. [max 8.0 cr.]; S-N or Audit; prereq ArtH major, #; fall, spring, every year)


devoted to the teaching of art history. As part of a formal affiliation with an ArtH course, the student undertakes selected learning activities under supervision of the course instructor such as discussion group leader, test review leader, research assistant, and/or other teaching-related activities.

**ARTH 4901. Capstone Assessment of Student Experience in Art History.** (1.0 cr.; S-N or Audit; prereq ArtH major, #; fall, spring, every year)


dedoted to the teaching of art history. As part of a formal affiliation with an ArtH course, the student undertakes selected learning activities under supervision of the course instructor such as discussion group leader, test review leader, research assistant, and/or other teaching-related activities.

**ARTH 4993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq any 1xxx ArtH class or jr status, approved directed study form; fall, spring, every year)

Content and nature of the course to be determined by faculty and student consultation. May include individual research and writing, working in relation to the Art Gallery program, or travel and study.
production of a large-scale painted mural in a public setting. Designed for students who have a working knowledge of the basic principles and skills of art such as drawing, 2D and 3D design, composition, and color theory.

**ARTS 1802. 2D Studies in Printmaking.** (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Introduces two-dimensional design concerns through the study of traditional printmaking techniques. Referencing the rich history of socially engaged printmaking as a guide for their own creative process, students learn how to visually express their own ideas related to contemporary social, political, and environmental concerns.

**ARTS 2101. Drawing From Life I.** (ART/P; 3.0 cr.; prereq major or minor or #; fall, every year) Via the study of human anatomy, the course increases and improves students' knowledge and skill in drawing as a traditional art form and as a preparation for work in other media.

**ARTS 2102. Drawing From Life II.** (ART/P; 3.0 cr.; prereq 2101 recommended; spring, every year) Allows students to use skills previously gained that relate to drawing the human form in a more individual way, integrates those skills with new ideas, and explores experimental drawing directions.

**ARTS 3002. Media Studies: Artist's Books.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; fall, spring, offered periodically) Personal expression through artist's books. Designed for students who have a working knowledge of the basic principles and skills of art such as drawing, 2D and 3D design, composition, and color theory.

**ARTS 3004. Media Studies: Mural Project and Public Art.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; fall, spring, offered periodically) Understanding and exploration of contemporary mural art through reading, writing, and production of art. Collaborative production of a large-scale painted mural in a public setting. Designed for students who have a working knowledge of the basic principles and skills of art such as drawing, 2D and 3D design, composition, and color theory.

**ARTS 3006. Media Studies: Feminist Art: A Studio Perspective.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; fall, spring, offered periodically) The impact of the women's movement of the 1970s on contemporary art. Exploration of the notion of "women's work" as a studio practice; the materials, methods, and issues that define feminist work.

**ARTS 3007. Media Studies: Printmaking.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; fall, spring, offered periodically) Study of and practice in various contemporary methods of printmaking: application of drawing skills, color, composition, and personal expression to alternative printmaking techniques.

**ARTS 3012. Media Studies: Ceramics.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor in ArtS; fall, spring, offered periodically) Study of and practice in specialized methods and techniques in ceramics not covered under the regular curriculum.

**ARTS 3013. Media Studies: Painting.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq ArtS major or minor; fall, spring, offered periodically) Study of and practice in various contemporary methods in painting: application of drawing skills, color, composition, and personal expression to alternative painting techniques.

**ARTS 3014. Media Studies: Fabric as Form.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; fall, spring, summer, offered periodically) Focus on the possibilities of fabric as the primary medium in art making. Topics include surface manipulation via hand and mechanical processes and using fabric to construct independent forms.

**ARTS 3100. Advanced Drawing I.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq 2101, 2102 recommended; fall, every year) Continued development of the skills and understanding required by traditional problems of drawing.

**ARTS 3110. Advanced Drawing II.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq 2101, 2102, 3100 recommended; spring, every year) Emphasizes self-direction, experimental approaches and materials, and study of contemporary concepts.

**ARTS 3200. Printmaking Studio I.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or # for nonmajor jrs and srs; fall, every year) Study of and practice in various methods of printmaking: application of drawing skills, color, composition, and personal expression to printmaking techniques.

**ARTS 3210. Printmaking Studio II.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or # for nonmajor jrs and srs; spring, every year) Study of and practice in various methods of printmaking: application of drawing skills, color, composition, and personal expression to printmaking techniques.

**ARTS 3300. Painting Studio I.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or # for nonmajor jrs and srs; fall, every year) The development of painting as a means of artistic expression including basic technical, material, and formal compositional problems.

**ARTS 3310. Painting Studio II.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or # for nonmajor jrs and srs; spring, every year) The development of painting as a means of artistic expression including basic technical, material, and formal compositional problems.

**ARTS 3400. Sculpture Studio I.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or # for nonmajor jrs and srs; fall, every year) Exploration of sculpture as a means of artistic expression, including an introduction to the planning and construction of three-dimensional forms using both traditional and contemporary techniques.

**ARTS 3410. Sculpture Studio II.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or # for nonmajor jrs and srs; spring, every year) Exploration of sculpture as a means of artistic expression, including an introduction to the planning and construction of three-dimensional forms using both traditional and contemporary techniques.

**ARTS 3500. Photographic and Digital Processes I.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; fall, every year) The development of photographic and digital processes as a means of artistic expression including basic technical, material, and formal compositional problems.

**ARTS 3510. Photographic and Digital Processes II.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq major or minor or #; spring, every year) The development of photographic and digital processes as a means of artistic expression including basic technical, material, and formal compositional problems.

**ARTS 3560. Advanced Ceramics.** (ART/P; 3.0 cr. [max 9.0 cr.]; prereq 1050 or #; fall, spring, offered periodically) For students who have a working knowledge of basic forming and glazing techniques. Emphasis on advanced hand building and wheel techniques, critiques, glaze experiments, and firing. Assigned projects for the course may vary from semester to semester.

**ARTS 3993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ARTS 4902. Senior Thesis Project I.** (2.0 cr.; A-F only; prereq senior ArtS major, completion of Second Year Portfolio Review; fall, every year) A two-semester sequential capstone course for majors, with a focus on the planning and preparation of a senior exhibit and the investigation of other professional skills. Group seminars include portfolio presentation, framing, interviewing, grant writing, and graduate school application. Individual creative research projects focus on development of a thesis and slide talk to accompany the final body of work exhibited in the HFA Gallery during the spring semester. Students participate in a portfolio review by the studio art and art history faculty, concentrating on work from the major medium and other work completed since the Second-Year Portfolio Review. Time of the review is arranged through the discipline coordinator.

**ARTS 4903. Senior Thesis Project II.** (1.0 cr.; A-F only; prereq 4902; spring, every year) A two-semester sequential capstone course for majors, with a focus on the planning and preparation of a senior exhibit and investigation of other professional skills. Students continue to develop and refine the thesis, slide lecture, and install work in the HFA Gallery during the spring semester for the Senior Exhibit.
ARTS 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prereq approved directed study form; fall, spring, every year]) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Biology (BIOL) Division of Science and Mathematics


BIOL 1051. Wildlife Biology. (SCI-L; 4.0 cr.; =BIOL 1801; no elective cr for biol majors or minors; fall, spring, offered periodically) Biological principles and practices illustrated through studies of North American wildlife. Wildlife taxonomy, identification, migration and dispersal, ecological relationships, contemporary problems associated with human activities. (two 65-min lect, one 120-180 min lab/field study)

BIOL 1052. Introduction to Conservation Biology. (SCI-L; 4.0 cr.; no elective cr for biol majors or minors; spring, offered periodically) Survey of topics in conservation biology, with emphasis on topics that have created controversy and debate: loss of biodiversity; endangered species preservation and management, habitat conservation, environmental degradation, and sustainable development. (two 65-min lect, one 120-180 min lab/field study)

BIOL 1053. Introduction to Insect Biology. (SCI-L; 4.0 cr.; no elective cr for biol majors or minors; summer, offered periodically) Basic concepts in insect biology including evolutionary history, life cycles, classification, and ecology; examination of how insects and other arthropods interact with human society including insects as vectors of human disease, forensic entomology, insects in agriculture, beneficial uses of insects in the production of food and fiber, and insect-inspired art and literature. (one all-day field trip required in addition to labs)

BIOL 1071. Plants of Minnesota. (SCI-L; 4.0 cr.; no elective cr for biol majors or minors; summer, offered periodically) Introduction to plant structure and function, especially those found in Minnesota: ecology, physiology, evolution, and conservation. Labs emphasize plant identification and anatomy.

BIOL 1111. Fundamentals of Genetics, Evolution, and Development. (SCI; 3.0 cr.; prereq biol major/minor or chem major or any health sciences preprofessional program or EIEd or SeEd major with middle school science specialties or #; fall, spring, every year) Introduction to scientific methods and the history of biology, with an emphasis on mechanisms of inheritance, development, and descent with modification. Overview of pre-Darwinian scientific thought; the theory of evolution; a qualitative introduction to genetics and molecular biology; and a summary of developmental biology. (two 75-min lect)

BIOL 1801. The Animals Around Us: Wildlife of Minnesota. (IC; 4.0 cr.; = BIOL 1051; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Discussion and examination of basic biological principles illustrated through studies of North American wildlife. Topics include movements and migration, behavior, conservation, and ecological relationships. Students research and discuss wildlife-related issues, and work together to learn how to identify species found in Minnesota. At least one field trip to observe local wildlife; additional field trips, time and weather permitting. (two 65-min lect, one 180-min lab or field study)

BIOL 2101. Evolution of Biodiversity. (SCI-L; 4.0 cr.; prereq 1101 or 1111 or #; fall, every year) Analysis of evolutionary trends using historical and contemporary evidence. Principles of classification and phylogenetic reconstruction. Includes laboratory survey of the major groups of organisms. (two 65-min lect, one 180-min lab)

BIOL 2102. Human Anatomy. (3.0 cr.; = SSA 2102; prereq soph; no elective cr for biol majors or minors; fall, every year) Same as SSA 2102. Structure of human systems at their organ and cellular level. (two 65-min lect, one 120-min lab)

BIOL 2103. Introduction to Human Physiology. (SCI; 4.0 cr.; prereq 2102 or SSA 2102 or #; no elective cr for biology majors or minors; spring, every year) Function of human systems at organ, cell, and molecular levels. (three 65-min lect)

BIOL 2111. Cell Biology. (SCI-L; 4.0 cr.; prereq 1101 or 1111, Chem 1102 or #; fall, every year) Cell structure and function. Includes topics pertaining to the chemistry, physiology, structure, and reproduction of plant and animal cells. (three 65-min lect and one 120-min lab)

BIOL 3121. Molecular Biology. (SCI-L; 5.0 cr.; prereq 2111, Chem 2301 or #; spring, every year) Principles and mechanisms of DNA function, protein synthesis, and gene regulation in prokaryotes and eukaryotes. Genetic engineering and evolution at the molecular level. (two 100-min lect, 180-min lab, additional lab time arranged)

BIOL 3131. Ecology. (SCI-L; 4.0 cr.; prereq Biol 2101 or EnSt 2101 or #; fall, every year) Basic principles and models of population biology, community structure and function, and ecosystem dynamics. Lab exercises emphasize field work, techniques for characterizing local plant and animal communities, and experimental investigation of topics such as competition and behavioral ecology. (two 65-min lect, one 180-min lab and field study; weekend field trip required)

BIOL 3700. Biological Communication I. (1.0 cr.; prereq Biol 2101, 2111; fall, spring, every year) Finding and utilizing sources of biological information. Modern techniques for searching the biological literature, as well as reading and interpreting those sources. Principles of technical written and oral communication in biology.

BIOL 3701. Biological Communication II. (1.0 cr.; prereq 3700; #; fall, spring, every year) Writing, editing, and revising an extensive review paper on a biological topic under the mentorship of a faculty member. Multiple drafts and revisions are expected.

BIOL 4003. Neurobiology. (4.0 cr.; prereq 2111; fall, offered periodically) Survey of general principles of neuronal function and formation. Emphasis on comparative aspects of simple nervous systems.

BIOL 4071. Flora of Minnesota. (4.0 cr.; prereq Biol 2101; summer, offered periodically) Identification, ecology, and conservation of vascular plants found in Minnesota. Labs and field trips emphasize plant identification and anatomy.

BIOL 4103. Cancer Biology. (4.0 cr.; A-F only; prereq 2111; spring, offered periodically) Examining cancer processes from a genetic, molecular, and developmental perspective, identifying the cellular events behind uncontrolled growth and metastasis, cell cycle control, apoptosis, and cell signaling and signal transduction. Exploring genetic and environmental factors that can induce cancers.

BIOL 4111. Microbiology. (4.0 cr.; prereq 2111, prereq or coreq 3121 or #; spring, every year) The biology of pathogenesis and the treatment and prevention of infectious disease. Emphasis on prokaryotic microbes and viruses. (two 65-min lect, one 180-min lab)

BIOL 4121. Herpetology. (4.0 cr.; prereq Biol 2101 or EnSt 2101 or #; spring, even years) Survey of amphibians and reptiles, including their evolution, systematics, identification, behavior, ecological relationships, and contemporary problems associated with human activities. (two 65-min lect, one 180-min lab or field study)

BIOL 4122. Virology. (4.0 cr.; prereq 3121 or #; spring, even years) An overview of virus biology. Consider evolutionary origins of viruses and compare structure, genome organization, replication strategies, and other features of common and unique viruses. (two 100-min lect)

BIOL 4131. Vertebrate Natural History. (4.0 cr.; prereq Biol 2101 or EnSt 2101 or #; fall, odd years) Survey of vertebrates, including their evolution, systematics, and ecological relationships. (two 65-min lect, one 180-min lab or field study)

BIOL 4151. Entomology. (4.0 cr.; prereq Biol 2101 or EnSt 2101 or #; fall, even years) Structure, life histories, habits, and classification of common families of insects.
BIOL 4161. Evolution. (4.0 cr.; prereq Biol 2101, 2111 or #; spring, every year)
Survey of the history, evidence, and mechanisms of organic evolution. (three 65-min lect)

BIOL 4172. Plant Systematics. (4.0 cr.; prereq Biol 2101 or EnSt 2101 or #; spring, odd years)
Survey of vascular plant taxa, with an emphasis on the flowering plant families and their evolutionary relationships. Lab emphasizes the use of keys for the identification of Midwestern plant families and genera. (two 65-min lect, 180-min lab)

BIOL 4181. Developmental Biology. (4.0 cr.; prereq 2111; 4312 recommended; fall, spring, offered periodically)
Survey of general concepts in developmental biology, emphasizing molecular mechanisms of positional information, pattern formation, and cellular interactions. Stresses comparative aspects of developmental processes, and the role of development in evolution. (two 65-min lectures, one 180-min lab)

BIOL 4191. Freshwater Biology. (4.0 cr.; prereq Biol 2101 or EnSt 2101, 2111 or #; fall, odd years)
Structure, function, and biota of freshwater ecosystems, including lakes, streams, and wetlands. Lab emphasizes independent research and field study in local habitats. (two 65-min lect, one 180-min lab; all day field trip required)

BIOL 4211. Biochemistry. (4.0 cr.; prereq 3121, Chem 2302 or Chem 2304 or #; fall, every year)
Structures, functions, and biochemical transformations of proteins, carbohydrates, and lipids. (three 65-min lect) Optional lab offered. See Biol 4611.

BIOL 4301. Plant Biology. (4.0 cr.; prereq Biol 2101, 2111 or #; fall, even years)
Descriptive and experimental study of plants. Anatomy, development, physiology, secondary compounds, evolution, human uses of plants. (two 65-min lect, one 180-min lab)

BIOL 4311. Conservation Genetics. (4.0 cr.; prereq Biol 2101 or #; Stat 1601 or 2601 recommended; fall, offered periodically)
Introduction to theory of population differentiation and gene flow; applications to managing and recovering rare species. Adaptive and neutral models, linkage disequilibrium, effective population size, inbreeding depression, population genetic structure. Labs use computers to model genetic changes in populations and analyze genetic diversity. (two 100-min lect, one 120-min lab)

BIOL 4312. Genetics. (4.0 cr.; =BIOL 3101; prereq 2111 or #; spring, every year)
Principles and mechanics of inheritance and variation, including cytological, organismal, and population genetics; mechanisms of evolution; and the genetic problems of humans. (two 65-min lect, 180-min lab)

BIOL 4321. Animal Physiology. (4.0 cr.; prereq 2111; spring, offered periodically)
Functions of animal structures as they relate to coping with different environmental situations. (two 65-min lect, one 120-min lab)

BIOL 4331. Global Change Ecology. (4.0 cr.; prereq 3131 or #; spring, odd years)
Global cycles of carbon, water, and nutrients. Advanced consideration of community and ecosystem structure and function. Analysis of natural and human drivers of change in ecological systems, including use of quantitative methods and computer models. (three 65-min lect)

BIOL 4351. Conservation Biology. (4.0 cr.; prereq Biol 2101 or EnSt 2101, coreq or prereq Biol 3131 or #; fall, odd years)
Application of demographic and genetic models to protect biodiversity, including planning for uncertainty. Population viability, inbreeding depression, contemporary evolution, design and management of reserves, and invasive species. Lab exercises include field trips and computer modeling of endangered species. (two 65-min lect, one 180-min lab)

BIOL 4600. Practicum in Biology. (1.0-2.0 cr. [max 4.0 cr.]; S-N only; prereq #; no elective cr for Biol majors or minors; fall, spring, every year)
Supervised experience of selected activities; lab preparation/management, greenhouse care/management, animal care, curating museum/herbarium collections. Repeatable with different projects or activities.

BIOL 4611. Biochemistry Lab. (1.0 cr.; prereq or coreq 4211; fall, every year)
Experiments using the major separation and analytical techniques of biochemistry, including centrifugation, chromatography, electrophoresis, immunochromeny, and spectrophotometry. (one 180-minute lab)

BIOL 4901. Senior Seminar. (1.0 cr.; prereq 3701, sr or #; required of all sr biology majors; full-year course begins fall sem; fall, every year)
Seminar series on selected biological topics. Includes preparation and presentation of a seminar based on original research and/or scientific literature. Enrollment in fall, continues all year.

BIOL 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Chemistry (CHEM)
Division of Science and Mathematics

CHEM 1001. Chemistry for the Curious Citizen: The Role of Chemistry in the Environment and Everyday Life. (SCI-L; 4.0 cr.; =CHEM 1801) may not count toward chem major or minor; summer, offered periodically)
The central nature and relevance of chemistry to the environment and everyday life. Air quality, the ozone layer, global warming, energy resources, acid rain, and nutrition. Discussion and debate of current events related to these topics. Select readings on significant historical chemical discoveries in these areas that still resonate today. Basic chemistry lab principles and techniques. This course is intended for non-science majors.

CHEM 1101. General Chemistry I. (SCI-L; 4.0 cr.; prereq Math 0901 or placement beyond Math 0901 using ACT/placement exam score; fall, every year)
Scientific method, measurements, nomenclature, stoichiometry, atomic and molecular structure, thermochemistry, chemical periodicity, introduction to chemical bonding, and properties of common elements and ions. Development of scientific reasoning and problem-solving skills. Laboratory exercises concomitant with these topics. (3 hrs lect, 3 hrs lab)

CHEM 1102. General Chemistry II. (SCI-L; 4.0 cr.; prereq 1101; spring, every year)
Continuation of Chem 1101. Chemical bonding, states of matter, solutions, acid-base chemistry, chemical equilibrium, oxidation-reduction reactions, kinetics, thermodynamics, quantum theory, nuclear chemistry, organic chemistry, and biochemistry. Lab exercises concomitant with these topics. (3 hrs lect, 3 hrs lab)

CHEM 1801. Science Savvy in Our Modern World. (IC; 2.0 cr.; =CHEM 1001) prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
If students and chemistry were in a Facebook relationship, the status would be "it's complicated." Some students love science and some love to hate it. "America's Finest News Source," The Onion, has repeatedly reported that "science is hard" but are they right? Chemistry is too important in our modern world to be ignored simply because it's complicated or perceived to be hard. Some science is hard but just because a science topic is complex doesn't mean that it can only be understood by rocket scientists. Through written reflections and discussions based on mainstream science books and current event articles, students explore the connections between science and society. The course helps students to understand the role of experts and bias in the reporting. The course also helps students to become more science literate about the green and sustainable activities on campus. Ultimately, this course fosters a relationship where students both need and want to be engaged with chemistry.

CHEM 1994. Directed Research. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CHEM 994. Directed Research. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed research form; fall, spring, every year)
An on- or off-campus undergraduate research experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.
CHEM 2301. Organic Chemistry I.  (SCI; 4.0 cr.; prereq 1102; fall, every year)  Introduction to the structure and reactivity of organic molecules; nomenclature and functional groups; stereochemistry; mechanisms of substitution and elimination pathways; physical organic chemistry; introduction to synthetic strategy; fundamentals of spectroscopic techniques.

CHEM 2302. Organic Chemistry II.  (SCI; 4.0 cr.; =CHEM 2304); prereq C or better in 2301, coreq 2321 or # for chem majors; spring, every year)  Continuation of topics from Chem 2301; spectroscopy; chemistry of polyenes, aromatic systems, and amines; enol and enolate chemistry; free-radical chemistry; retrosynthetic analysis; special topics.

CHEM 2304. Organic Chemistry II with a Biological Emphasis.  (SCI; 4.0 cr.; =CHEM 2302); prereq C or better in 2301, Biol 2111 or #; spring, offered periodically)  Continuation of topics from Chem 2301, with an emphasis on compounds and reactions of biological interest. Topics include spectroscopy, structure and reactivity of aromatic compounds, phosphoryl and acyl group transfer, nucleophilic carbonyl addition, reactions involving enolate and enamine intermediates, coenzyme chemistry, electrophilic addition, beta elimination, oxidation and reduction of organic compounds, and reactions involving free radical intermediates.

CHEM 2311. Organic Chemistry Lab I.  (1.0 cr.; coreq 2301 or #; fall, every year)  Development of lab techniques in organic chemistry; experimental problem-solving. (3 hrs lab)

CHEM 2312. Organic Chemistry Lab II.  (1.0 cr.; prereq 2311, coreq 2302 or 2304 or #; spring, offered periodically)  Laboratory work in organic synthesis, experimental design, and spectroscopic analysis with an emphasis on reactions of biological interest. (3 hrs lab)

CHEM 2321. Introduction to Research I.  (1.0 cr.; prereq 2311, coreq 2302 or 2304 or #; spring, every year)  Interdisciplinary approach to experiment design and analysis of data. Synthesis of organic, organometallic, and/or inorganic compounds, with emphasis on purification and characterization using advanced techniques and instrumental methods. Instruction in use of the scientific literature and scientific communication. Begin research project with faculty mentor. (6 hrs lab)

CHEM 2322. Introduction to Research II.  (1.0 cr.; prereq 2321, coreq 2302 or 2304, #; spring, every year)  Continue research with faculty mentor. Experiment design and analysis of data. Instruction in the use of the scientific literature and oral and written scientific communication. (6 hrs lab)

CHEM 2993. Directed Study.  (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)  An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CHEM 2994. Directed Research.  (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed research form; fall, spring, every year)  An on- or off-campus undergraduate research experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CHEM 3101. Analytical Chemistry.  (SCI-L; 4.0 cr.; prereq 1102; fall, every year)  The application of chemical equilibria to chemical analysis with emphasis on the fundamental quantitative aspects of analytical chemistry. Acid-base, oxidation-reduction, and complexometric titrations, introduction to electrochemical and spectrophotometric analyses and separations. (3 hrs lect, 3 hrs lab)

CHEM 3301. The Chemistry of Sustainable Energy.  (SCI; 4.0 cr.; =ESCI 3301); prereq 2302 or 2304 or #; fall, every years)  The fundamental chemical concepts underlying energy sources. Topics include: energy basics, fossil fuels, "sustainable" energy sources, biomass, solar voltaics, hydrogen fuel cells, and nuclear energy.

CHEM 3401. Polymer Chemistry and the Environment.  (SCI; 4.0 cr.; =ESCI 3401); prereq 2302 or 2304 or #; spring, even years)  An on- or off-campus undergraduate research experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CHEM 4351. Bioorganic Chemistry.  (SCI; 4.0 cr.; prereq 2302 or 2304, Biol 4211; spring, every year)  Discussion of the theory of enzyme catalysis and catalytic antibodies, experimental determination of catalytic mechanisms for a variety of organic reactions in biological systems, and elucidation of biosynthetic pathways. Involves extensive reading in the primary literature.

CHEM 4352. Synthesis.  (4.0 cr.; prereq 2302 or 2304; fall, odd years)  Study of the preparation of biologically active molecules, emphasizing the application of transition metal chemistry to modern synthetic methods.

CHEM 4353. Synthesis Laboratory.  (1.0 cr.; prereq 4352 or #; fall, spring, offered periodically)  Modern organometallic synthetic methods applied to the preparation of small organic molecules. Preparation, purification, analysis, and identification of synthetic products. Scientific record-keeping and literature searching. (3 hrs lab)

CHEM 4551. Theoretical Chemistry.  (SCI; 4.0 cr.; prereq or coreq 3504 or #; spring, offered periodically)  Modern organometallic synthetic methods applied to the preparation of small organic molecules. Preparation, purification, analysis, and identification of synthetic products. Scientific record-keeping and literature searching. (3 hrs lab)
Quantum theory of molecules. Statistical thermodynamics; Gibbsian ensembles; applications.

CHEM 4552. Molecular Spectroscopy. (3.0 cr.; prereq 2302 or 2304, 3101 or #; spring, even years)

CHEM 4701. Inorganic Chemistry. (4.0 cr.; prereq 3501 or #; spring, odd years)
The periodic table; models of structure and bonding of main group elements and transition metals, nomenclature, symmetry, and bonding theory of coordination compounds.

CHEM 4711. Inorganic Chemistry Lab. (1.0 cr.; prereq 2322, coreq 4701 or #; spring, odd years)
Lab experiments in inorganic/organometallic chemistry illustrating synthetic and spectroscopic techniques. (3 hrs lab)

CHEM 4751. Advanced Inorganic Chemistry. (4.0 cr.; prereq 3701 or #; fall, spring, offered periodically)
Structure and reactions of coordination compounds, inorganic cages and clusters, lanthanide and actinide series.

CHEM 4901. Chemistry Seminar II. (0.5 cr.; A-F only; prereq 3901; required of all chem majors; may not count toward chem minor: full-year course begins fall semester; fall, every year)
Continuation of Chemistry Seminar I. This is a full-year course. Students must attend year round and present one of the seminars.

CHEM 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CHEM 4994. Directed Research. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed research form; fall, spring, every year)
An on- or off-campus undergraduate research experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CHEM 4999. Off-Campus Study. (2.0 cr.; prereq approved directed study form; fall, offered periodically)
For those who have completed first-semester Chinese or who have equivalent preparation. Introduction to additional modern standard Chinese (Mandarin) grammar, vocabulary, and sentence structures. By the end of the semester, students should be able to recognize some of the Chinese characters, write about part of them from memory, conduct simple conversations, and read simple Chinese texts on general topics.

Communication, Media, and Rhetoric (CMR) Division of Humanities

CMR 1042. Public Speaking and Analysis. (E/CR; 4.0 cr.; summer, offered periodically)
Public address theories, practices, and analysis.

CMR 1052. Introduction to Public Speaking. (E/CR; 2.0 cr.; fall, spring, every year)
Activities, assignments, and exercises related to public address/public speaking in a variety of speech settings.

CMR 1062. Introduction to Interpersonal and Group Communication. (HUM; 4.0 cr.; fall, every year)
Activities, assignments, and exercises related to interpersonal and group communication in private and public settings including dating, family, and work.

CMR 1101. Introduction to Theories of Communication, Media, and Rhetoric. (HUM; 4.0 cr.; spring, every year)
A survey of the field of study. Students learn the history, theories, and contexts of communication study that prepare them for upper-division courses.

CMR 1388. College Newspaper Experience. (1.0 cr. [max 2.0 cr.]; prereq #; fall, spring, every year)
Supervised experience of selected learning activities to be done in conjunction with an appointment working at the campus newspaper.

CMR 1389. College Radio Experience. (1.0 cr. [max 2.0 cr.]; prereq #; fall, spring, every year)
Supervised experience of selected learning activities to be done in conjunction with an appointment working at the campus radio station.

CMR 1801. Legal Argument and Free Speech: Ready to Become a Supreme Court Justice?. (IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
Examination of the development of legal argument in Supreme Court decisions dealing with free speech. Read Supreme Court cases, write opinions, speak to a mock Supreme Court, listen to arguments, and analyze the issues that define the ability to communicate in this country.

CMR 1802. Interpersonal and Intercultural Conflict Communication. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
An IC course in conflict communication. Students come to understand common sources of conflict, roles of culture in the perceptions of interpersonal conflict, and more successful approaches to addressing conflict through communication in order to sustain valued interpersonal and professional relationships with members of diverse cultures.

CMR 2311. Media History and Society. (SS; 4.0 cr.; fall, spring, offered periodically)
Examines the historical and on-going development of the relationship of media, culture, and the public. Traces and explores the developments of various communication technologies, their impacts and consequences, and their relationships to notions of "the public."

CMR 2321. Digital Media Production. (HUM; 4.0 cr.; fall, spring, offered periodically)
Basic theories and practice: equipment, procedures, and skills associated with planning, writing for, and producing mediated messages. Lectures, studio projects, class critiques.

CMR 2411. Health Communication. (HUM; 4.0 cr.; fall, offered periodically)
A survey of the critical role communication plays in health promotion, specifically in the area of doctor-patient interaction and health campaigns. Communicative issues include the social construction of health, the role of culture in health and healing, and social support.

CMR 2421. Business and Professional Communication. (E/CR; 4.0 cr.; prereq 1052, 1062r or #; spring, offered periodically)
Developing proficiency in communication skills in business and professional contexts. Preparing, selecting, organizing, designing, and delivering messages in business situations. Analyzing meeting/group facilitation, interviewing, and professional presentations.

CMR 2431. International Communication Competence. (IP; 2.0 cr.; [LANG 2431])
Course is offered for both native speakers of English and new international students who are non-native speakers of English; counts as a Communication elective in the CMR major; summer, every year)
Same as Lang 2431. An introduction to communication skills necessary for successful interactions, both academic and social, in divergent national settings. Topics include classroom interaction, interpersonal relationships, intercultural competence, conflict management, verbal and nonverbal communication, and gender norms.

CMR 3101. Rhetorical History and Theories: Pre-Socratic to Modern Periods. (IP; 4.0 cr.; prereq 1101 or #; fall, every year)
Rhetoric from the classical theories of the older Sophists, Aristotle, and Cicero to the modern theories of Blair, Campbell, and Whately.

CMR 3111. Contemporary Rhetorical Theory and Criticism. (HUM; 4.0 cr.; prereq 1101 or #; fall, spring, offered periodically)
Detailed study of the development of contemporary rhetorical theory, with particular emphasis placed on the use of those theories in the development of rhetorical criticism.
CMR 3123. Rhetorical Criticism and Speeches that Changed the World. (HUM; 4.0 cr.; prereq 1101 or #; spring, offered periodically)

Human beings create and maintain their cultures through rhetoric, the art of being persuasive. This course explores the rhetorical nature of the speeches that have changed the world from Moses and Mohammad to Elie Wiesel and George W. Bush.

CMR 3202. Rhetoric of Presidential Inaugurals. (HUM; 4.0 cr.; prereq 1101 or #; fall, spring, offered periodically)

Study of the rhetorical dimensions of the genre of presidential inaugurals. Students will complete a variety of rhetorical criticisms concerning an assigned presidential inaugural.

CMR 3251. Rhetorical Criticism and Free Speech Discourse. (E/CR; 4.0 cr.; prereq 1101 or #; fall, spring, offered periodically)

Analysis and evaluation of Supreme Court opinions establishing the contours of First Amendment protection for freedom of speech. Particular attention is devoted to the nature of "communication" revealed by the decisions studied.

CMR 3301. Media Theory, Criticism, and Problems. (SS; 4.0 cr.; prereq 1101 or #; spring, every year)

Theories, research studies, current trends, and various critical approaches to examine and explain the reflexive relationships between media and society.

CMR 3312. Media Literacy. (HUM; 4.0 cr.; prereq 1101 or #; fall, offered periodically)

Examining ways people decode media images and messages. Topics include principles of literacy, media content/industries, media and identity, and media effects.

CMR 3342. Visual Journalism. (HUM; 4.0 cr.; this course may have a maximum of 12 students. (We are limited by the number of computer workstations and software licenses in the HFA Digital Media Studio;); spring, offered periodically)

Both a theoretical and a hands-on course that immerses students in all aspects of the visual side of journalism, as well as in design principles and techniques for the web and print.

CMR 3401. Communication Theory. (SS; 4.0 cr.; prereq 1101 or #; fall, every year)

Detailed study of the theoretical tradition of human communication. Focuses on social scientific and humanities theories used to explain social interaction. Provides general foundation on various traditions of inquiry as well as qualitative and quantitative methods.

CMR 3411. Intercultural Communication Theory and Research. (HDIV; 4.0 cr.; prereq 1101 or #; fall, offered periodically)

Study of intercultural communication from an interpersonal and group perspective.

CMR 3421. Organizational Communication Theory and Research. (SS; 4.0 cr.; prereq 1101 or #; spring, offered periodically)

Study of organizational communication, including small group perspectives.

CMR 3432. Communication Research Methods. (HUM; 4.0 cr.; prereq 1101 or #; fall, offered periodically)

Elements/methods of communication research. Use of quantitative/qualitative research methodologies, basic research design, and data collection methods to inform decision making.

CMR 3993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)

An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CMR 4122. Rhetoric of Picture Books, Prose and Picture. (HUM; 4.0 cr.; prereq 1101 or #; fall, offered periodically)

Explore and analyze picture books for intended and unintended messages. Examine the rhetorical construction of pictures and the rhetorical impact of the intersection between picture and prose. Gain a deeper sensitivity to the formerly unseen rhetorical dimensions of the symbols that surround them.

CMR 4152. Advanced Public Speaking. (HUM; 4.0 cr.; prereq 1052 or #; fall, every year)

A study of rhetorical argument design and evaluation. Students analyze and critique arguments, as well as plan and present formal speeches.

CMR 4341. New Media Technologies. (HUM; 2.0 cr.; prereq 1101 or #; spring, offered periodically)

Examination of the impact of "new media" on current/future cultures; the structure/processes of media and global society in a comparative context; ways new media change how people communicate, distribute, and process information.

CMR 4411. Advanced Interpersonal Communication. (4.0 cr.; prereq 1101 or #; spring, offered periodically)

Applying a variety of approaches to understanding interpersonal communication.

CMR 4800. Directed Experience in Teaching Communication, Media, and Rhetoric. (1.0-4.0 cr.; [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year)

Practice as facilitators in the introductory-level communication, media, and rhetoric courses; weekly seminar sessions focus on method, planning, and problems in communication, media, and rhetoric instruction.

CMR 4900. Communication, Media, and Rhetoric Seminar I. (1.0 cr.; A-F only; prereq 1052, 1062, 1101 or sr status with #; fall, every year)

Familiarizes students with the literature of the field, including ethical and social implications of communication studies. Students analyze various articles and similarly published works, synthesize contents, and construct a research proposal for a project to be completed as a senior capstone experience.

CMR 4901. Communication, Media, and Rhetoric Seminar II. (HUM; 3.0 cr.; A-F only; prereq 4900, or sr status in the major, #; spring, every year)

Completion of capstone experience for majors. Students conduct a project of original study and present their findings in written and oral form.

CMR 4993. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.; prereq approved directed study form; fall, spring, every year)

An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Computer Science (CSCI)
Division of Science and Mathematics

CSCI 1001. Introduction to the Computing World. (M/SR; 2.0 cr.; no elective cr for CSci majors or minors; fall, offered periodically)

Basic hardware and software concepts, elementary data representation, problem solving techniques, algorithm development, introduction to web development, and methods for separation of content and presentation (such as HTML and CSS).

CSCI 1101. Dynamic Web Programming. (M/SR; 2.0 cr.; prereq 1001 or equiv experience with #; no elective cr for CSci majors or minors; spring, offered periodically)

Basics of dynamic Web design; programming and problem solving using Web languages, such as PHP and HTML, and languages for data storage and manipulation, such as SQL and XML; introduction to client/server model; aspects of online privacy and security. Hands-on experience with creating and maintaining interactive Web pages.

CSCI 1201. Introduction to Digital Media Computation. (M/SR; 4.0 cr.; spring, every year)

Using images, sounds, and movies to introduce problem solving, data representation, data manipulation, and programming principles including recursion. Introduction to basic ideas in hardware, software, and computing.

CSCI 1251. Computational Data Management and Manipulation. (M/SR; 4.0 cr.; no elective credit for CSci majors or minors; spring, every year)

Introduction to principles and practices of computational data management such as using advanced spreadsheet operations, designing and implementing algorithms to summarize and transform data sets, understanding organization of databases, writing and executing simple database queries, and creating effective data visualizations. Topics include basic issues of information security and introduction to modern technologies that support collaboration.

CSCI 1301. Problem Solving and Algorithm Development. (M/SR; 4.0 cr.; fall, every year)

Introduction to different problem solving approaches, major programming paradigms, hardware, software, and data representations. Study of the functional programming paradigm, concentrating on recursion and inductively-defined data structures. Simple searching and sorting algorithms.

Courses listed in this catalog are current as of February 6, 2013. For up-to-date information, visit www.catalogs.umn.edu.
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CSCI 1302. Foundations of Computer Science. (M/SR; 4.0 cr.; spring, every year) Basic proof techniques, propositional and predicate logic, induction and invariants, program correctness proofs, simple Big-Oh analysis of algorithms, set theory, introductory graph theory, and basic summations.

CSCI 1801. The Design of Everyday Technologies. (IC; 2.0 cr.; prerequisite new college student in their first semester of enrollment at UMM requires attending two activities outside of class, a poster session, and a presentation; fall, offered periodically) Discussion and examination of examples of everyday things, issues surrounding the design of technologies for people, and the impacts of new technologies and tools on people in society. Discussion of how values and ethics are manifested in design. Study of design techniques and approaches with an emphasis on promoting design literacy. Includes discussion, readings, presentations, and a project. Requires attending two activities outside of class, a poster session, and a presentation.

CSCI 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CSCI 2101. Data Structures. (M/SR; 5.0 cr.; prerequisite 1201 or 1301 or #; fall, every year) Introduction to data structures, including stacks, queues, trees, and graphs; implementation of abstract data types and introduction to software testing, using object-oriented techniques and reusable libraries. (4 hrs lect, 2 hrs lab)

CSCI 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CSCI 3401. Models of Computing Systems. (M/SR; 5.0 cr.; prerequisite 1302, 2101 or #; fall, every year) Model-based study of computing systems, operating systems, and networks. Discussion of modularity and organization, protection and security, performance, memory management and data storage, deadlock, and inter-process and inter-computer communication. (4 hrs lect, 2 hrs lab)

CSCI 3501. Algorithms and Computability. (M/SR; 5.0 cr.; prerequisite 1302, 2101 or #; fall, every year) Models of computation (such as Turing machines, deterministic and non-deterministic machines); approaches to the design of algorithms, determining correctness and efficiency of algorithms; complexity classes, NP-completeness, approximation algorithms. (4 hrs lect, 2 hrs lab)

CSCI 3601. Software Design and Development. (M/SR; 5.0 cr.; prerequisite 1302, grade of at least C- in 2101, or #; spring, every year) Design and implementation of medium- and large-scale software systems. Principles of organizing and managing such designs and implementations throughout their lifetime. Designing for modularity and software reuse; use of libraries. Dynamics of working in groups. Group work on a substantial software project. (4 hrs lect, 2 hrs lab)

CSCI 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

CSCI 4403. Systems: Data Mining. (2.0 cr.; prerequisite 2101 or #; fall, spring, offered periodically) An introduction to a new field which tries to solve the problem of how to store (warehouse) and how to extract (mine) valid, useful, and previously unknown data from a source (database or web) which contains an overwhelming amount of information. Algorithms applied include searching for patterns in the data, using machine learning, and applying artificial intelligence techniques.


CSCI 4408. Systems: Computer Forensics. (2.0 cr.; prerequisite 3401 or #; spring, offered periodically) The study of tools and procedures to identify and prosecute computer crime. Topics include electronic discovery, preserving computer evidence, data hiding methods, current forensic and security tools, guidelines for searching and seizing computer equipment.

CSCI 4409. Systems: Programming for Parallel Architecture. (2.0 cr.; prerequisite 3401; spring, offered periodically) Study of programming models, languages, and approaches for parallel computer architectures. Topics include introduction to parallel computing and parallel architectures, approaches to program parallelization, mechanisms for communication and synchronization between tasks, and study of programming language support for parallel computation.

CSCI 4451. Systems: Distributed Systems. (4.0 cr.; prerequisite 3401 or #; fall, spring, offered periodically) An introduction to distributed systems/computation. Topics include processes and threads, physical vs. logical clocks, interprocess communication and coordination, election algorithms, synchronization, distributed task scheduling, distributed shared memory, distributed file systems, and replicated data management.


CSCI 4453. Systems: Database Systems. (4.0 cr.; prerequisite 2101 or #; fall, spring, offered periodically) Introduction to relational, object-relational, and object database systems. Topics include the relational model, SQL and related query languages, JDBC and database applications programming, database design, query processing and optimization, indexing techniques, and transaction management.

CSCI 4454. Systems: Robotics. (4.0 cr.; prerequisite 2101 or #; fall, spring, offered periodically) An introduction to robotic systems including robot mechanics, algorithms in robotics, and sensor interfaces for autonomous mobile and arm robots. Concepts of kinematics and coordinate systems, real-time programming, embedded systems, pattern recognition algorithms, simulation environments, and subsumption architecture within the context of robotics applications are explored.

CSCI 4456. Systems: Advanced Operating Systems. (4.0 cr.; prerequisite 3401 or #; fall, spring, offered periodically) Broad exposure to advanced operating systems topics such as process communication, protection, security, memory management, operating system kernels, network operating systems, synchronization, naming, and distributed systems.

CSCI 4457. Systems: Ubiquitous Computing. (4.0 cr.; prerequisite 3401 or #; fall, spring, offered periodically) Study of the mechanisms and environments of ubiquitous computing. Topics may include computer and network architectures for ubiquitous computing, mobile computing mechanisms, multimodal interaction, pervasive software systems, location mechanisms, techniques for security and user-authentication, and experimental ubiquitous computing systems.

CSCI 4458. Systems: Bioinformatics. (4.0 cr.; prerequisite 3401 or #; fall, spring, offered periodically) Introduction to bioinformatics with an emphasis on computer systems. Possible topics include: utilizing software for genetic sequencing, large-scale data management using databases, algorithms for construction of phylogenetic trees, bioinformatic scripting, and other tools for bioinformatics.

CSCI 4506. Theory: Fuzzy Logic and Fuzzy Sets. (2.0 cr.; prerequisite 3501 or #; fall, spring, offered periodically) Fuzzy logic and fuzzy sets are used in expert systems, controllers, pattern recognition, databases, decision making, robotics, and economics. The basic theory of fuzzy sets and fuzzy logic along with a brief survey of some of the current research. May include presentations and/or a project.
CSCI 4507. Theory: Data Compression. (2.0 cr.; prereq 3501 or #; fall, spring, offered periodically) Introduction to data compression (including lossy and lossless compression techniques), wavelets, differential encoding techniques (including pulse code and delta modulation), and subband coding with applications to speech, audio, and images. Compression standards such as the CCITT international standard and MPEG audio compression standard.

CSCI 4508. Theory: Algorithm Design. (2.0 cr.; prereq 3501 or #; fall, spring, offered periodically) Approaches to the design of efficient algorithms for solving a variety of practical problems such as string matching or those that can be modeled on a tree or graph. Techniques studied include dynamic programming, divide and conquer, greedy methods, backtracking, and approximation algorithms.

CSCI 4511. Theory: Artificial Life. (2.0 cr.; prereq 2101 or #; fall, spring, offered periodically) Introduction to the field of Artificial Life and the phenomena of living systems, with an emphasis on computational approaches to understanding the logic of living systems in artificial environments. Techniques and tools used to better understand the complex information processing that defines living systems, such as agent-based systems, evolutionary computation, cellular automata, and digital simulations.

CSCI 4552. Theory: Advanced Algorithms. (4.0 cr.; prereq 3501 or #; fall, spring, offered periodically) Techniques for designing and analyzing efficient algorithms to solve a variety of practical problems. Some algorithmic techniques include dynamic programming, greedy methods, and amortized analysis. Other topics include graph algorithms, string matching, approximation algorithms, and NP-Completeness.

CSCI 4553. Theory: Evolutionary Computation and Artificial Intelligence. (4.0 cr.; prereq 2101 or #; fall, spring, offered periodically) Introduction to Evolutionary Computation as an Artificial Intelligence tool for developing solutions to problems that are difficult to describe precisely or solve formally, as well as comparisons with other AI techniques. Includes discussions of theoretical background and tools, implementation issues, and applications.

CSCI 4554. Theory: Cryptography. (4.0 cr.; prereq 1302, 2101 or #; fall, spring, offered periodically) Theory and applications of cryptography. Overview of necessary mathematical concepts. Discussion of algorithms and protocols including public and private key encryption, authentication, and zero knowledge proofs.

CSCI 4555. Theory: Neural Networks and Machine Learning. (4.0 cr.; prereq 1302, 2101 or #; fall, spring, offered periodically) Study of the underlying theory, structure, and behavior of neural networks and of how neural networks compare to and can be used to supplement other methods of machine learning. Methods such as decision tree learning, inductive learning, reinforcement learning, supervised learning, and explanation-based learning are examined. Analysis of the strengths and weaknesses of various approaches to machine learning. Includes an implementation project.

CSCI 4556. Theory: Computer Graphics. (4.0 cr.; prereq 1302, 2101 or #; fall, spring, offered periodically) Introduction to basic concepts and algorithms in computer graphics, including three-dimensional geometry and various approaches to modeling three-dimensional scenes. An introduction to transformation and viewing, lighting, shading, texture, and color. Advanced topics may include ray tracing, radiosity, and animation. Students complete several significant projects.

CSCI 4557. Programming and Languages: Programming Languages for Client-Server Systems. (4.0 cr.; prereq 3601 or #; fall, spring, offered periodically) Design and implementation of a medium-scale software system in an intensive, full-time lab setting where teams use object-oriented tools and agile development processes. Emphasis on the creation, evolution, and maintenance of system design.

CSCI 4558. Programming and Languages: Software Design and Development II. (4.0 cr.; prereq 3601 or #; summer, offered periodically) Design and implementation of a medium-scale software system in an intensive, full-time lab setting where teams use object-oriented tools and agile development processes. Emphasis on the creation, evolution, and maintenance of system design.

CSCI 4604. Programming and Languages: Graphical User Interfaces. (2.0 cr.; prereq 3601 or #; fall, spring, offered periodically) An exploration into designing Graphical User Interfaces. Aspects of human-computer interaction are discussed along with how to design good user interfaces. Students complete a project using Java's Swing.

CSCI 4652. Programming and Languages: Compilers. (4.0 cr.; prereq 3501, 3601 or #; fall, spring, offered periodically) Program translations from a variety of programming languages to machine code. Emphasis on the problems of lexical and syntactic processing, parser design, and intermediate code generation. Students complete a compiler project.

CSCI 4653. Programming and Languages: Software Engineering. (4.0 cr.; prereq 3601 or #; fall, spring, offered periodically) Examination of software engineering techniques and methodologies. Topics include software life cycle models, analytical and software tools used in software engineering, software metrics, testing techniques, design techniques, planning and estimation methodologies, and issues related to the reusability, portability, and interoperability of software systems. Emphasis on the application of these techniques and methodologies to real world problems. Includes a team-based software development project.

CSCI 4654. Programming and Languages: Modern Functional Programming. (4.0 cr.; prereq 1302, 2101 or #; fall, spring, offered periodically) Survey of concepts, tools, and techniques from the realm of functional programming. Topics include higher order functions, currying, type systems, concurrency models, mechanisms for managing state, and methods of compilation and evaluation such as graph reduction and term rewriting.

CSCI 4655. Programming and Languages: Human-Computer Interaction and Interface Design. (4.0 cr.; prereq 2101 or #; fall, spring, offered periodically) Introduction to the design, evaluation, and implementation of interactive computing systems for human use with a particular emphasis on user interfaces. Possible domains include usability issues for desktop applications, embedded systems, and Web design. Student projects include evaluative studies and sample implementations.

CSCI 4656. Programming and Languages: Computer Graphics. (2.0 cr.; prereq 3601 or #; fall, spring, offered periodically) An exploration into designing Graphical User Interfaces. Aspects of human-computer interaction are discussed along with how to design good user interfaces. Students complete a project using Java's Swing.

CSCI 4901. Senior Seminar. (1.0 cr.; S-N only; prereq IS 1091 or #; jr or sr; fall, spring, every year) In-depth survey of literature in a specific computer-related field of the student's choice. Students analyze various articles or similarly published works, synthesize their
Contents, and present their work formally in a conference setting. Multiple writing and speaking experiences reviewed by faculty and classmates. Requires attendance and presentation at a student conference near the end of the semester in addition to regular class meetings.

CSCI 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

DANCE 1321. Introduction to Modern Dance and Ballet. (ART/P; 1.0 cr. [max 2.0 cr.]; S-N only; fall, every year) Practice in the fundamental movement vocabulary and steps of dance with an emphasis on traditional ballet techniques and modern dance interpretations. Exploration of body awareness through improvisational exercises and compositional studies. Discussion of the cultural origins of style in dance and the role of dance in contemporary life.

DANCE 1322. Introduction to Jazz and Modern Dance. (ART/P; 1.0 cr. [max 2.0 cr.]; S-N only; spring, every year) Fundamental movement vocabulary and steps of dance from the unique perspective of American Jazz combined with modern dance. Explores body awareness through improvisational exercises and composed studies. Discussion of dance in contemporary life, individual style, and the cultural origins of jazz music and movement.

DANCE 1323. Introduction to Tap Dance. (ART/P; 1.0 cr. [max 2.0 cr.]; S-N only; Tap shoes required; fall, every year) Practice in dance technique and introduction to vocabulary that forms the basis of the percussive dance form. Discussion of origins of the dance form, different styles, and relationship to musical structures. Practice in improvisational Tap skills.

DANCE 1331. Ballet I. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1321 or #; fall, spring, every year) A basic study of ballet including its vocabulary, technique, and history. Appropriate for beginning-level students or students who have completed Dnce 1321 or 1322.

DANCE 1332. Jazz Dance I. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1322 or #; fall, every year) A basic study of jazz dance including its technique, history, and applications. Appropriate for beginning-level students or students who have completed Dnce 1321 or 1322.

DANCE 1333. Modern Dance I. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1321 or 1322 or #; spring, every year) A basic study of modern dance including alignment, technique, and history. Appropriate for beginning-level students or students who have completed Dnce 1321 or 1322.

DANCE 1334. Tap Dance I. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1323 or #; Tap shoes required; spring, every year) Practice in footwork and advanced beginning vocabulary of this percussive dance form, including opportunities for improvisation. Learn about the origins of the dance form, different styles and how they evolved, and the dance form's relationship to musical structures. Learn and compose Tap dance choreography.

DANCE 2011. Dance in Society. (HDIV; 2.0 cr. [spring, odd years]) Through a broad, cross-cultural survey of the different ways in which dance functions in the modern world, students gain an appreciation of the way this art form reflects social and historical experiences. Includes lectures, readings, and opportunities to see dance through videos, observations, and live performances.

DANCE 2301. Practicum in Dance. (ART/P; 1.0 cr.; prereq #: spring, every year) Directed projects in performance and production aspects of dance for the stage. Projects can be focused on either choreography or technical theatre for dance.

DANCE 2311. Dance Composition. (ART/P; 2.0 cr. [max 8.0 cr.]; fall, spring, offered periodically) Introduction to the basic elements of choreography, including the use of space, time, energy, abstraction, motif and development, and the selection of music. Using improvisation and assigned movement problems to learn the process of crafting solo and group choreography.

DANCE 2331. Ballet II. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1331 or #: ballet slippers required; fall, every year) A low intermediate-level study of classical ballet. Emphasis on advancing technical skill through conditioning and performance of ballet steps and combinations.

DANCE 2332. Jazz Dance II. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1332 or #: spring, every year) Builds upon basic dance vocabulary with emphasis on the movement vocabulary of jazz dance. Emphasis on African dance roots and stylistic variations in contemporary jazz dance forms. Includes a performance experience.

DANCE 2333. Modern Dance II. (ART/P; 1.0 cr. [max 2.0 cr.]; prereq 1333 or #: fall, every year) Builds upon basic dance vocabulary with movement exercises drawn from traditional schools of modern dance technique (Wigman/Holm, Graham, Humphrey/Limon, Horton, Cunningham). Emphasis is on advancing technical skills through conditioning, improvisation, and movement combinations. Includes a performance experience.

DANCE 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year) A learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum such as dance history, choreography and directing, dance education for children.

DANCE 3011. Dance History. (FA; 4.0 cr.; prereq 2011 or #: spring, offered periodically) Identify significant developments in the history of Dance. Trace the roots of Ballet and Modern Dance and their impact on dance as a performance art in Western society. Examine the history of select styles of non-Western dance and research major figures in dance history.

DANCE 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year) A learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum such as dance history, choreography and directing, dance education for children.

ECON 1111. Principles of Microeconomics. (SS; 4.0 cr.; prereq high school algebra or #: fall, spring, every year) Study of scarce resource allocation in a market economy. Supply and demand, consumer theory, theory of the firm, market structure, pricing of factors of production, income distribution and the role of government.

ECON 1112. Principles of Macroeconomics. (SS; 4.0 cr.; prereq high school algebra or #: fall, spring, every year) Introduction to basic economic problems, concepts, and theoretical models. U.S. economic institutions and the economic organization of society. The role of markets in the production and distribution of societal resources. Measurement of economic performance; national income, inflation, and unemployment; competing macroeconomic theories and stabilization policies.

ECON 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ECON 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.
ECON 3005. Experimental and Behavioral Economics I. (SS; 2.0 cr.; prereq 1111, 1112, Math 1101 or #; fall, spring, offered periodically) Introduction to economic experiments as controlled tests of microeconomic and game-theoretic behavioral predictions. In-class economic experiments, elements of non-cooperative game theory, results of market and social preference experiments, and empirical applications.

ECON 3006. Experimental and Behavioral Economics II. (SS; 2.0 cr.; prereq 3005 or #; fall, spring, offered periodically) Advanced concepts and applications in experimental and behavioral economics.

ECON 3007. Environmental and Natural Resource Economics I. (ENVT; 2.0 cr.; prereq 1111 or #; fall, spring, offered periodically) An overview of "brown" pollution and "green" sustainability issues in environmental and natural resource economics. Emphasis on the role of market failures in causing environmental problems and on the design of market mechanisms and incentive regulations to solve those problems. Analysis of current federal policy in the areas of water and air pollution.

ECON 3008. Environmental and Natural Resource Economics II. (ENVT; 2.0 cr.; prereq 3007 or #; fall, spring, offered periodically) The economic analysis of sustainability, focusing on market designs to discourage over-exploitation of both renewable and exhaustible natural resources. Topics include markets for water, fisheries, and energy.

ECON 3009. Political Economy. (SS; 4.0 cr.;=[ECON 3004, ECON 3003]; prereq 1111, 1112 or #; spring, offered periodically) The historical evolution, methodological relevance, and basic structure of the modern capitalist economy, including the dynamics of capital accumulation, economic crisis, transformation and regulating mechanism of contemporary capitalism, and hegemonic tendency of economy over polity and other aspects of life in contemporary society.

ECON 3011. Cost-Benefit Analysis. (ENVT; 4.0 cr.; prereq 1111; spring, offered periodically) Cost-Benefit Analysis is a widely used method for comparing the benefits and costs of competing alternatives a decision-maker is considering. Derive best methods for conducting Cost-Benefit Analysis, building upon a solid understanding of the theory underlying it. Successful completion of this course allows students to apply the techniques of Cost-Benefit Analysis, and understand the strengths and weaknesses of CBA, including valuation and discounting.

ECON 3014. Game Theory: The Theory of Strategic Behavior I. (SS; 2.0 cr.; prereq 1111 or #; credit will not be granted if credit has been received for IS 3206H; spring, even years) The analytic approach to strategic interaction. Strategic interaction takes place among people when the payoffs to each person depend on the choices of all the others, and each person knows this fact in choosing their behavior. Development of the basic concepts of the theory of strategic interaction, including the definition of a strategy, extensive form and strategic form representations of the same game, and the solution concepts of Nash equilibrium and rollback equilibrium. A selection of applications of economic interest are covered, such as market entry deterrence and social dilemma games.

ECON 3015. Game Theory: The Theory of Strategic Behavior II. (SS; 2.0 cr.; prereq 3014 or #; spring, even years) Extensions to the basic analytic theory of strategic interaction that widen its applicability, including topics such as repeated games, asymmetric information, and refinements to basic solution concepts. A selection of applications of economic interest, such as screening, signaling, and brinkmanship.

ECON 3113. Money, Banking, and Financial Markets. (SS; 4.0 cr.; prereq 1111, 1112 or #; fall, every year) Nature and function of money; role of commercial banks and other financial institutions; structure and function of Federal Reserve system; monetary policies for stabilization and growth; and a survey and synthesis of major theories on the value of money.

ECON 3121. Public Economics I. (SS; 2.0 cr.; prereq 1111, 1112 or #; spring, offered periodically) Analysis of the economics of public expenditures.

ECON 3122. Public Economics II. (SS; 2.0 cr.; prereq 1111, 1112 or #; spring, offered periodically) Analysis of the economics of public revenues.

ECON 3131. Comparative Economic Systems. (IP; 2.0 cr.; prereq 1111, 1112 or #; fall, spring, offered periodically) Comparison of the theory and functioning of the major economic systems of the world; economic reform in capitalist and socialist economies.

ECON 3133. Economics of China. (IP; 2.0 cr.; prereq 1111, 1112; fall, spring, offered periodically) Examine the sources of economic growth in China, one of the world's largest and fastest-growing economies. Analyze the restructuring and reforms made to the economy, including the opening of the economy to world trade.

ECON 3134. Cooperative Business Model. (SS; 2.0 cr.; =MGMT 3134; prereq 1111 or #; spring, even years) Same as MGMT 3134. In the northern plains of the United States, cooperative businesses, including consumer, producer, and worker cooperatives, have made significant contributions to economic growth and development. Identify the unique economic, legal, and organizational characteristics of these firms and their role in the economy.

ECON 3141. Economic Development and Growth I. (IP; 2.0 cr.; prereq 1111, 1112 or #; fall, every year) Nature and meaning of economic development. Theories of economic growth and the historical experience of modern developed countries. General development problems facing developing countries.

ECON 3142. Economic Development and Growth II. (IP; 2.0 cr.; prereq 3141 or #; fall, every year) Current development problems and policies in developing countries; the possibilities and prospects for future development. Case studies examining the development progress of these countries.

ECON 3153. Contemporary Global Economic Issues. (IP; 2.0 cr.; prereq 1111, 1112, Stat 1601, or #; spring, offered periodically) Many of the most important global issues are economic in nature. Questions of population growth and aging, economic and political stability, security, terrorism, trade policy, poverty, development, the environment, energy, technology transfer, and even public health and education, in a global context can only be properly understood with some knowledge of economic principles. Gain knowledge of economic ideas necessary to understand and to criticize professional economic advice about global affairs. Strong emphasis on argumentation, rhetoric, and ability to debate economic ideas in a given framework.

ECON 3161. Microeconomic Theory. (SS; 4.0 cr.; prereq 1111, Math 1101 or #; fall, every year) Analytical approach to decision making by individual economic units in the output and input markets, under perfect and imperfect market conditions. Externalities and role of government.

ECON 3162. Macroeconomic Theory. (SS; 4.0 cr.; prereq 1112, Math 1101 or #; spring, every year) The theory of national income determination; inflation, unemployment, and economic growth in alternative models of the national economy.

ECON 3211. History of Economic Thought I. (HIST; 2.0 cr.; prereq 1111, 1112; fall, every year) The origin and development of economic thought from Mercantilism through the classical school. Among others, Adam Smith and Karl Marx are featured. Nature of economics as a social science through the study of its historical development.

ECON 3212. History of Economic Thought II. (HIST; 2.0 cr.; prereq 3211 or #; fall, every year) The development of economic thought from Marx and the end of the classical school, through the development of modern approaches. In addition to the demise of classical thought, a selection from the thinkers...
who contributed to the foundations of modern microeconomics and/or macroeconomics is covered. Nature of economics as a social science, through the study of its historical development.

**ECON 3351. Globalization: Examining India's Social and Economic Development.** (IP; 4.0 cr.; =MGMT 3351; prereq 1111 or 1112 or #; spring, offered periodically)
Same as Mgmt 3351. Observe and study the impact of globalization on the Indian economy. Examine the growing class divide between the middle and upper middle class and the lower class. Study the problem of mass poverty in India and its various ramifications such as child labor, lack of education and basic health care, and the inherent gender bias. Examine sustainable grass roots efforts to combat some of these problems.

**ECON 3501. Introduction to Econometrics.** (M/SR; 4.0 cr.; prereq 3201 or 3202, Stat 1601; fall, spring, every year)
Designing empirical models in economics. Simple and multiple regression analysis. Violations of classical assumptions in regression analysis. Logit and probit models; simultaneous equation models and lag models. Emphasis on application techniques to economic issues.

**ECON 3993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ECON 4101. Labor Economics I.** (HDIV; 2.0 cr.; prereq 3201 or #; fall, every year)
Wage and employment determination. Distribution of earnings and earnings inequality by race and sex. Labor supply applications.

**ECON 4102. Labor Economics II.** (2.0 cr.; prereq 3201 or #; fall, every year)
Functioning and performance of the labor market. Heterodox explanations of labor market behavior. Labor demand applications.

**ECON 4111. Mathematical Economics I.** (2.0 cr.; prereq 3201, 3202 or #; fall, spring, offered periodically)
Application of mathematical methods to economic analysis. Mathematical formulations and solution of optimizing models pertaining to households and firms and of adjustments to disturbances.

**ECON 4112. Mathematical Economics II.** (2.0 cr.; prereq 3201, 3202 or #; fall, spring, offered periodically)
Topics include linear modeling, input-output analysis and linear programming, efficiency and exchange, comparative static analysis, and dynamic microeconomic and macroeconomic models.

**ECON 4121. International Trade Theory.** (2.0 cr.; prereq 3201 or #; spring, every year)
Overview of why trade occurs, pattern of trade and international factor movement. Effect of trade and trade policy on the economy. Current topics in trade theory.

**ECON 4131. International Finance.** (2.0 cr.; prereq 3202 or #; spring, every year)
Foreign exchange markets; theories of exchange rate determination; fixed vs. flexible rate systems; theories of balance of payments adjustments; international quantity of money theory; international reserves; international monetary system (past, present, and future); internal and external balance, international economic policy coordination, international debt problem; effect of international sector on domestic growth and stability.

**ECON 4501. Senior Research Seminar in Economics and Management.** (2.0 cr. [max 4.0 cr.]; prereq & 3501 or #; full year course begins in fall sem; fall, every year)
Seminar on selected topics in economics and management. Guided research sessions familiarize students with literature in the field. Students are required to make a formal presentation on their research topic and attend presentations by their peers.

**ECON 4993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ED 1801. Critical Issues in K-12 Education.** (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, spring, offered periodically)
The education of K-12 students is reported on and discussed in the media on a daily basis and federal programs such as No Child Left Behind and Race to the Top influence the functioning of schools and the education of the K-12 student. State regulations and initiatives are also an important factor in how students learn and how teachers are prepared to teach. How can the average citizen make sense of all this information? Delve into some of the critical issues facing the education of K-12 students. Topics may include issues such as the achievement gap, assessments, bullying, inclusion and equity, and opportunity.

**ED 1993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ED 2111. Tutor-Aide Practicum.** (1.0 cr.; S-N only; prereq & 2121; fall, spring, summer, every year)
Students complete 30 hours of preprofessional field experience in the schools.

**ED 2121. Introduction to Education.** (SS; 3.0 cr.; A-F only; prereq coreq 2111; fall, spring, summer, every year)
History, philosophy, and purposes of American education; classroom practices and effective teaching; instructional technology; and certification requirements in education.

**ED 2211. Perspectives on Young Adult Literature: Schooling, Society, and Culture.** (HUM; 4.0 cr.; summer, offered periodically)
Exposure to multiple genres of young adult literature and brief introduction to various types of response to literature. Special emphasis on multicultural literature, the role of literature in forming moral and cultural values, using literature in the grade 5-12 classroom, and reader response theory and pedagogy. Students read, respond to, select, and evaluate young adult literature.

**ED 2221. Issues and Current Trends in Literacy and Language Education.** (HUM; 4.0 cr.; no cr for students who have received cr for Ed 4101; summer, offered periodically)
Study of themes, issues, and current trends surrounding literacy education including historical foundations of current reading practices, changing definitions of literacy, ideologies that influence understanding and implementation of reading practices, and consideration of complexities of addressing societal literacy concerns.

**ED 2221. Issues and Current Trends in Literacy and Language Education.** (HUM; 4.0 cr.; spring, offered periodically)
A survey of key concepts in diversity research (including power, prejudice, social justice, institutionalized discrimination, tolerance) as well as identity representation in literary and film texts. Additionally, students analyze power relationships and how they impact and are impacted by such institutions as schooling and the media.

**ED 2301. Environmental Science and Place-Based Education.** (ENVT; 4.0 cr.; A-F only; summer, every year)
Study of the topics, issues, and concepts of environmental science and place-based education while working with environmental specialists and interacting with elementary students at a wetland learning center.

**ED 2993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ED 3351. Globalization: Examining India's Social and Economic Development.** (IP; 4.0 cr.; =MGMT 3351; prereq 1111 or 1112 or #; spring, offered periodically)
Same as Mgmt 3351. Observe and study the impact of globalization on the Indian economy. Examine the growing class divide between the middle and upper middle class and the lower class. Study the problem of mass poverty in India and its various ramifications such as child labor, lack of education and basic health care, and the inherent gender bias. Examine sustainable grass roots efforts to combat some of these problems.

**ED 3993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ED 4102. Labor Economics II.** (2.0 cr.; prereq 3201 or #; fall, every year)
Functioning and performance of the labor market. Heterodox explanations of labor market behavior. Labor demand applications.

**ED 4111. Mathematical Economics I.** (2.0 cr.; prereq 3201, 3202 or #; fall, spring, offered periodically)
Application of mathematical methods to economic analysis. Mathematical formulations and solution of optimizing models pertaining to households and firms and of adjustments to disturbances.

**ED 4121. International Trade Theory.** (2.0 cr.; prereq 3201 or #; spring, every year)
Overview of why trade occurs, pattern of trade and international factor movement. Effect of trade and trade policy on the economy. Current topics in trade theory.

**ED 4131. International Finance.** (2.0 cr.; prereq 3202 or #; spring, every year)
Foreign exchange markets; theories of exchange rate determination; fixed vs. flexible rate systems; theories of balance of payments adjustments; international quantity of money theory; international reserves; international monetary system (past, present, and future); internal and external balance, international economic policy coordination, international debt problem; effect of international sector on domestic growth and stability.

**ED 4501. Senior Research Seminar in Economics and Management.** (2.0 cr. [max 4.0 cr.]; prereq & 3501 or #; full year course begins in fall sem; fall, every year)
Seminar on selected topics in economics and management. Guided research sessions familiarize students with literature in the field. Students are required to make a formal presentation on their research topic and attend presentations by their peers.

**Education (ED)**

**Division of Education**

**ED 1801. Critical Issues in K-12 Education.** (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, spring, offered periodically)
The education of K-12 students is reported on and discussed in the media on a daily basis and federal programs such as No Child Left Behind and Race to the Top influence the functioning of schools and the education of the K-12 student. State regulations and initiatives are also an important factor in how students learn and how teachers are prepared to teach. How can the average citizen make sense of all this information? Delve into some of the critical issues facing the education of K-12 students. Topics may include issues such as the achievement gap, assessments, bullying, inclusion and equity, and opportunity.

**ED 1993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**ED 2111. Tutor-Aide Practicum.** (1.0 cr.; S-N only; prereq & 2121; fall, spring, summer, every year)
Students complete 30 hours of preprofessional field experience in the schools.

**ED 2121. Introduction to Education.** (SS; 3.0 cr.; A-F only; prereq coreq 2111; fall, spring, summer, every year)
History, philosophy, and purposes of American education; classroom practices and effective teaching; instructional technology; and certification requirements in education.
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ED 4121. Strategies for Inclusive Schooling. (2.0 cr.; A-F only; prereq EdEd 3101, 3102, 3103, 3111 or admission to the secondary education program; fall, every year) Strategies and techniques for developing inclusive learning environments. Discussion of the differences in strategies in accommodations and modifications. Emphasizes adaptations for students with mild, moderate, and severe disabilities. Introduction to various methods of identifying students with disabilities and follow-up interventions.

ED 4901. The Teacher and Professional Development. (1.0 cr.; A-F only; prereq EdEd or SeEd 4201 or 4204 or #; spring, every year) Capstone experience. Professional development issues and philosophy of education are included as topics of study.

ED 4903. Kindergarten Education. (4.0 cr.; A-F only; summer, every year) Study of kindergarten education. Topics include: historical foundations, philosophy, current issues and trends, developmental characteristics and organizational needs of kindergarten children, and developmentally appropriate practices and instruction in the classroom.

ED 4911. Kindergarten Practicum. (1.0 cr.; S-N only; prereq coreq 4903; summer, every year) Field experience with kindergarten children.

ED 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Elementary Education (ELED)

Division of Education

ELED 3101. Teaching and Learning Strategies. (3.0 cr.; A-F only; prereq admission to the elementary teacher education program; fall, every year) Elementary school teaching and learning. Planning for instruction, learning theory, multicultural education, classroom management, use of technology in the classroom.

ELED 3102. Reading Methods: Literacy and Language Instruction in the Elementary School. (4.0 cr.; A-F only; prereq admission to elementary teacher education program; fall, every year) Beginning and advanced reading instruction in the elementary grades. Includes study of theory, issues, literacy frameworks, assessment, materials, organization, and instructional strategies to scaffold children's literacy development.

ELED 3103. Mathematics in the Elementary School. (4.0 cr.; A-F only; prereq admission to the elementary teacher education program; fall, every year) Standards, curriculum, assessment, and methodology for teaching mathematics in the elementary school. Includes the theoretical basis of methodology in mathematics and its application, measurement and evaluation, selection and use of instructional media and computer software, and meeting the needs of culturally diverse and special needs students.

ELED 3111. Practicum I: Field Experience in the Elementary Classroom. (1.0 cr.; S-N only; prereq admission to the elementary teacher education program; fall, every year) Field experience in the elementary classroom.

ELED 3201. Preprimary Theory: Three-, Four-, and Five-Year-Olds in School. (1.0 cr.; A-F only; prereq 3101, 3102, 3103, 3111; spring, every year) Overview of preprimary education including historical and social foundations, theories, current issues and trends, contemporary programs, and developmentally appropriate practices for three-, four-, and five-year-olds.

ELED 3202. Middle Level Theory. (1.0 cr.; A-F only; prereq 3101, 3102, 3103, 3111; spring, every year) Developmental characteristics, organizational and instructional needs of pre-adolescent and adolescent level classrooms. Characteristics of effective middle level teachers.

ELED 3203. Preprimary Methods: Curriculum and Instruction for Three-, Four-, and Five-Year-Olds. (3.0 cr.; A-F only; prereq 3101, 3102, 3103, 3111; spring, every year) Content and methods for planning developmentally appropriate activities and environments designed to enhance preprimary children's cognitive, social, emotional, physical, and creative development; methods of child guidance, anti-bias curriculum, and working with families. Required for student pursuing preprimary endorsement.

ELED 3211. Practicum II: Field Experience in a Prereg. Setting. (1.0 cr.; S-N only; prereq 3101, 3102, 3103, 3111; spring, every year) Field experience in preprimary or kindergarten setting.

ELED 3212. Practicum II: Field Experience in a Middle Level Setting. (1.0 cr.; S-N only; prereq 3101, 3102, 3103, 3111; spring, every year) Field experience in the middle level classroom.

ELED 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ELED 4103. Science in the Elementary School. (2.0 cr.; A-F only; prereq 3201, 3202, 3211 or 3212); fall, every year) Standards, curriculum, and assessment of elementary school science. Includes the theoretical basis of methodology and its application, assessment, selection and use of instructional media and computer software, and meeting the needs of cultural diverse and special needs students.

ELED 4104. Language Arts and Literature in the Elementary School. (3.0 cr.; A-F only; prereq 3201, 3202, 3211 or 3212); fall, every year) Theory, content, assessment, and strategies that support identification, selection, and use of materials and practices in the language arts and children's literature that foster children's language development and growth in reading, writing, speaking, listening, viewing, and visually representing.

ELED 4107. Health and Physical Education in the Elementary School. (1.0 cr.; A-F only; prereq 3201, 3202, 3211 or 3212); fall, every year) Scope, sequence, and related activities in elementary health and physical education.

ELED 4111. Practicum III: Beginning Student Teaching. (2.0 cr.; S-N only; prereq 3201, 3202, 3211 or 3212); fall, every year) Participation in in-service, teaching, and teaching-related activities in preparation for student teaching.

ELED 4112. Practicum IV: Cross-Cultural Experience in the Elementary School. (1.0 cr. [max 2.0 cr.]; S-N only; prereq 3201, 3202, 3211 or 3212); fall, every year) Field experience in the elementary classroom.

ELED 4201. Directed Student Teaching in Primary and Intermediate Grades. (HDIV; 12.0 cr.; S-N only; prereq 4102, 4103, 4104, 4111, 4112, passing scores on MTLE Basic Skills or #; spring, every year) Students teach for a period of 10 to 12 weeks demonstrating application of approaches to teaching and learning in primary and intermediate grades under the guidance of a cooperating teacher and University supervisor.

ELED 4202. Directed Student Teaching in Primary and Intermediate Grades. (1.0-16.0 cr.; S-N only; prereq passing scores on MTLE Basic Skills or #; fall, spring, every year) For students who need alternative or additional student teaching experience. Students demonstrate application of approaches to teaching and learning in primary and intermediate grades under guidance of a cooperating teacher and University supervisor.

ELED 4204. Directed Student Teaching in International School at the Primary and Intermediate Level. (1P; 12.0 cr.; S-N only; prereq 4102, 4103, 4111, 4112, passing scores on MTLE Basic Skills or #; spring, every year) Students teach for a period of 10 to 12 weeks demonstrating application of approaches to teaching and learning in primary and intermediate grades under the guidance of a cooperating teacher and University supervisor.
ELED 4205. Directed Student Teaching in the Elementary School. (1.0-16.0 cr.; A-F only; prereq passing scores on MTLE basic skills or #; fall, spring, summer, every year) For students from colleges that require A-F grading for student teaching through the Global Student Teaching Program.

ELED 4206. Directed Student Teaching in Preprimary Classroom. (HDIV; 4.0 cr.; S-N only; prereq 3201, 3203, 3211, passing scores on MTLE basic skills or #: spring, every year) Students teach for a period of 4 weeks demonstrating application of approaches to teaching and learning in preprimary grades under the guidance of a cooperating teacher and University supervisor.

ELED 4207. Directed Student Teaching in Middle Level Classroom. (HDIV; 4.0 cr.; S-N only; prereq 3202, 3212, appropriate methods course, passing scores on MTLE basic skills or #: spring, every year) Students teach for a period of 4 weeks demonstrating application of approaches to teaching and learning in middle level grades under the guidance of a cooperating teacher and University supervisor.

ELED 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

English (ENGL) Division of Humanities

ENGL 1001. Fundamentals of Writing. (4.0 cr.; does not fulfill the Writing for the Liberal Arts (WLA) requirement; fall, every year) Intensive practice in the fundamentals of writing. Students learn and apply strategies for generating, organizing, revising, and editing their writing.

ENGL 1011. College Writing. (4.0 cr.; does not fulfill the Writing for the Liberal Arts (WLA) requirement; offered periodically) Practice in academic writing, with special emphasis on argumentation, reading closely and critically for the purposes of scholarly analysis, responding to and making use of the work of others, and drafting and revising texts.

ENGL 1601. Writing for the Liberal Arts. (WLA; 4.0 cr.; fall, spring, every year) Instruction in academic writing; analysis, argument, inquiry, research, scholarly conversation, clarity, style. Emphasis on writing processes: plan, draft, review, rewrite, revise. Development of information literacy; identity, locate, evaluate, cite, and use electronic and print resources. Workshops with peers and instructor.

ENGL 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ENGL 2014. Introduction to Popular Literature: Science Fiction. (HUM; 4.0 cr.; prereq 1601 (or 1011) or equiv; fall, offered periodically) Introduction to popular literature in a variety of styles and forms with emphasis on analysis and context.

ENGL 2015. Introduction to Film Studies. (HUM; 4.0 cr.; prereq 1601 (or 1011) or equiv; weekly lab required for viewing films; spring, offered periodically) Develops students’ abilities to view films critically and to deepen their understanding of the film experience. Begins with critical analysis skills and terminology, then takes up the study of genres and styles, including documentaries and foreign films.

ENGL 2022. Sports Literature and Writing. (ART/P; 4.0 cr.; prereq 1601 (or 1011) or equiv; fall, offered periodically) Introduction to sports literature and sports writing, including exploration of rhetorical modes and techniques.

ENGL 2031. Gender in Literature and Culture. (HDIV; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, spring, offered periodically) Introduction to literary and cultural representations of gender. Emphasis on the intersections between power and the social relations of gender, race, class, and sexuality.

ENGL 2033. The Bible and Literature. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, offered periodically) Introduction to the role of the English Bible in the western literary tradition. Readings include key Biblical narratives, as well as English and American literary texts that are either deeply influenced by these stories or attempt to rewrite them.

ENGL 2041. Introduction to African American Literature. (HDIV; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; spring, offered periodically) Introduction to issues and themes in African American literature and culture, with emphasis on historical and cultural context.

ENGL 2059. Introduction to Shakespeare. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; spring, offered periodically) A careful reading of a representative selection of Shakespeare’s poetry and plays (including histories, comedies, tragedies, and romances). Consideration of generic and dramatic conventions, cultural contexts, literary elements, and performance choices on stage and in film. Serves non-majors as well as majors.

ENGL 2061. Introduction to Popular Literature: Detection and Espionage in Fiction and Film. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, every years) Examination of the detective and espionage genres in relation to 20th-century social and geopolitical pressures.

ENGL 2106. Topics in Writing: The Environmental Imagination: Reading and Writing about the Natural World. (ENVT; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, spring, offered periodically) Writing about the environment. Students learn to use the rich possibilities of language to express their responses to nature and convey to others the importance of close contact with the natural world. Readings in poetry and prose, discussion of technique, and experimentation with a variety of styles and literary forms.

ENGL 2121. Topics in Writing: Introduction to Creative Writing. (ART/P; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, every year) Introduction to the basic elements of creative writing, including exploration of poetry, story, and journal writing. Practice with techniques such as dialogue, description, voice, and style.

ENGL 2171. Topics in Writing: Editing and Proofreading. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; spring, offered periodically) Students learn and practice the techniques of developmental editing, copyediting, and proofreading, while exploring career applications for these skills.

ENGL 2201. Survey of British Literature to the 18th Century. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, every year) Readings in English poetry, prose, and drama from the beginnings to the 18th century. Specific authors vary.

ENGL 2202. Survey of British Literature from the 18th Century Forward. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; spring, every year) Readings in English poetry, prose, and drama from the 18th century to the present. Specific authors vary.

ENGL 2211. Survey of American Literature to the Civil War. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, spring, offered periodically) Study of important texts, canonical and non-canonical, and important periods and movements that define the colonial and U.S. experience up to 1865.

ENGL 2212. Survey of American Literature from the Civil War Forward. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, spring, offered periodically) Study of selected historical and literary texts in U.S. literature, canonical and non-canonical, from 1865 to the present.

ENGL 2411. Representations of American Indians in Popular and Academic Culture. (HDIV; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, offered periodically) Study of representations of American Indians in popular and academic culture including literature, films, and sports. Particular attention given to how Indian identity, history, and cultures are represented in pop culture by non-Indians and, more recently, Indians themselves.

ENGL 2421. Understanding Moby-Dick. (HUM; 4.0 cr.; prerequisites: 1601 (or 1011) or equiv; fall, offered periodically) A chapter-by-chapter analysis of Moby-Dick. Emphasis on important critical trends.
ENGL 2431. Holocaust Literature and Film. (IP; 4.0 cr.; prereq 1011 or equiv; fall, even years)
Survey of Holocaust literature and film, focusing on works that clarify the political ideology that led so many to participate in the murder of two-thirds of Europe's Jews and that articulated what Jews suffered during the Nazi era.

ENGL 2501. Literary Studies. (HUM; 4.0 cr.; prereq 1601 (or 1011) or equiv; credit will not be granted if credit has been received for Engl 1131; fall, spring, every year)
An introduction to the tools and methods of literary analysis, including the vocabulary of criticism, the techniques of close reading, and the conventions of literary argumentation. Primarily for English majors and minors. A prerequisite to advanced courses in English.

ENGL 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ENGL 3005. Understanding Writing: Theories and Practices. (HUM; 4.0 cr.; prereq 1601 (or 1011) or equiv, soph standing, #, coreq IS 3720 for students working in the Writing Room; fall, every year)
Introduction to composition theory: generating, composing, revising, and responding to writing; conventions across disciplines; strategies for teaching and tutoring writing. Weekly short assignments; three formal papers, written and revised in stages; oral presentation of research. Required for first-semester Writing Room staff.

ENGL 3012. Advanced Fiction Writing. (ART/P; 4.0 cr.; prereq #; fall, spring, offered periodically)
For experienced writers. Focus on developing skills and mastering creative and technical elements of writing fiction.

ENGL 3015. Writing Poetry for the 21st Century. (ART/P; 4.0 cr.; prereq 1601 (or 1011) or equiv; spring, offered periodically)
A creative writing class. Practice with the different elements of poetry—sound, rhythm, imagery, voice, line—and exploration of the ways contemporary poets use and transform traditional forms and techniques.

ENGL 3016. Innovations on the Page. (ART/P; 4.0 cr.; prereq 2121; spring, offered periodically)
In this creative writing course, students explore new models in literary publishing, literary fiction, nonfiction, and poetry while writing and learning about sudden fiction, the lyric essay, the collage novel, linked short stories, and other innovative forms and movements.

ENGL 3017. Book Publishing: History and Contemporary Trends. (HUM; 4.0 cr.; prereq 1601 (or 1011) or equiv; spring, offered periodically)
Consider the history of the book, the role of publishing in cultural production, the implications of the shift toward digital publishing, and an overview of the tasks involved in contemporary publishing, including acquisitions, editing, design, production, sales, and marketing.

ENGL 3021. Grammar and Language. (HUM; 4.0 cr.; fall, every year)
Study of the English language. Historical development and current structure. Includes language variation and change, social history of language, phonology, syntax, semantics, development of English grammar, prescriptive versus descriptive grammar, and contemporary theories of grammar.

ENGL 3032. Creative Nonfiction Writing. (ART/P; 4.0 cr.; prereq 1601 (or 1011) or equiv; spring, offered periodically)
For experienced writers. Focus on understanding and practicing the rhetorical and stylistic choices available to writers of creative nonfiction, especially decisions about structure, pacing, language, style, tone, detail, description, and narrative voice.

ENGL 3142. The Rise of the Novel. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; spring, offered periodically)
The 18th-century origins of the British novel: experiments with the new form, influence of earlier genres, evolution of formal realism. Authors may include Austen, Burney, Fielding, Richardson, and Sterne.

ENGL 3153. Gothic Literature. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically)
The cultural origins of gothic literature in tension with the neoclassical values of 18th-century Britain and its persistent influence over the next two centuries (including its relationship to modern horror fiction and film). Emphasis on the ways gothic tales encode cultural anxieties about gender, class, and power.

ENGL 3154. 19th-Century British Fiction. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically)
The rise of the novel to respectability and prominence in Britain from the Romantics to the Victorians.

ENGL 3155. 20th-Century British Fiction. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, spring, offered periodically)
Major novelists from the Modernist period and after, focusing on the historical context of the new challenges to literary tradition.

ENGL 3156. Modern Irish Literature. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; spring, offered periodically)
The poetry, fiction, and drama of Irish writers from 1890-1927, with attention to the ways that literature shaped a national identity.

ENGL 3157. English Renaissance Drama. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically)
A thorough study of the early modern English theater, including readings of 16th- and 17th-century plays and consideration of the literary and cultural contexts that informed them. Special attention is given to the works of Shakespeare's contemporaries, such as Marlowe, Jonson, Cary, Middleton, and Webster.

ENGL 3159. Shakespeare: Studies in the Bard. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; spring, even years)
A topics-based study of Shakespeare's works and other pertinent texts. Sample topics include "Shakespeare's Women," "Dangerous Rhetoric in Shakespeare," and "Shakespeare and His Sources." Attention is given to historical and literary contexts, and students are asked to consider Shakespeare's work as it is read as well as performed.

ENGL 3161. Medieval Literature. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, spring, offered periodically)
Early and later medieval prose, poetry, and drama produced and/or widely read in England from about 700-1500.

ENGL 3163. Life in a Medieval City: Literature and Culture in York, 700-1500. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212 or #; summer, offered periodically)
Travel to York, England, to study the literature and history of the city from Anglo-Saxon times to the end of the Middle Ages. Focus on the role that York played as the second city of medieval England, emphasizing the diverse cultural influences on the city. Day trips to historically significant sites in the vicinity of York.

ENGL 3165. English Renaissance Poetry and Prose. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically)
An examination of the poetry and prose of early modern England, with special attention to the work of Philip Sidney, John Donne, Mary Wroth, George Herbert, Margaret Cavendish, and John Milton.

ENGL 3166. Postcolonial Literature. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, spring, offered periodically)
Study of literature as site of cultural conflict during and after imperial encounters, from the perspectives of both colonizers and colonized peoples. Particular focus on Britain and its former colonies.

ENGL 3167. Studies in Contemporary British and Anglophone Literature. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, spring, offered periodically)
Exploration of topics in Contemporary British and Anglophone fiction and poetry, including migration, nationalism, globalization, diaspora, and postmodernity.

ENGL 3168. Victorian Literature and Culture. (HUM; 4.0 cr.; prereq 2501, two from 2201, 2202, 2211, 2212, or #; spring, every year)
Studies an array of 19th-century literary forms, including fiction, poetry, drama, and prose, in their social and political contexts.
ENGL 3169. The Construction of Nature in British Literature. (ENVT; 4.0 cr.; prereq 2501, two from 2201, 2202, 2211, 2212, or #; fall, odd years) Surveys changing representations of nature and the natural in British literature and culture from the Romantics forward, including cultural responses to industrialism and evolutionary science.

ENGL 3171. The Literature of Creative Nonfiction. (HUM; 4.0 cr.; prereq 2501 (or 1131); summer, offered periodically) Explore the genre of creative nonfiction as a literary tradition and help to articulate what creative nonfiction is (as well as what it isn’t). Students collaborate in creating working definitions for the genre and prepare projects in which they curate and present a list of readings in the genre.

ENGL 3253. Modern and Postmodern Love in the Novel. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212, #; fall, even years) Modernists and postmodernists are famous for casting an ironic glance on God and Truth. But are they as cynical and skeptical about love? In this course, students work through the writings of prominent 20th-century novelists who struggled to define love.

ENGL 3261. Modern British and American Poetry. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically) A study of the continuities and break with traditions in 20th-century poetry. Focus on innovations and experiments in form and theme.

ENGL 3262. 20th-Century American Poetry: From Modern to Contemporary. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically) Study of the radical shifts in poetry and poetics in 20th-century America. Exploration of the ways that poets such as Robert Lowell, Adrienne Rich, Frank O’Hara, Denise Levertov, Allen Ginsberg, James Wright, and Sylvia Plath broke with modernist conventions and New Critical aesthetics and opened the field for the poetry of the late 20th and early 21st centuries.

ENGL 3281. The Literature of Slavery. (HDIV; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically) Study of fictional and non-fictional writing about chattel slavery in the United States. Readings include 19th-century works written to oppose or support slavery and 20th-century works written to understand slavery and its effects.

ENGL 3301. U.S. Multicultural Literature. (HDIV; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212, or #; spring, offered periodically) Examination of literatures by African American, American Indian, Asian American, Chicana/o, U.S. Latino/a, and other under-represented peoples.

ENGL 3311. American Indian Literature. (HDIV; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212, or #; fall, spring, offered periodically) Study of American Indian literature written in English. Particular attention given to language, identity, land, and sovereignty.

ENGL 3312. World Indigenous Literature and Film. (IP; 4.0 cr.; prereq 2501, two from 2201, 2202, 2211, 2212, or #, or AmIn major; spring, even years) Comparative study of indigenous literature and film from North America, New Zealand, and Australia with particular emphasis given to issues of political and cultural sovereignty, cultural appropriation, self-representation, and colonial nostalgia.

ENGL 3331. African American Literature. (HDIV; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, spring, offered periodically) Study of African American literature. Particular attention given to issues of gender, class, power, "passing," and the racialized body.

ENGL 3332. African American Women Writers. (HDIV; 4.0 cr.; prereq 1601 (or 1011) or equiv or #; fall, spring, offered periodically) If African Americans struggled to achieve equality and recognition in the racist United States, the situation was even more difficult for African American women, who had to contend with the sexism in both the white and black communities. This course examines the writings of prominent African American women.

ENGL 3411. Critical Approaches to Literature. (HUM; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212; fall, offered periodically) An introduction to the major schools of literary theory and cultural analysis; particular attention to the ways in which the dialogue and debate between these approaches define the discipline of literary criticism.

ENGL 3414. Feminist Theory. (HDIV; 4.0 cr.; =GWSS 3414; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212) or [GWSS 1101]; fall, spring, offered periodically) Same as GWSS 3414. Engages students in a critical examination of several influential works participating in the elaboration of feminist theories. Readings and discussions focus on a series of themes and issues--gender, sexuality, race, class, language, bodies, etc.--and how these issues bear upon society.

ENGL 3522. Harlem Renaissance. (HDIV; 4.0 cr.; prereq 2501 (or 1131), two from 2201, 2202, 2211, 2212 or [GWSS 1101]; fall, spring, offered periodically) Same as GWSS 3522. Engages students in a critical examination of several influential works participating in the elaboration of feminist theories. Readings and discussions focus on a series of themes and issues--gender, sexuality, race, class, language, bodies, etc.--and how these issues bear upon society.

ENGL 3993. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ENGL 4004. Research Seminar: Old English Literature and Language. (HUM; 4.0 cr.; prereq two from 31xx-35xx; #; fall, spring, offered periodically) Prose and poetry of early medieval England (650-1100) in translation and in Old English (which is studied), with attention to material (manuscripts) and cultural contexts and to reception history.

ENGL 4012. Research Seminar: Imagining the Earth. (HUM; 4.0 cr.; prereq two from 31xx-35xx; #; fall, spring, offered periodically) Study of imaginative writing (poetry and prose) about the earth, and an examination of the ways that language transforms or shapes our perceptions of the natural world. In addition to the primary literary works, students read selections about our understanding of the natural world from science, philosophy, and ecocriticism.

ENGL 4017. Research Seminar: Tricksters-Conjurers in American Indian and African American Literature. (HDIV; 4.0 cr.; prereq two from 31xx-35xx; #; fall, spring, offered periodically) Study of tricksters and conjurers in American Indian and African American literature, in particular their ability to maintain traditional practices and subvert the dominant culture and imposed cultural norms. Special attention given to cultural and historical contexts and questions of power, identity, cultural difference, and assimilation.

ENGL 4023. Research Seminar: Nationalism and Irish Literature. (HUM; 4.0 cr.; prereq two from 31xx-35xx; #; fall, spring, offered periodically) Examination of 20th-century Irish literature through the lens of cultural nationalism. How questions of language, race, culture, and colonial history make the idea of Ireland problematic. Exploration of a diverse host of writers interested in Irish myths, ideals, and identities with research from Irish and postcolonial studies.

ENGL 4024. Research Seminar: Poet’s Choice: The Book as the 25th Poem. (HUM; 4.0 cr.; prereq two from 31xx-35xx; #; spring, offered periodically) “If you have a book of twenty-four poems, the book itself should be the twenty-fifth,” claims poet James Wright. Study of single volumes of poetry, examination of the book as a whole, and consideration of the sequence of poems and recurring images and themes. Exploration of key movements of the 20th century, placing each volume in its literary context.

ENGL 4028. Research Seminar: Inventing a Nation: Early American National Literature. (HUM; 4.0 cr.; prereq two from 31xx-35xx; #; spring, offered periodically) At the end of the Revolution, Americans set out to create a literature that would define the new nation. Writers adapted old forms and invented new ones in an effort to make American writing distinct and somehow reflective of the nation’s values. This course explores those efforts, including drama, novels, magazine writing, and their contexts.

ENGL 4029. Research Seminar: Perspectives on Literacy. (HUM; 4.0 cr.;
ESCI 3401. Polymer Chemistry and the Environment. (ENVT; 4.0 cr.; prereq Chem 2302 or 2304 or #: spring, even years)

Same as Chem 3401. Introduction to many traditional topics in polymer chemistry including those with a connection to elements of the environment and environmental science such as the preparation of polymers from renewable feedstocks, polymers in renewable energy, green syntheses of polymers, and environmental impacts of polymers.

ESCI 4901. Environmental Science Senior Seminar I. (1.0 cr.; A-F only; prereq #: fall, every year)

Capstone experience in environmental science. Identification and selection of individual research topics and related bibliographic resources; development of skills in the reading of environmental science literature (assessing data, recognizing gaps in the research findings, identifying problems in research conclusions). Discussion of selected topics of environmental interest.

ESCI 4902. Environmental Science Senior Seminar II. (1.0 cr.; A-F only; prereq 4901, #: spring, every year)

Capstone experience in environmental science. Completion of research, assessment of information or data, and formulation of conclusions on the research topic selected. Presentations of research projects.

Environmental Studies (ENST)

Academic Affairs

ENST 1101. Environmental Problems and Policy. (ENVT; 4.0 cr.; fall, spring, every year)

An introduction to the ways in which state, national, and international political systems deal with environmental issues and goals. The development of environmental governance, the regulatory and economic tools of environmental policy, and the impact of institutions, culture, social movements, and historical development.

ENST 1201. Mapping the Environment. (ENVT; 4.0 cr.; no elective cr for EnST majors if credit has been received for Geol 2161; summer, offered periodically)

An intense immersion into the world of geographic information systems (GIS), with an emphasis on providing a foundation upon which future coursework and projects can be built. The first half of the course focuses on basic skills and functions; the second half is devoted to an environment-related mapping project.

ENST 2101. Environmental Biology. (SCI-L; 4.0 cr.; credit will not be granted if credit has been received for Biol 2101; fall, every year)

Introduction to concepts in biodiversity, evolution, and ecology. Includes basic chemistry and concepts from cell biology, molecular biology, and genetics. A one-course gateway into upper division Biology courses normally requiring the Biol 1111-2101 sequence. (two 65-min lectures, one 180-min lab)

ENST 3001. Water Resources Policy. (ENVT; 4.0 cr.; prereq 1101 or Pol 1201 or Pol 1401 or #: fall, odd years)

...
An examination of fundamental contemporary water resource challenges. Units on water quality (e.g., drinking water) and quantity (e.g., irrigated agriculture) encourage critical evaluation of local, national, and international water resources policy in the contexts of environmental quality, human health, and technology. (two 100 min discussions)

ENST 3101. Industrial Ecology. (4.0 cr.; prereq 1101, 2101, Econ 1111, Geol 1101, Stat 1601, or #; no credit for students who have received cr for EnST 4101; fall, even years) Systems thinking in the context of industrial/ environmental issues. Methods or frameworks including life cycle analysis and design for disassembly, guide an examination of product design, material choice, and flows of energy and resources into, through, and from industrial cycles.

ENST 3988. Environmental Studies Pre-Internship Seminar. (1.0 cr.; S-N only; prereq 1101; fall, every year) Preparation for the environmental studies internship, including attending and writing reflections on presentations by post-internship students, and developing ideas and opportunities for the ENST internship. Students should enroll in this course in fall of sophomore or junior year prior to completing the ENST internship.

ENST 3989. Environmental Studies Post-Internship Seminar. (1.0 cr.; A-F only; prereq 3988 or #; fall, every year) Culmination of the environmental studies internship. Includes preparing a final paper and delivering a public presentation on the internship experience. Assessment is based on the quality of the final products and on class participation.

ENST 4901. Senior Capstone Experience. (4.0 cr.; A-F only; prereq 3989 or 3996, or status or #; spring, every year) An educational experience in a work, research, and/or field setting that provides practical application of the student's theoretical classroom learning experiences. A written plan of work must be approved by the Environmental Studies Internship Coordinator before registration.

ENST 4902. Beginning French I. (4.0 cr.; fall, every year) An introduction to oral and written French, its basic structure, and to French culture.

FREN 1021. July in Paris I: French Language and Culture in Paris. (IP; 4.0 cr.; A-F only; summer, odd years) Four weeks of intensive beginning French language and culture at the Sorbonne, Paris IV; guided visits to cultural and historical sites. UMM July in Paris course for students with no French experience or less than one semester of college-level French. Does not satisfy FL Gen Ed requirement. See also FREN 1023 and 3060: July in Paris II and III: French Language and Culture in Paris.

FREN 1023. July in Paris II: French Language and Culture in Paris. (FL; 4.0 cr.; A-F only; prereq 1001 or placement; summer, odd years) FREN 1002 equivalent for the July in Paris Program. Four weeks of intensive beginning French language and culture at the Sorbonne, Paris IV; guided visits to cultural and historical sites. Satisfies UMM language requirement. See also FREN 1021 and 3060: July in Paris I and III: French Language and Culture in Paris.

FREN 1031. Modern Studies: The Modern Body in France. (SS; 4.0 cr.; prereq or coreq 3011 or #; fall, spring, offered periodically) Beginning with Vesalius, this course examines how the notions of body and mind have been shaped and reshaped in tandem with the rise of the sciences in France, with emphasis on evolving conceptions of ability and disabilities. Taught in English. Meets Modern Studies (MOS) requirement in the French major.

FREN 1302. French Cinema. (IP; 4.0 cr.; does not count toward the FREN minor; fall, spring, offered periodically) The history of filmmaking in France from the Lumiere brothers to the present; introduction to major trends in film theory. All films have English subtitles. Taught in English. Meets Modern Studies (MOS) requirement for the French major.

FREN 1311. Sub-Saharan Francophone Cinema. (IP; 4.0 cr.; does not count toward the FREN minor; fall, spring, offered periodically) Introduction to the history of cinema in French-speaking West Africa. Students learn to read African films, to recognize and analyze political themes in the films, and to become sensitive to issues facing many African nations in the postcolonial world. All films have English subtitles. Taught in English. Meets Francophone Studies (FRS) requirement for the French major.

FREN 1312. Morocco: History, Story, Myth. (IP; 4.0 cr.; A-F only; does not count toward the FREN minor; summer, offered periodically) Study of the ways that history, myth, and storytelling intertwine to create Moroccan identity and of the different methods of telling stories through orature, literature, weaving, ceramics, and music. Students learn about current concerns and successes in Moroccan society. Taught in English. Meets Francophone Studies (FRS) requirement for the French major.

FREN 1993. Directed Study. (1.0-5.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

FREN 2001. Intermediate French I. (IP; 4.0 cr.; prereq 1002 or placement or #; fall, every year) Review of the essential structural patterns of the French language; continued development of oral, aural, reading, and writing skills based on cultural and literary texts appropriate to this level.

FREN 2002. Intermediate French II. (IP; 4.0 cr.; prereq 2001 or placement or #; spring, every year) Review of the essential structural patterns of the French language; continued development of oral, aural, reading, and writing skills based on cultural and literary texts appropriate to this level.

FREN 2993. Directed Study. (1.0-5.0 cr., [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

FREN 3001. Conversation and Composition. (IP; 4.0 cr.; prereq 2002 or placement or #; fall, every year) Conversation, including work on sounds and sound patterns as well as vocabulary building and practice based on common situations; writing skills; and advanced grammar review.

FREN 3011. Reading and Analysis of Texts. (HUM; 4.0 cr.; prereq 3001 or #; spring, every year) Introduction to representative literary works of France and the French-speaking world. Development of ease in reading French; introduction to methods for analyzing its style and meanings.

FREN 3060. July in Paris III: French Language and Culture in Paris. (IP; 4.0 cr., [max 8.0 cr.]; A-F only; prereq 1002 or equiv; summer, odd years) Four weeks of intermediate or advanced French-language study at the Sorbonne, Paris IV; guided visits to cultural and historical sites. UMM July in Paris course for students who have had a minimum of one year of college-level French. See also FREN 1021 and FREN 1023: July in Paris I and II: French Language and Culture in Paris.

FREN 3112. Advanced Language Studies: Introduction to French Phonetics. (HUM; 4.0 cr.; open to all students of French; no credit for students who have received cr for FREN 1011; fall, spring, offered periodically) Training in French pronunciation geared towards speakers of American English.

FREN 3113. Advanced Language Studies: Theme et Version. (HUM; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for FREN 4011; spring, odd years) The art of translation applied to everyday discourse, literary texts, and a number of...
FREN 3114. Advanced Language Studies: Advanced French Grammar. (HUM; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 4012; spring, offered periodically) Refinement of grammar. Students gain a deeper understanding of the functionality of the French language through a study of French grammar and through applied and historical linguistics.

FREN 3402. Early Modern Studies: Pre-Enlightenment Culture in France. (HIST; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3022; fall, spring, offered periodically) This course traces the history of French culture from the Middle Ages until the French Revolution; it examines the geography, language, and institutions of medieval and early modern France. Meets Early Modern Studies (EMS) requirement in French major.

FREN 3406. Early Modern Studies: Representations of Suicide and the Death Wish in the Middle Ages and Today. (HUM; 4.0 cr.; prereq or coreq 3011; spring, offered periodically) Theories from cultural and religious studies, anthropology, history, psychology, and sociology combine to approach suicide in society and in literature. Readings: Durkheim, Freud, Laplanche, Bataille, Châtelain's Lancelot, Partonopeus, Le Roman de Troie, troubadour lyric, Aucassin et Nicolette, Legenda Aurea, Saint Augustine, Ovid's Metamorphoses.

FREN 3501. Modern Studies: The Old Regime and New Ideas: The French Enlightenment. (HIST; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3039; fall, spring, offered periodically) Explores the absolutism of Louis XIV and the rise of modern secular thinking in the French literature and philosophy of the Enlightenment, with particular attention given to shifting notions of freedom, agency, and one's place within society and relationship to others. Meets Modern Studies (MOS) requirement for the French major.

FREN 3502. Modern Studies: Revolution, Romanticism, Modernity. (HUM; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3037; fall, spring, offered periodically) Examines the emergence of Romanticism, Modernity, Realism, and Naturalism in a historical context shaped by the successive revolutions of 1789, 1815, 1830, 1848, and 1870; industrialization; the rise of a middle class; advances in technology and medicine; and the centrality of images and the popular press in daily life in France. Meets Modern Studies (MOS) requirement in French major.

FREN 3503. Modern Studies: Avant-Garde, Existentialism, Experimentation. (HUM; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3038; fall, spring, offered periodically) From la belle époque through two world wars and the civil unrest of 1968; from France's efforts to come to terms with its colonial past to its role within the European Union, from Proust to Pennac, this course examines French history, culture and literary movements of the past century to the present day. Meets Modern Studies (MOS) requirement in French major.

FREN 3505. Modern Studies: Media Representation(s), Immigration, and Identity in Migrant Literature. (HIST; 4.0 cr.; prereq or coreq 3011 or #; spring, offered periodically) Examination of the history that gives rise to Caribbean, Maghrebi, and West African authors who address and respond to media representations of immigrant minorities in France and the effects of this dialogue on the creation of cultural, social, and national identities within these communities.

FREN 3602. Francophone Studies: Francophone Worlds. (IP; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3041; fall, spring, offered periodically) Readings in a variety of cultural and literary texts from among French-language writers of Africa, the Caribbean, Asia, North America, and Europe; study of issues of national identity, race, gender, and postcolonial consciousness. Meets Francophone Studies (FRS) requirement in French major.

FREN 3603. Francophone Studies: Contes francophones. (IP; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3042; fall, spring, offered periodically) Study of the oral tale in African and Caribbean cultures. Examination of the form of these tales, their thematic structure, and how these tales have been translated into written and/or cinematographic texts. Meets Francophone Studies (FRS) requirement in French major.

FREN 3604. Francophone Studies: L'Amerique francophone. (HUM; 4.0 cr.; prereq or coreq 3011 or #; no credit for students who have received cr for Fren 3044; fall, spring, offered periodically) Survey of literary texts and movements in Francophone North America, including Quebec and Louisiana, as well as the history of French exploration of the New World. A discussion of the cultural tensions that have threatened and continue to shape Francophone identity in North America. Meets Francophone Studies (FRS) requirement in French major.

FREN 3605. Francophone Studies: Le Cinema du Maghreb. (IP; 4.0 cr.; prereq or coreq 3011 or #; fall, offered periodically) A study of Algerian, Tunisian, and Moroccan history and culture as presented through the art of cinema. Examination of films produced in the francophone Maghreb thematically, focusing on topics such as colonialism, gender, Islam, childhood, and immigration. An important goal is to learn to analyze and discuss film academically. Meets Francophone Studies (FRS) requirement in French major.

FREN 3606. Francophone Studies: Sub-Saharan Francophone Cinema. (IP; 4.0 cr.; prereq or coreq 3011 or #; fall, spring, offered periodically) Introduction to the history of cinema in French-speaking West Africa. Students learn to read African films, to recognize and analyze political themes in the films, and to become sensitive to issues facing many African nations in the postcolonial world. Meets Francophone Studies (FRS) requirement in French major.

FREN 3993. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

FREN 4901. Senior Seminar. (4.0 cr.; prereq completion of 32 credits toward the French major; must be taken on campus; spring, every year) A capstone experience for majors, consisting of a substantial scholarly or creative work (at the undergraduate level) within the discipline. Conducted as a seminar.

FREN 4991. Independent Study in French Abroad. (IP; 4.0 cr.; [max 12.0 cr.; prereq 2002 or #; 3022 or 3032 or 3041 recommended; fall, spring, offered periodically) An independent study designed for study abroad and based on the student's research interests in French or Francophone language, culture, history, etc. The project is defined in consultation with a French faculty member before the student leaves the United States. The faculty member guides the project via email.

FREN 4993. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Gender, Women, and Sexuality Studies (GWSS)

GWSS 1101. Introduction to Gender, Women, and Sexuality Studies. (HDIV; 4.0 cr.; fall, every year) This course introduces students to the theoretical concepts and impact of gender and sexuality in everyday life. Various feminist, queer, and other gender-oriented theories are considered and employed as students explore how definitions of femininity, masculinity, and sexuality have been created, maintained, negotiated, and resisted. Particular attention is paid to the complicated relationships between individuals and social systems, and to the ways in which class, race, ethnicity, age, and other identity categories interact with definitions and representations of gender and sexuality.

GWSS 3001. Troubling Genders in African Cinema. (HUM; 4.0 cr.; fall, spring, offered periodically)
This course explores the ways in which Sub-Saharan African film directors have used cinematic arts to challenge and envision paradigms of feminine, masculine and queer identity. Students will study African models of womanist thought and how they work with, through and against various "Western" models of gender. All films have English subtitles.

**GWSS 3414. Feminist Theory.** (HDIV; 4.0 cr.; [ENGL 3414]; prereq [1101] or [ENGL 2501 or (1131)], two from 2201, 2202, 2211, 2212); fall, spring, offered periodically

Same as Eng 3414. Engages students in a critical examination of several influential works participating in the elaboration of feminist theories. Readings and discussions focus on a series of themes and issues—gender, sexuality, race, class, language, bodies, etc.—and how these issues bear upon society.

**GWSS 3993. Directed Study.** (1.0-5.0 cr.; [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)

An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**GWSS 4001. Gender, Women, and Sexuality Studies Capstone.** (1.0 cr.; A-F only; prereq completion of 32 cr in women's studies; fall, spring, every year)

This course requires a theoretical analysis paper, in which students analyze and reflect on their academic coursework and own intellectual autobiography. Students are expected to consider and apply feminist, queer, and/or other gender-oriented theoretical approaches in this final paper. This course also requires a portfolio and a presentation and panel discussion. Students can work with any faculty teaching GWSS courses.

**Geography (GEOG)**

Division of Social Sciences

**GEOG 2001. Problems in Geography.** (ENVT; 4.0 cr.; spring, every year)

Basic concepts and questions in the field of geography. The terminology and approaches of geographical inquiry and analysis, with emphasis on the spatial patterns and arrangements of human interaction with the landscape and the production of geographical knowledge.

**GEOG 3501. Geographic Information Systems.** (ENVT; 4.0 cr.; prereq any 1xxx course in social or natural sciences; fall, spring, offered periodically)

The theory and practice of Geographic Information Systems. Topics include data models, spatial statistics, and cartographic modeling. Special emphasis on social and environmental applications. (two 65-minute lect, one 120-minute lab session per week)

**Geology (GEOL)**

Division of Science and Mathematics

**GEOL 1001. Environmental Geology:**

Geology in Daily Life. (SCI; 4.0 cr.; may not count toward the geol major or minor; spring, every year)

Effects of volcanoes, earthquakes, and floods on humans and civilization; geologic problems associated with rural and urban building, waste management, and waste disposal; the importance of geologic knowledge in the discovery of fossil fuels and mineral resources. (4 hrs lect)

**GEOL 1011. Geology of the National Parks.** (SCI; 4.0 cr.; may not count toward the geol major or minor; fall, offered periodically)

Exploration of the fundamental aspects of the geosciences: earth materials, geologic time, plate tectonics, and the evolution of landscapes by examining the geology and geologic history of the U.S. national parks. (4 hrs lect)

**GEOL 1012. Oceanography.** (SCI; 4.0 cr.; may not count toward geol major or minor; fall, offered periodically)

Physiography and geological evolution of ocean basins; marine sedimentation; coastal processes and environments; chemical evolution, and chemical and physical properties of seawater; ocean-atmosphere interactions; deep-ocean circulation; waves and tides; marine ecosystems. (4 hrs lect)

**GEOL 1101. Physical Geology.** (SCI-L; 4.0 cr.; fall, spring, every year)

Introduction to the materials that make up the Earth and the structures, surface features, and geologic processes involved in its origin and development. Lab work includes study of the major constituents of the Earth's crust, including the important rocks and minerals; study of surface and geologic features using aerial photographs, topographic maps, and satellite imagery. (3 hrs lect, 3 hrs lab)

**GEOL 1993. Directed Study.** (1.0-5.0 cr.; [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)

An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**GEOL 2001. Natural and Unnatural Geologic Hazards.** (ENVT; 4.0 cr.; spring, offered periodically)

Examination of the more significant interactions between humans and geologic environments and processes. Earthquake and volcanic hazards, river flooding, mass movements and slope stability, coastal hazards, and water resources and pollution. Lectures and problems sets emphasize the quantitative approaches used to determine the likelihood and frequency of natural hazards, assess associated risks, and mitigate damage.

**GEOL 2101. Mineralogy and Crystallography.** (SCI-L; 4.0 cr.; prereq 1101, Chem 1101 or #; fall, every year)

Classification, identification, physical and chemical properties, origin and natural occurrence of major mineral groups. Lab study of crystal systems by use of models; introduction to optical aspects and physical and chemical testing. (3 hrs lect, 6 hrs lab and field trips)

**GEOL 2111. Igneous and Metamorphic Petrology.** (SCI-L; 4.0 cr.; prereq 2101; spring, every year)

Processes of sedimentation, including origin, transportation, and deposition of sediments; interpretation of sedimentary environments. Principles of stratigraphy and their applications. Lab work includes sedimentary particle analysis; stratigraphic sections; and interpretation of ancient sedimentary environments based on stratified sequences of sedimentary rock. (3 hrs lect, 3 hrs lab and field trips)

**GEOL 2151. Historical Geology: Earth History and Changing Scientific Perspectives.** (SCI-L; 4.0 cr.; fall, odd years)

Development of fundamental theories and principles of geology, including stratigraphy, uniformitarianism, geologic time, evolution, and plate tectonics. Emphasis on how geological thought has evolved through time as the scientific, religious, and political climate has changed. Discussion of the Earth's history and science's changing views of the Earth; continental movements, mountain building, and the evolution and development of organisms and ecosystems. Lab experience on methods of interpreting Earth's history from rocks, fossils, and structures and solving geological problems. (3 hrs lect, 3 hrs lab)

**GEOL 2161. GIS and Remote Sensing.** (SCI; 4.0 cr.; prereq 1101 or Biol 1101 or Biol 1111 or #; spring, every year)

Introduction to design, development, and application of Geographic Information Systems (GIS); overview of acquisition and utility of satellite data and imagery; emphasis on applications in Earth and environmental sciences; lab component focuses on practical aspects of GIS development and use and involves original semester projects designed and implemented by individual students.

**GEOL 2301. Geology of Minnesota.** (SCI-L; 4.0 cr.; summer, offered periodically)

Active, hands-on learning both in class and on field trips to selected localities throughout the state. Field trips include: Pipestone
National Monument; glacial geology of west-central Minnesota; geology of the Minnesota River Valley; and St. Cloud Quarry Park.

GEOL 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

GEOL 3001. Global Tectonics. (SCI; 4.0 cr.; prereq #; fall, spring, offered periodically)
Internal structure and composition of the earth; geometry and motion of lithospheric plates; geological and geophysical processes at plate boundaries; evolution of mountain belts; heat flow, thermal convection, and the driving mechanism for plate movement.

GEOL 3006. X-ray Diffraction Techniques for the Identification of Clay Minerals in Geologic Environments. (2.0 cr.; prereq 1101; spring, offered periodically)
Introduction to clay mineralogy, discussion of the significance of clay minerals in physiochemical and biological processes that occur in terrestrial and marine environments, and the application of X-ray diffraction in the identification and analysis of clays in different geologic environments.

GEOL 3011. Earth Resources. (ENVT; 4.0 cr.; prereq any 1xxx or 2xxx Geol course or #; fall, offered periodically)
Geology of mineral (base metals, precious metals, and non-metals), energy (fossil fuels, uranium, and alternatives), and other (water and soil) resources; overview of techniques for resource identification, delineation, and extraction; discussion of issues (e.g., environmental, political, and social) surrounding resource identification, extraction, and use; global resource distribution, historical trends, and future outlook.

GEOL 3101. Structural Geology. (SCI-L; 4.0 cr.; prereq 2111 or #; spring, every year)
Elementary concepts of stress and strain, theory of rock deformation; description and classification of structures in the Earth's crust; application of geometric, analytical, and map interpretation techniques to solving structural problems; field mapping problems. (3 hrs lect, 3 hrs lab and field trips)

GEOL 3111. Introduction to Paleontology. (SCI-L; 4.0 cr.; prereq 2151 or Biol 2101 or EnSt 2101 or #; fall, even years)
An introduction to the study of the evolutionary history of life on earth as revealed in the fossil and geologic record. Laboratory focuses on study of the classification, morphology, and paleoecology of invertebrate fossils. (two 65-min lect, one 3-hr lab, and weekend collecting trip required)

GEOL 3401. Geophysics. (SCI; 4.0 cr.; prereq Math 1101. Phys 1101 or #; fall, odd years)
Propagation of seismic waves, earthquake seismology, and the structure of the Earth; the origin and nature of the Earth's magnetic and gravitational fields; the Earth's internal production and flow of heat; composition, state, and rheology of the Earth's interior; plate tectonics and elementary geodynamics. (4 hrs lect)

GEOL 3501. Hydrology. (SCI; 4.0 cr.; prereq Math 1101 or #; fall, every year)
An examination of the hydrological cycle; evapotranspiration and precipitation; processes of infiltration; rainfall-runoff relationships and the generation of overland flow; response of the drainage basin to storm events; flood-frequency analysis; elements of groundwater flow and evaluation of aquifer characteristics; water quality, contamination, and contaminant transport. (4 hrs lect)

GEOL 3502. Groundwater. (ENVT; 4.0 cr.; prereq 1101 or #; spring, odd years)
The origin, occurrence, and availability of groundwater, aquifer geology and groundwater resources, chemical character of groundwater and groundwater pollution, groundwater wells and well design, and groundwater as a geologic agent. (3 hrs lect, 3 hrs lab and field trips)

GEOL 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

GEOL 4130. Advanced Geomorphology. (4.0 cr. [max 8.0 cr.]; prereq 2131; spring, offered periodically)
Surficial processes and the resulting landforms; may include catastrophc events, large lakes, and regions geomorphology or the evolution of the Badlands. (3 hrs lect, 3 hrs lab and field trips)

GEOL 4140. Advanced Glacial and Quaternary Geology. (4.0 cr. [max 8.0 cr.]; prereq 2141; fall, odd years)
Glacial geology and glacial history; may include pre-Pleistocene glaciations, quaternary stratigraphy, or subglacial processes. (3 hrs lect, 3 hrs lab and field trips)

GEOL 4901. Geology Senior Seminar. (1.0 cr.; prereq #; required for geol major; fall, every year)
Capstone experience in Geology. Discussion of selected topics of geologic interest.

GEOL 4902. Geology Senior Seminar Presentations. (1.0 cr.; prereq #; required for geol major; spring, every year)
Capstone experience in geology. Presentations of research projects.

GEOL 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

GER 1001. Beginning German I. (4.0 cr.; fall, every year)
Introduction to German as it is spoken and written presently. The course acquaints students with the basic sounds, structures, and vocabulary of German and enables them to understand, read, and write the language and to communicate in German about everyday situations. It makes them aware of the relationship between culture and language.

GER 1002. Beginning German II. (FL; 4.0 cr.; prereq 1001 or placement or #; spring, every year)
Continuation of 1001.

GER 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

GER 2001. Intermediate German I. (IP; 4.0 cr.; prereq 1002 or placement or #; fall, every year)
The skills of listening, reading, and writing are enforced through grammar review and discussion of modern texts.

GER 2002. Intermediate German II: German Culture and Civilization. (IP; 4.0 cr.; prereq 2001 or #; spring, every year)
A variety of readings in German to examine the historical and contemporary aspects of the culture of German-speaking countries. Students give oral reports and write papers about art, architecture, literature, philosophy, or music. They keep a journal of visits to sites on the World Wide Web relevant to topics such as geography, history, and culture.

GER 2011. German Conversation and Composition. (IP; 4.0 cr.; prereq 1002 or #; may enroll concurrently with 2001; fall, every year)
This course builds on grammar and structure learned in the beginning sequence. Students engage in discussions about daily activities and topics of their interest. Models for writing and speaking are provided in the form of short stories, newspaper articles, and literary excerpts. Visual materials serve as points of departure for conversation and composition.

GER 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

GER 3111. Readings in German. (IP; 4.0 cr.; prereq 2011 or #; may enroll concurrently with 2002; soph or higher recommended; spring, every year)
Students read and analyze modern texts in order to advance their ability to comprehend and discuss various literary styles. This course is a prerequisite for more advanced courses in the major and minor.

GER 3031. German Play. (ART/P; 4.0 cr.; prereq 2001 or #; fall, spring, offered periodically)
Reading, study, and presentation of a short contemporary play. Enhances fluency and familiarity with the modern German idiom.

**GER 3041. New German Cinema.** (IP; 4.0 cr.; =HUM 3041); prereq 3011; fall, offered periodically)
Same as HUM 3041. Traces the development of New German Cinema, which began in the 1960s, and continues in the post-unification period. Introduction to films by both East and West German directors who define this national cinema; the cultural, political, and economic context of its production; reference to theories and critiques to provide an overview of German film and culture of the period. Film presentations are in German with English subtitles. Readings and lectures are in English. Final papers are either in German (for German credit) or English (for Humanities credit).

**GER 3042. Welmar Film.** (IP; 4.0 cr.; =HUM 3042); prereq 3011; spring, offered periodically)
Same as HUM 3042. Development of the German film as expressionistic art form. Film as text, film as history, film as aesthetic expression. Film presentations are in German but with English subtitles in most cases. Readings and lectures are in English. Final papers either in German (for German credit) or English (for Humanities credit).

**GER 3101. Survey of German Literature and Culture I.** (HUM; 4.0 cr.; prereq 3011 or #; fall, every year)
Chronological study of German literature and its cultural background from the early beginnings through the 18th century. Selected representative works are read and analyzed.

**GER 3102. Survey of German Literature and Culture II.** (HUM; 4.0 cr.; prereq 3011 or #; spring, every year)
Chronological study of German literature and its cultural background from the 18th century to the 20th century. Selected representative works are read and analyzed.

**GER 3201. Periods: German Classicism.** (HUM; 4.0 cr.; prereq 3101, 3102 or #; spring, odd years)
Readings in aesthetic theory and exemplary works by writers of the period. Texts by Goethe and Schiller are read and analyzed in conjunction with opera librettos based on their works. Modern films and videos of theater performances supplement the readings.

**GER 3202. Periods: German Romanticism.** (HUM; 4.0 cr.; prereq 3101, 3102 or #; spring, even years)
Readings in Romantic theory and works by important authors of the period: Wackenroder, Tieck, Novalis, Eichendorff, and E.T.A. Hoffmann. Other art forms, such as music and painting, supplement the literary discussions.

**GER 3203. Periods: German Modernism.** (IP; 4.0 cr.; prereq 3101, 3102 or #; fall, spring, offered periodically)
Explores the culture of German-speaking countries around the turn of the 20th century (1890-1933) through literature, music, and the visual arts, especially as manifested in Symbolism, Secession (Art Nouveau), Expressionism, Dada, and New Objectivity.

**GER 3501. Women’s Issues in Contemporary German Culture.** (IP; 4.0 cr.; =HUM 3501); prereq 3011 or #; spring, offered periodically)
Same as HUM 3501. Focus is on the German women’s movement during the 20th century, historical relationship of gender and class, and lives of women from various ethnic backgrounds in Germany and Austria. Short stories, essays, and poems document the evolution of feminist literary theory in German studies. Readings and lectures are in English. Final papers either in German (for German credit) or English (for Humanities credit).

**GER 3601. Studies in German Literature.** (HUM; 4.0 cr.; prereq 3011; fall, odd years)
Selected readings in German reflecting modern literary trends. The course examines the cultural politics in the evolution of the literature in the formerly divided Germany, using plays, novels, biography, and documentary reports. It deals with questions of literary theory, history, and socio-political structures.

**GER 3611. Austrian Studies.** (HUM; 4.0 cr.; prereq 3011 or #; fall, every year)
Selected readings in Austrian Literature from 1875 to 1925, including Marie von Ebner-Eschenbach, Rainer Maria Rilke, Arthur Schnitzler, and Hugo von Hofmannsthal. Historical background for the period through Brigitte Hamann’s biography of Empress Elisabeth and/or Rudolph von Habsburg, the modern musical “Elisabeth,” as well as the operetta “Die Fledermaus” and Istvan Szabo’s film “Oberst Redl.”

**GER 3993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**GER 4901. Senior Project.** (1.0-5.0 cr.; max 10.0 cr.; prereq 3011 or #; fall, spring, every year)
A substantial scholarly or creative work (at the undergraduate level) in conjunction with or upon the completion of another course within the discipline. The senior project is recommended for German majors.

**GER 4993. Directed Study.** (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**HISTORY (HIST) Division of Social Sciences**

**HIST 1015. Topics and Problems in World History.** (HIST; 4.0 cr.; max 8.0 cr.; A-F only; prereq participation in College in the Schools program; fall, spring, every year)
Examination of special topics in world history designed for the “College in the Schools” program offered at Morris Area Schools.

Course is built around specific topics, such as genocide in the 20th century or global approaches to environmental history, and emphasizes how historians work, pose questions, use sources, and engage in debate.

**HIST 1111. Introduction to World History.** (HIST; 4.0 cr.; =HIST 1101, HIST 1102; fall, spring, every year)
Methods, themes, and problems in the study of world history.

**HIST 1301. Introduction to U.S. History.** (HIST; 4.0 cr.; fall, every year)
Methods, themes, and problems in the study of the history of the United States.

**HIST 1402. Gender, Women, and Sexuality in American History.** (HDIV; 4.0 cr.; fall, spring, offered periodically)
Themes and methods in the history of women in the United States. Topics may include women in the colonial era; American Indian, African American, and immigrant women; sex roles; women and work, family, politics, the law, and religion.

**HIST 1501. Introduction to East Asian History: China, Japan, and Korea before 1800.** (HIST; 4.0 cr.; fall, offered periodically)
Examination of the social, political, economic, technological, and cultural changes in East Asia before 1800. Possible sub-themes include the rise of the Confucian world order, the spread of Buddhism, and East Asian interactions with the outside world. Discussion of changing perceptions of gender.

**HIST 1601. Latin American History: A Basic Introduction.** (IP; 4.0 cr.; spring, odd years)
Methods, themes, and problems in the study of Latin American history.

**HIST 1701. Global Indigenous History.** (IP; 4.0 cr.; =HIST 1813, AMIN 1701; fall, offered periodically)
Same as AmIn 1701. Modern technology has transformed our world and has encouraged global nations to become increasingly connected. These international connections contain a unique and exciting history that complicates and enriches our worldview. The movement to gain recognition in the United Nations has prompted Indigenous peoples into a new political awareness of Intertribalism. Acquire an introductory knowledge about Indigenous histories beyond the borders of the United States. Navigating the globe, learn about the Maori of New Zealand, Aboriginal rights in Australia, the great Polynesian, Asian, and African Empires. Debate complex issues of colonization, gender, sustainability, urbanization, science, law, economics, race, and nationalism. Also investigate contemporary political movements, activism, and art forms employed by Indigenous communities to maintain their life-ways and sovereignty.

**HIST 1811. A History of You(th).** (IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
Why does the behavior of young people attract so much attention and anxiety? Why does the stage between childhood and a fully recognized adulthood carry such significance?
in our collective consciousness? Engage in a historical analysis of what you have signified, using source materials from Plato to pop culture. Along the way, engage chronologically with the emergence of the categories of childhood and youth and thematically with the relationship between youth and a multitude of social categories and phenomena (for example, politics, media, consumption, and sexuality). Requires extensive reading, active classroom participation, and the completion of a research project and presentation with both individual and group components.

HIST 1812. FIRE! An Introductory Seminar to American Environmental History. (IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)

One of the primary ways in which people have manipulated their environments has been through the burning of fossil fuels. Indigenous people, for instance, used fire to clear land, to improve soil quality, and to drive game. Coal powered the Industrial Revolution and oil provided the energy necessary for the Automobile Age. The impact of using energy in this way is today obvious. This course is organized around the topic of fire and uses this theme to examine core issues in American Environmental History. Topics might include: American Indian peoples and fire, burning and early agriculture, coal and industrialization, the Age of the Automobile, incineration and the problem of waste, and forest arson as a mode of political protest.

HIST 1813. World Indigenous History. (IC; 4.0 cr.; [AMIN 1701, HIST 1701]; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)

On September 13, 2007, after sixty years of advocacy, the United Nations General Assembly passed the Declaration on Rights of Indigenous People. This resolution acknowledges the vital role that Indigenous Nations hold in our global community. It is a strict policy for the protection of human rights of over 60 million peoples. This revolutionary act offers United Nations protections and prohibits discrimination against Indigenous populations. Finally, this declaration promotes a controversial first step toward the formal world recognition of Indigenous sovereignty. This new political referendum provides the context for this course, as each week students strive to define and understand World Indigenous History. Throughout the semester students are introduced to the rich and diverse societies, cultures, politics, and histories of global Indigenous communities.

HIST 1815. Women in the American West. (IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)

An overview of how women historically have profoundly shaped and given meaning to the development of the American frontier and the American West. Examine women of all backgrounds, representing all areas and time periods in the “frontier” regions and the American West. In addition to women, focus is on the themes of gender, class, race, ethnicity, sexuality, and environment. Look at gender as a system of power relations that has been integral to the shaping of politics, public policy, and economy in the U.S. West.

HIST 1816. Explaining the Inexplicable: 20th Century Genocides. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)

Examination of a couple of the contemporary world’s largest and most important dilemmas. Why did we see all the now familiar campaigns of mass murder based on racial and ethnic hatred in the last century, a time of incredible scientific progress? Why, in addition, have we been so slow to learn from this experience? Why, in short, have we been so unsuccessful in honoring our pledge of “never again”? Through history, memoir, and film, examine these questions and try to understand and answer them from both an historical and a moral perspective.

HIST 2003. Public History. (HIST; 4.0 cr.; spring, offered periodically)

Introduction to the many ways historians conduct research and present historical topics to public audiences. Public historians, who typically come from a traditional academic discipline, utilize their knowledge in such public settings as museums, archives, historic sites, historical societies, and federal agencies. Examine a number of themes ranging from oral histories and historical reenactments to websites and electronic media. Explore what is public history, who practices it, the role of audience, the tension between history and memory, and the ethical concerns that influence public history practice. A particular emphasis is the representation of racial and ethnic communities and the controversies that have emerged in public history practice and scholarship about the representation of “the other.”

HIST 2103. Medieval Europe. (HIST; 4.0 cr.; fall, spring, offered periodically)

Survey of historical developments in Europe from about 500 to 1500.

HIST 2151. Modern Europe. (HIST; 4.0 cr.; fall, spring, offered periodically)

History of modern Europe emphasizing political, economic, social, and intellectual developments since 1789.

HIST 2251. American Indians and the United States: A History. (HDIV; 4.0 cr.; spring, every year)

The experience of the original Americans and their interaction with later immigrants.

HIST 2352. The U.S. 1960s. (HIST; 4.0 cr.; fall, even years)

History of the United States in the 1960s. Backgrounds to the 1960s; political and cultural issues of the decade; the Kennedy promise, civil rights and other movements, Vietnam war, counterculture, conservative backlash, and legacy.

HIST 2451. The American West. (HIST; 4.0 cr.; [HIST 3451]; fall, even years)

Overview of the history of the American West up to the 21st century. While many scholars have argued that the “West” was merely a necessary process of national expansion, others argue that it is a very significant region--the most culturally and ecologically diverse region in the country. Discussion of these major historical interpretations of the American West and examination of how people have understood this vast region as a cultural icon of national identity. Work through various definitions of the West and identify how political issues of the environment, international borderlands, and gender and race relations have significantly influenced the United States for many generations. Through lectures, readings, and discussion, examine Western history chronologically while also covering other major themes including federalism, the mythic West, tourism, ranching and agriculture, urban and suburban areas, film, and religion.

HIST 2452. Minnesota History. (HIST; 4.0 cr.; fall, spring, offered periodically)

Examination of the social, cultural, and political history of Minnesota with emphases on American Indian and European-American conflict, immigration and ethnicity, the development of political culture, and the changing nature of regional identity.

HIST 2551. Modern Japan. (HIST; 4.0 cr.; fall, spring, offered periodically)

The history of Japan from the foundation of the Tokugawa Shogunate until the present. Special attention to issues of gender, nationalism, and modernity.

HIST 2552. History of Modern China. (HIST; 4.0 cr.; spring, offered periodically)

Study of the history of China from the foundation of the Qing dynasty in the 1600s until the present. Special attention to issues of gender, nationalism, and modernity.

HIST 2608. History of Cuba: From Colony to Revolutionary State. (HIST; 4.0 cr.; fall, spring, offered periodically)

A survey of the history of Cuba from Spanish colonization to the present, with emphasis on the 19th and 20th centuries. Topics include colonization, slavery, imperialism, nationalism, and the Cuban Revolution.

HIST 2704. Gender, Women, and Sexuality in Medieval Europe. (SS; 4.0 cr.; spring, odd years)

Analysis of the history of European women and gender systems as constructed during the Middle Ages (c. 500-1500).

HIST 2708. Gender, Women, and Sexuality in Modern Europe. (IP; 4.0 cr.; fall, spring, offered periodically)

Examination of the forces that have shaped the lives of European women since 1600 and analysis of how changes in the structures of power and authority--religious, political, social, familial--affected the choices available to them. Students engage critically with the question of what bringing gender to the forefront of the study of European history has to teach them. Students gain an understanding of many of the underpinnings of American society, which has been deeply affected by European patterns of thought about women and their place in the world.
HIST 3008. The Making of the Islamic World. (HDIV; 4.0 cr.; fall, even years) Examines the origins, spread, and impact of Islamic civilization from the 6th through 15th centuries with particular emphasis upon political, religious, and intellectual developments.

HIST 3101. Renaissance and Reformation. (HIST; 4.0 cr.; spring, odd years) Examination of western European history and historiography between 1350 and 1600 with emphasis on cultural "renaissances" and religious "reformations."

HIST 3102. Early Modern Europe. (HIST; 4.0 cr.; fall, spring, offered periodically) Survey of historical developments in Europe from about 1350 through the 18th century.

HIST 3161. The Enlightenment. (HIST; 4.0 cr.; spring, odd years) The intellectual ferment of the Enlightenment has been given the credit and the blame for all things modern—from the concept of human rights and the democracies it has engendered to the subversion of those rights in the totalitarian regimes of the 20th century. Exploration of the ideas of the Enlightenment and their political context and attempt to answer the question of how such an important development in human history can be viewed in such contradictory ways.

HIST 3162. The Scottish Enlightenment: Markets, Minds, and Morals. (IP; 4.0 cr.; =PHIL 3162; summer, offered periodically) Same as Phil 3162. Study of the philosophy and history of the Scottish Enlightenment. Focus on its original setting through analysis and discussion of primary texts and scholarly interpretations, guest lectures, and small-group discussions with recognized experts in the study of the Scottish Enlightenment. Includes visits to historically significant cities and sites.

HIST 3176. Berlin as a Site of History. (HIST; 4.0 cr.; A-F only; summer, offered periodically) A study abroad course focusing on the intersection of space and history in the vibrant city of Berlin, Germany. Themes include Berlin in flows of capital and power, Berlin as a site of everyday life, and Berlin as a site of historical memory and contests over it. No knowledge of German is necessary.

HIST 3181. The Study of History: Schools, Rules, and Tools. (HIST; 4.0 cr.; prereq #; no credit for students who have received cr for Hist 2001; spring, every year) Introduction to historical research methods and 20th-century historiography. How to evaluate and employ primary and secondary sources, to cite evidence, and to develop critical historical arguments in a research project. Exploration of key transformations within the field of history, surveying various schools of thought, and assessing the specific advantages and challenges of the approaches. Topics may include Freudian and Marxist interpretations, the Annales school, quantitative analysis, anthropological and sociological approaches, and gender and postcolonial theory.

HIST 3204. Nazi Germany. (HIST; 4.0 cr.; fall, odd years) History of Nazi Germany. Social and political origins, Nazi rule in the 1930s, the "final solution," World War II, and Germany's attempt to assess this era in its history.

HIST 3207. The Crusades. (IP; 4.0 cr.; spring, even years) Explores the historical contexts and consequences of the European Crusades between the 11th century and early modern period, including the perspective of European Jews, Turkish and Arabic Muslims, and Byzantine and Near Eastern Christians.

HIST 3209. Modern Germany. (HIST; 4.0 cr.; spring, odd years) Examination of German history from the development of German national ideas through unification and consolidation of the modern German state in 1871 and through its reunification at the end of the 20th century. Examines one of the most fascinating and tumultuous periods in German and European history, why the attempt to understand the German past has occupied so many historians, and why the debates surrounding that attempt have been so contentious. Sources include writings by established historians of Germany, novels, films, and music.

HIST 3211. Modern France. (HIST; 4.0 cr.; fall, even years) Examination of French culture and history from the Revolution (1789) to the present. The ways in which successive governments, from Napoleon's empire through the Fifth Republic, have come to terms with legacies of the Revolution such as national citizenship, individual rights, and the politicization of women.

HIST 3303. Creation of the American Republic. (HIST; 4.0 cr.; fall, spring, offered periodically) Examination of the history of the United States from the beginning of the Seven Years' War in 1754 to the end of the War of 1812. The origins of the nation and the political, cultural, and social changes that accompanied the birth and early years of the American Republic. Focus on the political and social history of the American Revolution. Other topics include women in revolutionary America, the reformation of slavery, indigenous people and early Indian policy, religion and revivalism, the constitutional crisis, and the early presidencies.

HIST 3304. Race, Class, and Gender in American History. (HDIV; 4.0 cr.; fall, spring, offered periodically) The themes of race, class, and gender are explored in-depth throughout the semester. Students gain a new awareness about historiography and theories that highlight this growing subfield of American History. Prominent topics covered in lecture and readings include colonization, slavery, suffrage, immigration, sovereignty, labor, ghettoization, art, literature, culture, and the rise of self-determination. Study the intersection of race, class, and gender relations through multiple perspectives of region, ideology, political-economy, and religion.

HIST 3351. The U.S. Presidency Since 1900. (SS; 4.0 cr.; fall, even years) History of the 20th-century U.S. presidency. Brief consideration of the Presidency before 1900, analysis of performance of presidents since 1900 in roles of chief executive, commander-in-chief, chief diplomat, and chief of state during an era of enlarged governmental functions at home and world power abroad.

HIST 3353. World War II. (HIST; 4.0 cr.; fall, spring, offered periodically) Origins, political and military aspects of the war in Europe and Asia, domestic mobilization, the Holocaust and Atomic Bomb, aftermath.

HIST 3355. United States in Transition, 1877-1920. (HIST; 4.0 cr.; spring, odd years) Topics, themes, and problems in U.S. history, 1877 to 1920.

HIST 3356. Civil Rights Movement, 1954-1974. (HIST; 4.0 cr.; fall, spring, offered periodically) Background of the Civil Rights movement, measurement of the theory and practice of nonviolence, various Civil Rights groups, role of women, legislative and other accomplishments of the movement, its aftermath and influence.

HIST 3358. Civil War and Reconstruction. (HIST; 4.0 cr.; fall, spring, offered periodically) Origin, context, and significance of the Civil War and Reconstruction.

HIST 3359. Native Strategies for Survival, 1880-1920. (HDIV; 4.0 cr.; fall, odd years) Exploration of the events and policies that sought to eliminate American Indian communities and cultures and the strategies that American Indians developed to survive. Students gain insight into a pivotal time for the "incorporation" of the United States and ongoing tensions between unity and diversity that characterize the nation's political economy and social structure. Paradoxes under scrutiny include the degree to which policies claiming to emancipate actually imprisoned and prisons became homelands.

HIST 3360. American Experience in World War II. (HIST; 4.0 cr.; prereq jr or sr or #; spring, offered periodically) Seven former American Presidents were veterans of World War II and over 175,000 books have been published on this subject alone. Arguably this one event has commanded more attention by writers, filmmakers, and academics than any other modern historical event. For decades historians have also debated the significance of World War II. After the conclusion of the war, the worldwide devastation and loss of life had reached apocalyptic proportions and new military technologies, like the atom bomb, forever altered the American experience. Writers and intellectuals such as Albert Einstein, emerged as new celebrities. Literally every sector of American society and culture had been transformed by World War II. Investigate these questions and more throughout the semester. It is important to note that this course is not a strict military history of the European and Pacific campaigns. Instead,
Courses listed in this catalog are current as of February 6, 2013. For up-to-date information, visit www.catalogs.umn.edu.
the colonial and national periods, examine how ideas of race and ethnicity have intersected with political, economic, and socio-cultural developments in the region. Consider the ways in which race, class, and gender have intersected in Latin America. 

HIST 3707. Gender in East Asia. (HDIV; 4.0 cr.; fall, spring, offered periodically) Study of the changing perceptions of gender in East Asia from its earliest written records until the present. Special emphasis on the changing role of women in East Asia. Exploration of the way gendered discourse affects broader understandings of society, politics, the economy, and culture. Background in East Asian history, preferred, is not required.

HIST 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

HIST 4501. Senior Research Seminar in History. (4.0 cr.; A-F only; prereq 2001, #; fall, spring, every year) Advanced historical thematic analysis and guided research resulting in an original, substantial paper or project.

HIST 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Humanities (HUM) Division of Humanities

HUM 1001. Contesting Visions of the American West. (HDIV; 4.0 cr.; fall, offered periodically) Examines literary and cultural representations of the American West from a range of perspectives, including those of Asian and European immigrants, explorers, and American Indians.

HUM 1002. Norse Saga. (HUM; 4.0 cr.; fall, spring, offered periodically) Study of medieval sagas, in translation, from Iceland and Norway, and the culture that produced them.

HUM 1003. The King James Bible. (HUM; 4.0 cr.; fall, spring, offered periodically) Some of the ways that language and themes of the King James Bible have shaped the themes, language, and values in English and American literature.

HUM 1005. Myth and Literature. (HUM; 4.0 cr.; fall, spring, offered periodically) How classical mythology has been used in literature, poetry, drama, and fiction.

HUM 1051. Greek Drama. (HUM; 4.0 cr.; spring, offered periodically) Study of Greek drama.

HUM 1054. Backgrounds to Literature: Classical Mythology. (IP; 4.0 cr.; fall, spring, offered periodically) A look at primary texts in Greek and Roman myth and at the ways English and American writers have made use of those myths from the Renaissance to the present.

HUM 1101. The European Novel. (HUM; 4.0 cr.; fall, offered periodically) Readings in major continental novelists of the 19th and 20th centuries.

HUM 1552. Literature and History of Jewish and Muslim Spain. (IP; 4.0 cr.; summer, offered periodically) Introduction to representative works of literature (taught in English and translated from Spanish, Hebrew, and Arabic) written by or about Spanish Jews and Muslims from the middle ages to the periods of the expulsion of these people from Spain (Jews in 1492 and Muslims in 1609). Comprehension of these works in light of their socio-historical contexts.

HUM 1561. Hispanic Film. (IP; 4.0 cr.; fall, offered periodically) Viewing, study, and discussion of the most representative Hispanic cinema coming out of Spain, the United States, and Latin America. The form of the cinema and its specific cultural and political context.

HUM 1805. Myth: From the Page to the Stage. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, spring, offered periodically) Grab a thunderbolt and explore the rich tapestry of world mythologies by reading, researching, discussing, creating, and acting. Students familiarize themselves with important myths from various cultures around the world. Students use theatre techniques to creatively engage in classroom role-playing activities as well as projects such as a myth mask, future myths, and a myth collage. At the end of the semester, students perform a short original play focusing on one of the myths studied in class.

HUM 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

HUM 2011. On War: History, Ethics, and Representations of Modern Warfare. (HUM; 4.0 cr.; prereq Engl 1601 (or 1011) or equiv; fall, offered periodically) Explores accounts of several 20th-century American wars. Includes a wide range of course materials (film, journalistic accounts, philosophical essays, and literary texts) and perspectives on war—from the generals to the "grunts" and nurses, from American and non-American perspectives, and from scholarship to oral narratives.

HUM 2301. Intercultural Understanding Through Film. (IP; 2.0 cr.; fall, offered periodically) Exploration of how understanding of other cultures can be enhanced by viewing foreign films, with an emphasis on topics such as personal relationships, societal taboos, religion, and political leadership.

HUM 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

HUM 3041. New German Cinema. (IP; 4.0 cr.; [GER 3041]; fall, offered periodically) Same as Ger 3041. Traces the development of New German Cinema, which began in the 1960s, and continues in the post-unification period. Introduction to films by both East and West German directors who define this national cinema; the cultural, political, and economic context of its production; reference to theories and critiques to provide an overview of German film and culture of the period. Film presentations are in German with English subtitles. Readings and lectures are in English. Final papers are either in German (for German credit) or English (for Humanities credit).

HUM 3042. Weimar Film. (IP; 4.0 cr.; [GER 3042]; spring, offered periodically) Same as Ger 3042. Development of the German film as expressionistic art form. Film as text, film as history, film as aesthetic expression. Film presentations are in German but with English subtitles in most cases. Readings and lectures are in English. Final papers either in German (for German credit) or English (for Humanities credit).

HUM 3501. Russian Literature. (HUM; 4.0 cr.; spring, offered periodically) Study of Russian literature in translation. Special attention to the works of Dostoevsky, Tolstoy, and Chekhov.

HUM 3501. Women's Issues in Contemporary German Culture. (IP; 4.0 cr.; [GER 3501]; spring, offered periodically) Same as Ger 3501. Focus is on the German women's movement during the 20th century, historical relationship of gender and class, and lives of women from various ethnic backgrounds in Germany and Austria. Short stories, essays, and poems document the evolution of feminist literary theory in German studies. Readings and lectures are in English. Final papers either in German (for German credit) or English (for Humanities credit).

HUM 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

HUM 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Interdisciplinary Studies (IS) Academic Affairs
IS 1041. Health Sciences Terminology. (2.0 cr.; fall, summer, every year) A self-study course that has been designed to provide students with a working knowledge of the terminology utilized in the health sciences. There are no formal class sessions. Students take four tests during the term.

IS 1051. Introduction to College Learning Skills. (4.0 cr.; S-N or Audit; prereq participation in Gateway Program or #; counts toward the 60-cr general ed requirements; summer, every year) Essential skills for success in higher education. Introduction to computing technology, writing, and math skills. Academic and social skills needed for transition from high school to college.

IS 1061. Mastering Skills for College Success. (2.0 cr.; S-N only; prereq #; fall, spring, every year) Practical assistance to develop efficient, effective learning/academic performance skills. Improve reading, memorization, test-taking, critical thinking, and academic and career learning styles, motivation, life skills, and their relation to successful academic performance.

IS 1071. Systematic Introduction to the Art and Science of Emergency Medical Care. (4.0 cr.; S-N only; prereq registration with the Stevens County Ambulance Services; arrangements must be made by contacting them at 320-589-7421; fall, spring, every year) Introduction to emergency medical care. Develops skills and knowledge to respond appropriately to a medical emergency. (The Stevens County Ambulance Service sets and requires an independent fee.)

IS 1091. Ethical and Social Implications of Technology. (E/CR; 2.0 cr.; fall, spring, every year) Description of appropriate technological advances. Historical development related to technology and its development cycle. Discussion of the ethical and social implications of technology.

IS 1802. Music, Education, and the Liberal Arts. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) What is a liberal arts education, and how does music fit into this idea? How does one succeed in such an environment? Explore the liberal arts approach and the role of music in education. This course also helps students to develop skills that are crucial to success in a liberal arts college environment.

IS 1803. Dangerous Minds: Images of Mind-altering Substances. (IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Mind-altering substances have been part of the human experience since before written history. This course explores the many ways drugs and drug trade have impacted human societies and cultures. Examples of topics include the role of drug trade in European colonization, the connections between drugs and religion and spirituality, development of legal restrictions, the influence of drugs on arts and literature, and the like.

IS 1804. Community Engagement: From Volunteerism to Social Justice. (IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; requires off-site meeting times to be arranged; fall, offered periodically) Introduction through readings and discussion to multiple frameworks for community engagement, ranging from meeting individual people's and agency's needs through direct volunteerism to engaging in research and direct action intended to create systematic change. In the process of studying these frameworks, students are exposed to a variety of controversies in the service-learning field. Students are also introduced to Stevens County through field trips to community agencies. Students complete a community engagement project that reflects their academic and professional goals and meets community needs. Projects can range from volunteering directly at an agency to planning a fundraiser or educational event with a partner to completing a manageable community-based research project. Requires off-site meeting times to be arranged.

IS 1806. Bottom Dwellers in an Ocean of Air. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, odd years) We live on the bottom of an ocean of a mix of gases and vapors which is kept in constant, chaotic motion by uneven heating and planetary rotation, thus evading our control. We, as humans, are often on the defense or in a role of passive adaptation with regard to weather. Are human beings victims or actors on the stage of global atmospheric dynamics? How do we respond to this question, students in the course: (1) mine human history for cases in which significant interaction between human society and climate was found; (2) study individual events in which history and weather were intertwined; (3) learn about palaeoclimate research; and (4) pay particular attention on how this interaction between climate and atmosphere is shaped in the modern world. The physical principles of weather and climate are introduced as needed for meaningful discussion.

IS 1807. Drugged Society: Humanity’s Long-term Relationship with Mind-altering Substances. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Mind-altering substances have been part of the human experience since before written history. This course examines the ways drugs and drug trade have impacted human societies and cultures. Examples of topics include the role of drug trade in European colonization, the connections between drugs and religion and spirituality, development of legal restrictions, the influence of drugs on arts and literature, and the like.

This interdisciplinary course requires active classroom participation and the completion of a research project and presentation with both individual and group components.

IS 1808. Agents and Agency: Modeling Emergence in the Social Sciences. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Agent-based modeling is a computer-based technique for investigating how complex systems can emerge from the behaviors of the people (or other agents) that form the system. Agency is the ability to act according to one's own will, rather than following social and cultural rules of behavior. Can aspects of human societies "emerge" from many simple interactions between agents, constantly repeated? Or are human choices responsible for the structure and attributes of human societies? Is there really a difference, or are these two ways of looking at the same phenomenon? Explore the potential and pitfalls of agent-based modeling as a technique for understanding human societies, through a mixture of readings, discussion, and the hands-on development of small-scale computer models. No previous technical or programming experience necessary.

IS 1809. Working It. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Explore the role of work in everyday life--how it shapes our identity, impacts our relationships, and brings us closer to (or further from) our hopes and dreams. Course activities focus on the development of skills that are crucial to success in a liberal arts college environment.

IS 1900. Community Engagement: From Service-Learning to Social Justice. (IC; 2.0 cr.; prereq registration with the Stevens County Ambulance Services; arrangements must be made by contacting them at 320-589-7421; fall, spring, every year) Discussion of appropriate technological advances. Historical development related to technology and its development cycle. Discussion of the ethical and social implications of technology.

IS 2001H. Honors: Traditions in Human Thought. (HUM; 2.0 cr.; prereq participation in the Honors Program or #; fall, every year) A study of a selection of significant works from history, literature, philosophy, science, and religion across continents from the earliest writings to the present day. Critical reading, writing, and discussion in an interdisciplinary context are emphasized.

IS 2011. English Language Teaching Assistant Program. (IP; 6.0-13.0 cr.; S-N only; [IS 2011]; prereq #; fall, spring, summer, every year) Students assist teachers of English in countries where English is not the primary language.

IS 2023. London Arts Tour. (1.0 cr. [max 3.0 cr.]; summer, offered periodically) A 10-day arts and culture tour of London. Admission to major museums and theatres highlights the diversity of London's arts and cultural traditions. Includes tours of the city: Buckingham Palace, Westminster, St. Paul’s Cathedral, Abbey Road, Carnaby Street, and Portobello Road. Provides tickets for a variety of events and events.
of theatrical performances: Shakespeare’s Globe Theatre, the National Theatre, and the West End. Museum entry covers: the British Museum, National Portrait Gallery, Hayward Gallery, Tate Modern, Victoria and Albert Museum, and Tate Britain.

**IS 2035. Aging in Greece: Comparative Cultural Practices and Social Policy.** (IP; 4.0 cr.; spring, offered periodically)
International service-learning course in Athens and the island of Ikaria that explores cross-cultural differences between Greece and the United States in the meaning and experience of aging, as well as in the social and institutional supports for the aging population. Focus on the role of the community and public sector in promoting optimal aging. Students spend two hours per day in the classroom and 4-6 hours per day at a nursing home.

**IS 2993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**IS 3011. English Language Teaching Assistant Program for Majors.** (IP; 6.0-13.0 cr. ; S-N only; SS [if taken for 2 or more cr]; fall, spring, offered periodically)
Students assist teachers of English in countries where English is not the primary language. Cultural and school experiences are linked to a major area of study. Students are encouraged to consult with their adviser regarding how this course might fit within their major. Assignments require students to demonstrate how the ELTAP experience connects to the content major.

**IS 3110. Rural Community Field Project: Center for Small Towns.** (SS; 1.0-6.0 cr. ; S-N only; prereq: SS [if taken for 2 or more cr]; fall, spring, offered periodically)
An educational experience in a rural learning environment that focuses on rural issues of community life, demography, culture, environment, and policy. A collaborative effort between Center for Small Towns and a public rural entity provides a structured environment in which civic engagement objectives are achieved and grounded in a practical setting. Students gain a valuable understanding about the historical social structures of rural society and witness these structures firsthand.

**IS 311H. Honors: The End of the World as We’ve Known It: The Apocalypse Then and Now.** (SS; 2.0 cr.; prereq participation in Honors Program or #; spring, offered periodically)
Exploration of the occasions and representations of apocalyptic views, focusing on the historical, political, and psychological implications. Antecedents and effects of end-of-the-world prophecies are explored through the use of popular culture (e.g. music, science fiction, other media), writings from across cultural and religious frames of reference, and various historical, political, and psychological resources.

**IS 3203H. Honors: A Cross-Section of the Enlightenment.** (HIST; 2.0 cr.; prereq participation in Honors Program or #; fall, spring, offered periodically)
A cross-section of the cultural and intellectual history of the 18th century. Figures to be studied may include Descartes, Newton, Locke, Hume, Hobbes, Rousseau, Voltaire, Lavoisier, d'Holbach, and Blake.

**IS 3204H. Honors: Ecological Health and the Sustainability of Common-Property Resources.** (ENVT; 2.0 cr.; prereq participation in Honors Program or #; spring, offered periodically)
Exploration of "sustainability" from the perspective of economics and ecology. Examples might include ocean fisheries, the rain forest, the introduction of alien species, and the global climate.

**IS 3206H. Honors: Introduction to Game Theory.** (MISR; 2.0 cr.; prereq participation in the Honors Program, high school higher algebra or #; credit will not be granted if credit has been received for Econ 3014; fall, spring, offered periodically)
Introduction to the formal theory of strategic interaction and to the intuitions behind the theory. Applications to a selection of problems in the natural and social sciences, such as biological evolution, tacit collusion in pricing, strategic behavior in international relations, and strategy in legislative voting.

**IS 3209H. Honors: Apocalypse Now? The Science and Policy of Preparing for a Catastrophe.** (ENV'T; 2.0 cr.; prereq participation in Honors Program or #; fall, spring, offered periodically)
Popular visions, policy response, and scientific underpinnings of potentially catastrophic societal problems past and present. Do we worry about the right things? How do scientists, politicians, and purveyors of popular culture assess which threats warrant attention? (two 50-min lect/disc plus multiple evening film screenings)

**IS 3211H. Honors: Republic or Empire? The American 1890s.** (HIST; 2.0 cr.; prereq participation in Honors Program or #; fall, spring, offered periodically)
The American 1890s. The dispute between Galileo and the Inquisition produced one of history’s most notorious trials, an enduring symbol of the struggle between science and religion. Study of the complicated history behind the myth by re-enacting the trial and learning about the theology, science, and cultural politics of this tumultuous period.

**IS 3215H. Honors: Sagas before the Fall: Ice Age and the end of the Icelandic free state.** (HIST; 2.0 cr.; prereq participation in Honors Program or #; fall, offered periodically)
Exploration of the varied ways writers and artists are represented in books, television, film, and other media, comparing these representations to the experiences of the indigenous people of Africa and the Americas with the people of Europe. Parallel immediate and long-term effects of these initial encounters are identified and discussed.

**IS 3216H. Honors: Evolution and Culture of Human Aggression.** (HUM; 2.0 cr.; prereq participation in Honors Program or #; fall, offered periodically)
Exploration of aggression in medieval literature and culture and theorization about the adaptiveness of aggression. Group and individual aggression expressed by humans living under current conditions is explored from a cultural and evolutionary perspective.

**IS 3217H. Honors: The Trial of Galileo.** (HIST; 2.0 cr.; prereq participation in Honors Program or #; spring, offered periodically)
The dispute between Galileo and the Inquisition produced one of history’s most notorious trials, an enduring symbol of the struggle between science and religion. Study of the complicated history behind the myth by re-enacting the trial and learning about the theology, science, and cultural politics of this tumultuous period.

**IS 3234H. Honors: Intersections of Art and Science.** (FA; 2.0 cr.; prereq participation in Honors Program or #; spring, offered periodically)
Explores the intersection of scientific discovery and aesthetic innovation, especially the ways in which scientists and artists have influenced one another’s work. Examines the ways in which these different pursuits value notions of creativity.

**IS 3235H. Honors: Politics and Film.** (HUM; 2.0 cr.; prereq participation in Honors Program or #; spring, offered periodically)
Explores age-old questions of political science and philosophy—what is justice, what does citizenship mean, what is power, how do we relate to the “other”—through the lens of film. Examines American and foreign films and a variety of filmmakers to analyze effects of different cinematic and narrative techniques on our interpretations.

**IS 3236H. Honors: Representations of Writers and Artists.** (HUM; 2.0 cr.; prereq participation in the Honors Program or #; fall, offered periodically)
An interdisciplinary approach is used in exploring the varied ways writers and artists are represented in books, television, film, and other media, comparing these representations
with the lives and experiences of contemporary working writers and artists.

**IS 3237H. Honors: The Power of Place: An Interdisciplinary Approach to Where We Live.** (ENVT; 2.0 cr.; prereq participation in the Honors Program or #; spring, offered periodically)

 Goes beyond the image and myth of Lake Wobegon in examining the past and present of West Central Minnesota. An intensely interdisciplinary focus on environmental, social, political, and economic change and how modern global forces play out in this specific setting. Community leaders and experts play an active role in lecture and discussion.

**IS 3238H. Honors: In Search of Nietzsche.** (IP; 4.0 cr.; prereq participation in Honors Program or #; fall, offered periodically)

 In this interdisciplinary course, read some books by and novels about Nietzsche in order to discover who this remarkable man was. Authors to be discussed: Nietzsche, D.H. Lawrence, Richard Wright, Milan Kundera, Nicholas Mosley, and Irvin D. Yalom.

**IS 3239H. Honors: The Anatomy of Development and the "Common Good": Sardar Sarovar Dam in Gurjurut, India.** (SS; 2.0 cr.; prereq participation in the Honors Program or #; summer, offered periodically)

 In the Global South, the unsought basis of development projects is that they represent an attempt to serve the "common good." This assumption masks a torrent of disagreement and conflict about whose common good is served and how a particular project in question (e.g., dams, irrigation, introduction of new farming techniques) "develops" the nation.

**IS 3240H. Honors: Proud Decade or Dark Age? The American 1950s.** (HIST; 2.0 cr.; prereq participation in Honors Program or #; fall, spring, offered periodically)

 Many old enough to remember the American 1950s look back on them with nostalgia. Some do not. This seminar studies several aspects of the decade: the Cold War at home and abroad, American society, literature, and popular culture. Student presentations focus on biographical research.

**IS 3241H. Honors: Worldviews.** (SCI; 4.0 cr.; prereq participation in the Honors Program or #; fall, spring, offered periodically)

 The Copernican Revolution, culminating in Newton's System of the World, and modern cosmology beginning with the work of Einstein, Hubble, Friedmann, Lemaître, and Gamow, culminating in the contemporary theory of the universe's accelerated expansion.

**IS 3242H. Honors: Two Cosmological Poets: Dante and Lucretius.** (IP; 2.0 cr.; prereq participation in the Honors Program or #; fall, offered periodically)

 Explore, compare, and contrast the cosmological poems "On the Nature of Things" (De Rerum Natura, DRN) of Titus Lucretius Carus (ca. 99-55 BCE) and "The Divine Comedy" (Commedia) of Dante Alighieri (1265-1321 CE). The two poets diverge on almost every aspect of cosmological outlook and notion of the moral life and right living.

**IS 3710. Peer Tutoring in College.** (1.0 cr. [max 3.0 cr.]; S-N only; fall, every year)

 Tutor students in selected courses.

**IS 3720. Tutoring Writing Across the Disciplines.** (1.0-2.0 cr. [max 6.0 cr.]; S-N only; prereq Engl 1601 (or 1011) or equiv, soph standing, #, coreq Engl 3005 for students in their first sem at the Writing Room; fall, spring, every year)

 Tutor student writers at the Writing Room; meet regularly with other tutors for ongoing training in peer writing tutoring.

**IS 3796. Interdisciplinary Internship in the Helping Professions.** (1.0-16.0 cr. [max 32.0 cr.]; S-N only; prereq Psy 4102, approved internship form; Psy 4101 recommended; fall, spring, summer, every year)

 One-semester educational experience providing field applications in the helping professions (social work, counseling, casework, child protection services, educational settings, human resource counseling, and the like) for the student's theoretical classroom learning experiences.

**IS 3800. Practicum in Social Sciences.** (1.0-2.0 cr. [max 4.0 cr.]; S-N only; prereq #; fall, spring, every year)

 Supervised experience of selected learning activities such as discussion group leader, lab assistant, research assistant, or other teaching-related activities.

**IS 3810. Practicum in the Humanities.** (1.0-2.0 cr. [max 4.0 cr.]; S-N only; prereq #; fall, spring, every year)

 Supervised experience of selected learning activities such as discussion group leader, test review leader, research assistant, or other teaching-related activities.

**IS 3893. Prior Learning Directed Study.** (1.0-4.0 cr. [max 10.0 cr.]; fall, spring, every year)

 Individualized learning project combining prior learning with faculty-directed new learning, awarding academic credit for both.

**IS 3896. Prior Learning Internship.** (1.0-16.0 cr. [max 32.0 cr.]; S-N only; prereq approved internship form; fall, spring, every year)

 An educational experience in a work environment providing field application for the student's theoretical classroom learning experiences. The prior learning internship, such as in social service or business settings, occurred prior to the student's matriculation. The prior learning is documented and combined with faculty-directed new learning, with credit awarded for both.

**IS 3991H. Honors Co-Curricular Independent Study.** (1.0-2.0 cr.; A-F only; prereq approved co-curricular honors independent study form; fall, spring, every year)

 Co-curricular honors credits may be earned by writing a paper that explores a co-curricular experience such as study abroad, off-campus internship, national student exchange, service-learning, or directed research. Students pursuing this option must seek pre-approval. Projects are directed and assessed by the Honors Director.

**IS 3993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)

 An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**IS 3996. Interdisciplinary Internship.** (1.0-16.0 cr. [max 32.0 cr.]; S-N only; prereq approved internship form; fall, spring, summer, every year)

 One-semester educational experience in a work environment providing field applications for the student's theoretical classroom learning experiences.

**IS 4993. Directed Study.** (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)

 An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**IS 4994H. Honors Capstone Project.** (1.0-4.0 cr. [max 8.0 cr.]; prereq approved Honors capstone project form, participation in Honors Program; fall, spring, every year)

 A substantial scholarly or creative interdisciplinary work designed by the student working cooperatively with a project adviser. Upon completion, the project is defended before a panel of faculty from different disciplines. Successful completion of the honors capstone project is one of the requirements for graduating from UMM "with honors."

**Italian (ITAL) Division of Humanities**

**ITAL 1001. Beginning Italian I.** (4.0 cr.; fall, every year)

 Introduction to Italian as it is presently spoken and written. Basic sounds, structures, and vocabulary of Italian. Understanding, reading, and writing the language and communicating in Italian about everyday situations. Relationship between culture and language.

**ITAL 1002. Beginning Italian II.** (FL; 4.0 cr.; prereq 1001 or placement or #; spring, every year)

 Continuation of 1001.

**ITAL 1104. Major Works of Italian Literature in Translation from the Middle Ages to the Present.** (HUM; 4.0 cr.; spring, offered periodically)

 Survey of Italian literature from the Middle Ages to the present. Attention given to major works of narrative, poetry, and drama of various periods. Emphasis on ground-breaking works that constituted a challenge to prevailing literary and cultural values. This course is conducted in English; all texts will be read in English translation.

**ITAL 1105. Italian Cinema.** (IP; 4.0 cr.; spring, offered periodically)

Courses listed in this catalog are current as of February 6, 2013. For up-to-date information, visit www.catalogs.umn.edu.
Study of Italian cinema from the silent era to the present, focusing on significant genres and directors, as well as on critical approaches to film studies. Taught in English; all films have English subtitles.

ITAL 1311. Modern Italy through Literature and Film. (HUM; 4.0 cr.; spring, offered periodically)
The political, social, and cultural transformations of Italy from 19th-century unification to contemporary issues of immigration and multiculturalism as reflected in literature and film. Topics include forging a national identity; Fascism, the Resistance and post-war period; the "southern question"; the "economic miracle"; current cultural issues.

ITAL 1331. The Eternal City: The Language and Culture of Rome I. (FL; 4.0 cr.; summer, offered periodically)
Beginning course for UMM study aboard in Rome, Italy. Four weeks of Italian language together with the art and literature of Rome. Emphasis on works of art, literature, and film belonging to several periods and addressing the history and character of the city. Excursions to relevant sites in and near Rome. No previous experience in Italian required.

ITAL 1801. Rome: The City in Literature and Film. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
Study of representations of the city of Rome in significant works of Italian literature and film. Topics include the rhetorical construction of national and cultural identities, the individual's relationship to fictional and lived space, the city as stage for major cultural and political preoccupations of contemporary Italy. Conducted in English.

ITAL 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ITAL 2001. Intermediate Italian I. (IP; 4.0 cr.; prereq 1002 or #; fall, spring, offered periodically)
Continued development of listening, reading, writing, and speaking skills; review of the fundamental elements of the Italian language. Emphasis on authentic cultural and literary texts appropriate to this level.

ITAL 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ITAL 3331. The Eternal City: The Language and Culture of Rome II. (IP; 4.0 cr.; prereq 1302 or equiv; summer, offered periodically)
Advanced course for UMM study abroad in Rome, Italy. Four weeks of Italian language together with the art and literature of Rome. Emphasis on works of art, literature, and film belonging to several periods and addressing the history and character of the city. Excursions to relevant sites in and near Rome.

ITAL 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

ITAL 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, summer, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Language Education Methods (LANE) Division of Education

LANE 4123. Methods of Teaching Foreign Language K-12. (4.0 cr.; A-F only; prereq admission to the SeEd or ElEd teacher education program; coreq SeEd 4102, SeEd 4103, SeEd 4104, SeEd 4105 or prereq ElEd 3202, ElEd 3212; fall, every year)
Objectives, curricula, special methods, materials, and evaluation appropriate for teaching foreign language in K-12.

Latin (LAT) Division of Humanities

LAT 1001. Beginning Latin I. (4.0 cr.; fall, every year)
Study of Latin vocabulary and structures in order to attain basic reading and writing competence; practice in oral recitations and compositions. Introduction to ancient Roman history and culture.

LAT 1002. Beginning Latin II. (FL; 4.0 cr.; prereq 1001 or placement or #; spring, every year)
Continuation of 1001.

Latin American Area Studies (LAAS) Academic Affairs

LAAS 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

LAAS 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

LAAS 3100. Contemporary Latin America. (1.0 cr. [max 8.0 cr.]; prereq LAAS major; to be repeated each sem a student is in residence; only 4 cr may apply to LAAS major; fall, spring, every year)
Opportunity for LAAS majors to read about and discuss in historical and cultural contexts the more important contemporary developments in Latin America.
LAAS 3201. Bibliographical Tools and Journals in Latin American Area Studies. 
(2.0 cr.; prereq LAAS major; fall, spring, offered periodically)
For the student new to the major. Introduction to the standard bibliographical tools and journals in Latin American area studies.

LAAS 3993. Directed Study. 
(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

LAAS 4901. Senior Capstone in Latin American Area Studies. 
(2.0-4.0 cr. ; A-F only; prereq 3201, or LAAS major; #; fall, spring, offered periodically)
A capstone experience for LAAS majors. Individual reading and development of an original research paper in consultation with the LAAS coordinator and another faculty member. A capstone experience in a different discipline that contains primarily Latin American content may be wholly or partially substituted for LAAS 4901, but requires completion of four total credits.

LAAS 4993. Directed Study. 
(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Management (MGMT) 
Division of Social Sciences 

(SS; 2.0 cr.; spring, offered periodically)
An application-based personal finance course to help students with lifetime financial planning and decision making. Focus on personal responsibility with respect to understanding financial instruments and their functions including: stocks, bonds, money markets, mutual funds, and derivatives. Also learn about savings, retirement, and social insurance vehicles including social security, Medicare, defined contribution, and defined benefit plans along with various individual retirement accounts. A way of thinking about personal finance that incorporates knowledge of current financial institutions, structures, and markets; time value of money; risk analysis; and available budgeting tools.

(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

MGMT 2101. Principles of Accounting I. 
(4.0 cr.; fall, every year)
An introductory course in accounting principles and practices. The students develop an understanding of both the conceptual and procedural framework of the accounting processes. Emphasis is placed on the preparation and communication of accounting information and the financial statements for a proprietorship.

MGMT 2102. Principles of Accounting II. 
(2.0 cr.; prereq 2101; spring, every year)
A continuation of Principles of Accounting I. Students develop an understanding of the issues unique to partnerships, corporations, and organizational financing. Cash flow statements and performance analysis are also emphasized.

MGMT 2993. Directed Study. 
(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

MGMT 3101. Financial Management. 
(SS; 4.0 cr.; prereq 2102, Econ 1111, Econ 1112, Stat 1601; fall, every year)

MGMT 3102. Financial Institutions. 
(SS; 2.0 cr.; prereq 2101, Econ 1111, Econ 1112; spring, offered periodically)
An introduction to the functioning and management of financial institutions such as: the banking industry, mutual fund industry, insurance companies, pension funds, investment banks, and venture capital firms.

MGMT 3123. Managerial Economics. 
(SS; 4.0 cr.; prereq 2101, Econ 1111, Math 1011 or Math 1021, Stat 1601 or Stat 2601 or #; no credit for students who have received credit for Econ 3201; spring, every year)
Development of the basic concepts of the microeconomic theories of consumer behavior, the firm, and market structure, in application to managerial decision-making contexts in the operation and control of business and non-profit organizations.

MGMT 3133. Managerial Accounting. 
(4.0 cr.; prereq 2102; fall, spring, offered periodically)
Managerial accounting is designed to help managers assess needed information to carry out three essential functions in an organization: planning operations, controlling activities, and making decisions. The emphasis of this course is placed on cost behaviors, various product costing methods, cost-volume-profit relationships, budgeting and control through standard costs, and other quantitative techniques used by management.

MGMT 3134. Cooperative Business Model. 
(SS; 2.0 cr.; ECON 3134; prereq Econ 1111 or #; spring, even years)
Same as Econ 3134. In the northern plains of the United States, cooperative businesses, including consumer, producer, and worker cooperatives, have made significant contributions to economic growth and development. Identify the unique economic, legal, and organizational characteristics of these firms and their role in the economy. Special attention is given to the potential role of cooperative business organizations in community development.

MGMT 3141. Business Law I. 
(SS; 2.0 cr.; prereq 2101 or #; fall, spring, offered periodically)
Law as it relates to the commercial world, including the legal environment, federal regulation, contracts, agency, sales.

MGMT 3142. Business Law II. 
(SS; 2.0 cr.; prereq 2101 or #; fall, spring, offered periodically)
Law as it relates to the commercial world, including the legal environment, commercial paper, corporations, secured transactions, bankruptcy, anti-trust law, and selected employment statutes.

MGMT 3151. Human Resources Management I. 
(E/CR; 2.0 cr.; prereq 2101 or #; spring, every year)
An introduction to the functional areas of human resource management through the use of case studies. Topics include legal issues, planning, recruitment, training, evaluation, compensation, and benefits.

MGMT 3152. Human Resources Management II. 
(HDIV; 2.0 cr.; prereq 2101 or #; fall, spring, offered periodically)
Topics in human resource management: evaluating employee performance, training, safety, labor relations, international human resource management.

MGMT 3161. Labor Management Relations I. 
(E/CR; 2.0 cr.; prereq Econ 1111 or #; fall, spring, offered periodically)
Historical development of labor relations and the legal framework governing collective bargaining. Labor relations law reform. Case studies from labor relations law.

MGMT 3162. Labor Management Relations II. 
(SS; 2.0 cr.; prereq 3161 or #; spring, offered periodically)
Issues in labor-management negotiation, grievances, wages and economic security plans, public policies toward collective bargaining. Case studies from labor arbitration.

MGMT 3171. Leadership in Organizations. 
(SS; 2.0 cr.; prereq Stat 1601 or Stat 2601 or #; spring, every year)
Leadership is the ability to influence a group of people towards a goal. Examination of leadership qualities and theories as they apply to leading an organization. Ethics, social responsibility, team work, motivation, and conflict resolution skills from the perspective of a leader. International and culturally diverse aspects of leadership and leadership development. Students have the opportunity to practice leadership skills during the course.

(SS; 4.0 cr.; prereq 2102, Stat 1601 or #; spring, offered periodically)
Basic factors affecting policy and strategy issues in marketing. Economic, legal, behavioral, environmental, competitive, and technological factors as they affect product,

MGMT 3351. Globalization: Examining India's Social and Economic Development. (IP; 4.0 cr.; =ECON 3351; prereq Econ 1111 or Econ 1112 or #; spring, offered periodically) Same as Econ 3351. Examine and study the impact of globalization on the Indian economy. Examine the growing class divide between the middle and upper middle class and the lower class. Study the problem of mass poverty in India and its various ramifications such as child labor, lack of education and basic health care, and the inherent gender bias. Examine sustainable grass roots efforts to combat some of these problems.

MGMT 3352. Emerging Markets in Asia. (IP; 4.0 cr.; prereq Econ 1111, Econ 1112, Stat 1601 or Stat 2601 or #; spring, every year) An overview of the largest and fastest-growing markets in the world, the Asian markets. Examines topics such as business strategy and organization, marketing strategies, and business-State relations in Asia. Theory is balanced with practice by including comparative studies and business case studies.

MGMT 3501. Applied Deterministic Modeling for Management Science. (M/SR; 2.0 cr.; =MATH 3501; prereq 2102, Math 1101 or Stat 1601 or Stat 2601 or #; spring, every year) Same as Math 3501. Formulations of real-world problems as Linear Programming or Integer Linear Programming models; graphical solutions of some LP-models. Linear Programming: the Simplex method, intuitive ideas behind the Simplex method. Using software to solve LP problems; interpreting optimal solutions; sensitivity analysis; duality. Network diagram representation; critical path method (CPM-PERT); transportation problem.

MGMT 3502. Applied Probabilistic Modeling for Management Science. (M/SR; 2.0 cr.; =MATH 3502; prereq 2102, Math 1101 or Stat 1601 or Stat 2601 or #; spring, every year) Same as Math 3502. Short review of probability and statistics; role of variance and a data set; discrete and continuous random variables (especially the exponential distribution and the Poisson distribution). Decision and game theory. Decision trees, types of decision criteria. Queueing models, birth-and-death processes; Markovian or Poison arrivals and exponential service times; M/M/k and M/M/8 queues; Statistical Quality Control; inventory control system.

MGMT 3513. Negotiation. (SS; 4.0 cr.; =PSY 3513; prereq 3221 or Psy 3501 or Psy/Mgmt 3701; spring, offered periodically) Same as Psy 3513. Examines the theoretical and applied aspects of negotiation. Topics include negotiation theory, strategy, skills and tactics, communication processes, global negotiation, and ethics. Use of negotiation simulations.

MGMT 3601. Transnational Enterprise. (IP; 4.0 cr.; prereq 2101, Econ 1111, Econ 1112 or #; spring, every year) Developmental and transformation of business enterprise within the global economy emerging from time and motion studies, mergers, "corporate revolution," Fordism through to multi-plant manufacturing beyond national boundaries. Includes the basic impact of structural, institutional, and organizational change upon the dynamics of the firm and industry in the contemporary hyper-competitive, technology-driven, fast-paced, global environment.

MGMT 3701. Organizational Behavior. (SS; 4.0 cr.; =PSY 3701; prereq Stat 1601 or Stat 2601, jr or sr; fall, spring, offered periodically) Same as Psy 3701. Uses the theories and research of the behavioral sciences to understand how organizations function at the individual, group, and organizational levels. Topics include stress in the workplace; group dynamics; power, leadership, and attribution theory.

MGMT 3993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

MGMT 4101. Investment and Portfolio Analysis. (4.0 cr.; prereq 2101, 2102, 3101; spring, every year) The institutional environment of investment, techniques used to price financial products, and how to design a portfolio of many assets.

MGMT 4201. The Economics of Corporate Strategy I. (2.0 cr.; prereq 3123 or Econ 3201, Math 1021 or Math 1101, or #; fall, spring, offered periodically) Setting the horizontal boundaries (e.g., which lines of business) and vertical boundaries (whether to make or buy inputs and outputs) of the firm, considered as strategic decisions. The different types of competition associated with distinct market structures.

MGMT 4202. The Economics of Corporate Strategy II. (2.0 cr.; prereq 4201; fall, spring, offered periodically) Tools for analyzing business strategies: credible strategic commitments, pricing rivalries, entry and exit, Porter's five forces framework, and the relationship between value creation and strategic market positioning.

MGMT 4301. Globalization and Business Strategy. (2.0 cr.; prereq 3601 or #; fall, spring, offered periodically) Review of the impact of increasing globalization of the corporate and economic environment; application of strategic methods to new business conditions.

MGMT 4502. Technological Change, Labor Market, and Skill Formation. (2.0 cr.; prereq 3601 or #; fall, spring, offered periodically) The change of technology in relation to the formation of skills and transformation of regional labor markets throughout the world. The intimate relationship between "skilling" and "deskilling" of labor and the transformation of technology.

MGMT 4505. International Managerial Finance. (2.0 cr.; prereq 3101 or #; spring, offered periodically) An introduction to the international dimensions of corporate financing, investment, and risk management decisions. Foreign exchange markets, international financial systems, foreign exchange rate determination, measuring/analyzing currency risk, multinational capital budgeting, cost of capital in emerging economies, international taxation policies, and transfer pricing.

MGMT 4601. Advanced Topics in Financial Economics. (2.0 cr.; prereq 3101 or #; fall, spring, offered periodically) Continuation of Mgmt 3101. Topics include dividend policy, hybrid financing, derivatives, and mergers.

MGMT 4602. Long-Term Financing. (2.0 cr.; prereq 3101 or #; fall, spring, offered periodically) Application of the fundamental financial theories acquired in Mgmt 3101 to long-term financing in corporations. The primary focus is on issuing securities to the public, financial leverage, capital structure policy, dividend policy, and leasing.

MGMT 4603. Working Capital Management. (2.0 cr.; prereq 3101 or #; fall, offered periodically) Application of the fundamental financial theories acquired in Mgmt 3101 to working capital management in corporations. The primary focus is on financial planning, cash management, credit management, and risk management.

MGMT 4896. Internship. (1.0-4.0 cr.; S-N only; prereq 2102, #; 2 cr may be applied to major or minor; fall, spring, every year) Supervised educational experience and field application relevant to student's major. Written analysis appropriate to the application is required.

MGMT 4993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Math Education Methods (MTHE) Division of Education

MTHE 4121. Methods of Teaching Mathematics in the Middle and Secondary School. (4.0 cr.; A-F only; prereq admission to the secondary teacher education program, coreq SeEd 4102, SeEd 4103, SeEd 4104, SeEd 4105; fall, every year) Objectives, curricula, special methods, materials, and evaluation appropriate for...
teaching mathematics in the middle and secondary school.

MTHE 4122. Methods of Teaching Mathematics in the Middle School. (1.0 cr.; A-F only; spring, every year) Objectives, curricula, special methods, materials, and evaluation appropriate for teaching mathematics in the middle school.

Mathematics (MATH) Division of Science and Mathematics

MATH 901. Basic Algebra. (0.0 cr. [max 4.0 cr.]; 0 cr toward graduation, 4 cr toward financial aid; fall, every year) Sets, absolute values, linear equations and inequalities, functions and graphs, arithmetic of complex numbers, quadratics, radicals, exponents and logarithms, and linear systems of equations.

MATH 1001. Survey of Math. (M/SR; 4.0 cr.; prerequisite 2 yrs high school math; spring, every year) Introductory topics in mathematics, such as number system, geometry, algebra, discrete mathematics, statistics, logic, and the history of mathematics, including applications in today's world.

MATH 1012. PreCalculus I: Functions. (4.0 cr.; prerequisite placement; no credit for students who have received credit for Math 1014; fall, spring, every year) Linear and quadratic functions, power functions with modeling; polynomial functions of higher degree with modeling; real zeros of polynomial functions; rational functions; solving equations in one variable; solving systems of equations; exponential and logarithmic functions, and the graphs of these functions.

MATH 1013. PreCalculus II: Trigonometry. (M/SR; 2.0 cr.; prerequisite placement; no credit for students who have received credit for Math 1014; fall, spring, every year) Angles and their measures; trigonometric functions; the circular functions of trigonometry; graphs of sine, cosine, tangent, cosecant, secant, and cotangent functions; algebra of trigonometric functions; inverse trigonometric functions; solving problems with trigonometry; analytic trigonometry; fundamental trig identities; proving trigonometric identities; sum and difference identities; multiple-angle identities; the Law of Sines; the Law of Cosines.

MATH 1014. Intensive Pre-Calculus. (M/SR; 4.0 cr.; prerequisite second year of high school algebra; @ fall, spring, every year) Offered online only. Linear and quadratic functions, power functions with modeling; polynomial functions of higher degree with modeling; real zeros of polynomial functions; rational functions; solving equations in one variable; solving systems of equations; exponential and logarithmic functions, and the graphs of these functions. Angles and their measures; trigonometric functions; the circular functions of trigonometry; graphs of sine, cosine, tangent, cosecant, secant, and cotangent functions; algebra of trigonometric functions; inverse trigonometric functions; solving problems with trigonometry; analytic trigonometry; fundamental trig identities; proving trigonometric identities; sum and difference identities; multiple-angle identities; the Law of Sines; the Law of Cosines.

MATH 1101. Calculus I. (M/SR; 5.0 cr.; prerequisite 1012, 1013 or placement; fall, spring, every year) Limits and continuity; the concepts, properties, and some techniques of differentiation, antiderivatives, and definite integration and their connection by the Fundamental Theorem. Partial differentiation. Some applications. Students learn the basics of a computer algebra system.

MATH 1102. Calculus II. (M/SR; 5.0 cr.; prerequisite 1101; fall, spring, every year) Techniques of integration. Further applications involving mathematical modeling and solution of simple differential equations. Taylor's Theorem. Limits of sequences. Use and theory of convergence of power series. Students use a computer algebra system.

MATH 1103. Directed Study. (1.0-5.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum. In particular, students are encouraged to take at least one credit of a directed study in problem solving in mathematics. Such courses, at different levels, are available each term.

MATH 3211. Linear Algebra. (M/SR; 4.0 cr.; prerequisite Math course above 1100 or #; fall, odd years) Matrix algebra, systems of linear equations, finite dimensional vector spaces, linear transformations, determinants, inner-product spaces, characteristic values and polynomials, eigenvalues and eigenvectors, minimal polynomials, diagonalization of matrices, related topics; applications.

MATH 2202. Mathematical Perspectives. (M/SR; 4.0 cr.; prerequisite 1101; spring, every year) Introduction to the methodology and subject matter of modern mathematics. Logic, sets, functions, relations, cardinality, and induction. Introductory number theory. Roots of complex polynomials. Other selected topics.

MATH 2211. History of Mathematics. (4.0 cr.; prerequisite Math course above 1100 or #; fall, even years) Historical development of various areas in mathematics and significant figures in mathematics from ancient to modern times.

MATH 2401. Differential Equations. (M/SR; 4.0 cr.; prerequisite 1102 or #; fall, even years) First-order and second-order differential equations with methods of solution and applications. Laplace transforms, systems of equations, series solutions, existence and uniqueness theorems, the qualitative theory of differential equations.

MATH 2501. Probability and Stochastic Processes. (M/SR; 4.0 cr.; # STAT 2501; prerequisite 1101 or #; fall, every year) Same as Stat 2501. Probability theory; set theory, axiomatic foundations, conditional probability and independence, Bayes' rule, random variables. Transformations and expectations; expected values, moments, and moment generating functions. Common families of distributions; discrete and continuous distributions. Multiple random variables; joint and marginal distributions, conditional distributions and independence, covariance and correlation, multivariate distributions. Properties of random sample and central limit theorem. Markov chains, Poisson processes, birth and death processes, and queuing theory.

MATH 2993. Directed Study. (1.0-5.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum. In particular, students are encouraged to take at least one credit of a directed study in problem solving in mathematics. Such courses, at different levels, are available each term.

MATH 3211. Geometry. (M/SR; 4.0 cr.; prerequisite Math course above 1100; fall, odd years) Synthetic approach to Euclidean and non-Euclidean geometries. Selected topics from affine, hyperbolic, spherical, projective geometries. Possible comparisons of analytic and synthetic approaches. May include other related topics or use of computer software for geometry.

MATH 3221. Analysis. (M/SR; 4.0 cr.; prerequisite 1102, 2202 or #; fall, every year) Introduction to real and complex analysis. The main topics of calculus-convergence, continuity, differentiation, integration, and series-applied and extended in advanced settings with emphasis on precise statements and rigorous proofs. Concept of metric space. Other topics and applications.

MATH 3231. Abstract Algebra I. (M/SR; 4.0 cr.; prerequisite 2111, 2202 or #; spring, every year) Systematic study of groups and rings, making use of linear algebra. Groups as codifying symmetry throughout mathematics and its applications. The Euclidean algorithm and its consequences, both for integers and polynomials. Other selected topics and applications.
MATH 3401. Operations Research. (M/SR; 4.0 cr.; prereq 1100 or higher or #; spring, every year)
Topics include, but not limited to, linear and integer linear programming formulations, sensitivity analysis and duality, network models and applications.

MATH 3411. Discrete and Combinatorial Mathematics. (M/SR; 4.0 cr.; prereq 1100 or higher or #; fall, every year)
Propositional logic; equivalence relations; recurrence equations; structures and properties of undirected and directed graphs; applications of the aforementioned topics.

MATH 3501. Applied Deterministic Modeling for Management Science. (M/SR; 2.0 cr.; =MGMT 3501; prereq 1101 or Stat 1601 or Stat 2601 or Stat 2611, Mgmt 2102 or #; spring, every year)
Same as Mgmt 3501. Formulations of real-world problems as Linear Programming or Integer Linear Programming models; graphical solutions of some LP models. Linear Programming: the Simplex method, intuitive ideas behind the Simplex method. Using software to solve LP problems; interpreting optimal solutions; sensitivity analysis; dually. Network diagram representation; critical path method (CPM-PERT); transportation problem.

MATH 3502. Applied Probabilistic Modeling for Management Science. (M/SR; 2.0 cr.; =MGMT 3502; prereq 1101 or Stat 1601 or Stat 2601 or Stat 2611, Mgmt 2102 or #; spring, every year)
Same as Mgmt 3502. Short review of probability and statistics; mean and variance of a data set; discrete and continuous random variables (especially the exponential distribution and the Poisson distribution). Decision and game theory, Decision trees, types of decision criteria. Queueing models, birth-and-death processes; Markovian and Poisson arrivals and exponential service times; M/M/k and M/M/8 queues; Statistical Quality Control; inventory control system.

MATH 3993. Directed Study. (1.0-5.0 cr.; max 25.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum. In particular, students are encouraged to take at least one credit of a directed study in problem solving in mathematics. Such courses, at different levels, are available each term.

MATH 4201. Complex Analysis. (2.0 cr.; prereq 3221 or #; fall, spring, offered periodically)
Differentiable and analytic functions of a complex variable. Contour integral theorems. Laurent expansions. Other topics optional.

MATH 4211. Topology. (2.0 cr.; prereq 2202 or #; fall, spring, offered periodically)
Selected topics from point set topology and/or algebraic topology.

MATH 4231. Abstract Algebra II. (2.0 cr.; prereq 3231 or #; fall, spring, offered periodically)
Selected topics from the theory of finite groups, Galois theory of fields, and/or the theory of rings.

MATH 4241. Number Theory. (2.0 cr.; prereq 2202 or #; fall, spring, offered periodically)
Selected topics from modular congruences, theory of primes, classical Diophantine equations, and the connections with algebraic curves.

MATH 4252. Differential Geometry. (2.0 cr.; prereq #; fall, spring, offered periodically)
Geometry of curves and surfaces. Frames, curvature, torsion, orientation, differential forms, topological properties of surfaces. The notion of differentiable manifold. Selected applications.

MATH 4253. Combinatorics. (2.0 cr.; prereq #; fall, spring, offered periodically)
Selected topics from graph theory, the theory of ordered sets, and/or enumerative combinatorics.

MATH 4401. Numerical Methods with Applications in Mathematical Modeling. (4.0 cr.; prereq 2111, 2401 or #; fall, spring, offered periodically)
Finite differences; interpolation; numerical integration; numerical solutions of differential, algebraic, and transcendental equations; continuous mathematical models.

MATH 4452. Mathematical Modeling. (4.0 cr.; prereq #; fall, spring, offered periodically)
Mathematical topics include, but are not limited to, differential and difference equations, discrete and continuous dynamical systems, predator-prey models, discrete and continuous optimization models, probabilistic models, stochastic and Poisson processes, and queuing models. Applications are drawn from different areas in the sciences and social sciences.

MATH 4901. Senior Seminar. (2.0 cr.; prereq sr; full year course begins fall sem; fall, every year)
This is a full-year course, required for all mathematics majors in their senior year. Students must attend year round and present one of the seminars.

MATH 4993. Directed Study. (1.0-5.0 cr.; max 25.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum. In particular, students are encouraged to take at least one credit of a directed study in problem solving in mathematics. Such courses, at different levels, are available each term.

MUS 1000. Concert Attendance. (0.5 cr. [max 3.5 cr.;] S-N only; prereq major or minor; fall, spring, every year)
To be taken by all music majors; involves attending at least 15 music concert offerings during the semester, both as a participant and as part of the audience.

MUS 1041. Introduction to Music. (FA; 4.0 cr.; fall, every year)
Survey emphasizing development of an intelligent understanding and appreciation of music. For non-music majors.

MUS 1042. Fundamentals of Music. (FA; 4.0 cr.; spring, odd years)
The rudiments of music including note and rhythmic reading, scales, chords, beginning chord progressions, and practical keyboard work in the piano lab.

MUS 1043. American Jazz Styles. (FA; 4.0 cr.; fall, spring, offered periodically)
Development and analysis of the New Orleans dixieland, ragtime, stride, boogie-woogie, Chicago dixieland, swing, bop, cool, funky, progressive, third-stream, free form, and fusion jazz styles. Introductory course to help non-music majors become familiar with and appreciate this art form.

MUS 1044. Class Piano for the Non-Music Major. (ART/P; 1.0 cr.; special fee required; fall, spring, every year)
Introduction to piano performance for students with no previous piano training. Students will learn basic keyboard skills including note reading, fingering, and counting. Study beginning piano technique and learn to perform elementary-level solos and ensembles.

MUS 1045. Class Guitar. (ART/P; 1.0 cr.; special fee required; fall, spring, every year)
Introduction to guitar performance for students with no previous guitar experience. Students learn basic guitar skills, study beginning guitar technique, and learn to perform music. This class is not for students who have played guitar before.

MUS 1049. Introduction to American Popular Music. (HUM; 4.0 cr.; =MUS 1801; spring, even years)
Survey of popular musical styles in America from the early 20th century to today.

MUS 1050. Accompanying. (ART/P; 1.0 cr. [max 8.0 cr.;] S-N only; prereq #; fall, spring, every year)
Students who accompany private lessons and recitalists may receive credit. Accompanying assignments are made through consultation with the piano faculty.

MUS 1061. Introduction to World Music. (IP; 4.0 cr.; =MUS 3161; non-music major enrollment only; music majors, minors should register for 3161; fall, every year)
Survey of primarily non-Western music cultures, emphasizing the development of an appreciation for the music and an understanding of its significance in its culture of origin. For non-music majors.

MUS 1070. Instrumental Chamber Ensemble. (ART/P; 1.0 cr. [max 8.0 cr.;] S-N only; prereq #; fall, spring, every year)
Performance of instrumental chamber music. Groups are formed according to the interests of students and availability of materials.

**MUS 1080. Jazz Combo.** (ART/P; 1.0 cr.; [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year)
Performance of instrumental jazz music with emphasis on improvisation.

**MUS 1081. Jazz Improvisation.** (ART/P; 2.0 cr.; prereq #: spring, offered periodically)
Introduction to the art of jazz improvisation for instrumentalists and vocalists. Topics, including practice techniques, jazz theory, jazz harmony, and improvisational techniques, are discussed through solo analysis, transcriptions, listening assignments, live performances, and instructor demonstration.

**MUS 1090. Vocal Chamber Ensemble.** (ART/P; 1.0 cr.; [max 8.0 cr.]; S-N only; prereq #: fall, spring, every year)
Performance of vocal ensemble music especially written for smaller groups.

**MUS 1101. Core Studies I: Music Theory I.** (M/SR; 4.0 cr.; prereq 1101, major or minor or #: concurrent enrollment in piano class/lessons until piano proficiency is passed for majors and minors; fall, every year)
First course in a series of four. Basic harmonic techniques, initial analysis of scores, and introduction to four-part writing. Must have adequate skills in grand staff music reading at the start of the course.

**MUS 1102. Core Studies I: Music Theory II.** (M/SR; 4.0 cr.; prereq 1101, major or minor or #: concurrent enrollment in piano class/lessons until piano proficiency is passed for majors and minors; spring, every year)
Harmonic progression and modulation, seventh chords, secondary dominants and sevenths, analysis of scores with attention to two- and three-part forms.

**MUS 1111. Functional Keyboard for the Music Major I.** (ART/P; 1.0 cr.; prereq coreq 1101, #: special fee required; fall, every year)
Beginning instruction for music majors and minors whose principal performing medium is keyboard; includes sight reading, technique, and transcription.

**MUS 1112. Functional Keyboard for the Music Major II.** (ART/P; 1.0 cr.; prereq coreq 1111, coreq 1102, #: special fee required; spring, every year)
Continued beginning instruction begun in MUS 1111 for music majors and minors whose principal performing medium is voice or limited keyboard instrument; includes sight reading, technique, harmonic vocabulary, and music literature.

**MUS 1200. Individual Performance Studies: Piano.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in piano is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1201. Individual Performance Studies: Piano Accompanying.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in piano accompanying is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1202. Individual Performance Study: Organ.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in organ is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1203. Individual Performance Study: Harpsichord.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in harpsichord is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1204. Individual Performance Study: Voice.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in voice is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1205. Individual Performance Study: Violin.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in violin is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1206. Individual Performance Study: Viola.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in viola is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1207. Individual Performance Study: Cello.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in cello is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1208. Individual Performance Study: Double Bass.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in double bass is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1209. Individual Performance Study: Flute.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in flute is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

**MUS 1210. Individual Performance Study: Oboe.** (ART/P; 1.0 cr.; [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year)
Private instruction in oboe is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area.
continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1211. Individual Performance Study: Clarinet. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in clarinet is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1212. Individual Performance Study: Saxophone. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in saxophone is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1213. Individual Performance Study: Bassoon. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in bassoon is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1214. Individual Performance Study: Trumpet. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in trumpet is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1215. Individual Performance Study: French Horn. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in french horn is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1216. Individual Performance Study: Trombone. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in trombone is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1217. Individual Performance Study: Baritone. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in baritone is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1218. Individual Performance Study: Tuba. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in tuba is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1219. Individual Performance Study: Percussion. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in percussion is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1220. Individual Performance Study: Recorder. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in recorder is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1221. Individual Performance Study: Guitar. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in guitar is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1222. Individual Performance Study: Electric Bass. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in electric bass is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1223. Individual Performance Studies: Composition. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #: special fee required; fall, spring, every year) Private instruction in composition is open to all students. It is recommended that music majors fulfill their requirement of 7 credits in successive enrollments in order to maintain continuous emphasis in the major performance area. All music majors and other students who anticipate applying for the jury exam should enroll under the A-F grading only. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 1300. UMM Symphonic Winds. (ART/P; 1.0 cr. [max 8.0 cr.]; S-N only; fall, spring, every year) A select ensemble of wind and percussion instrumentation which performs traditional and contemporary literature of the highest quality.

MUS 1301. Chamber Winds. (ART/P; 1.0 cr. [max 8.0 cr.]; S-N only; prereq #: fall, spring, every year) A select group that promotes the advancement of wind music of artistic and historical significance through one-on-a-part performances in a directed chamber setting.

MUS 1310. University Choir. (ART/P; 1.0 cr. [max 8.0 cr.]; S-N only; fall, spring, every year)
Preparation of choral works for at least one public concert each semester and other special events. Emphasis on basic choral singing techniques.

MUS 1320. Concert Choir. (ART/P; 1.0 cr.; [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year) Preparation of choral works from all major periods of music literature with emphasis on concert performance. Several public concerts and appearances scheduled each semester in addition to a spring concert tour.

MUS 1321. Chamber Choir. (ART/P; 1.0 cr.; [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year) Directed preparation of works composed specifically for small chamber choir and ensembles. Works from all major periods of music literature, with emphasis on stylistic performance. Several public concerts and appearances scheduled each semester.

MUS 1330. Jazz Ensemble. (ART/P; 1.0 cr.; [max 8.0 cr.]; S-N only; fall, spring, every year) Rehearsals and concerts cover the literature for this medium.

MUS 1331. Brass Ensemble. (ART/P; 1.0 cr.; [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year) A small directed ensemble for brass (and occasionally percussion) players, performing standard brass literature in various styles and from all historical periods.

MUS 1340. Orchestra. (ART/P; 1.0 cr. [max 8.0 cr.]; S-N only; fall, spring, every year) The study and preparation of standard orchestral works for performance at several public concerts and appearances each semester in addition to a concert tour. The study of basic orchestral procedure.

MUS 1360. Concert Choir Tour. (0.5 cr. [max 2.0 cr.]; S-N only; prereq coreq 1320; #; a program fee is attached to this course to cover the expenses of the concert tour; spring, every year) Participation in the spring concert tours undertaken by the UMM Concert Choir. A program fee is attached to this course to cover the expenses of the concert tour.

MUS 1370. Chamber Orchestra. (ART/P; 1.0 cr. [max 8.0 cr.]; S-N only; fall, spring, every year) The study and preparation of standard string orchestral works for performance at several public concerts and appearances each semester. Wind and percussion players need special permission to enroll. The study of basic orchestral procedure.

MUS 1401. English, Italian, German, and French Diction for Singers. (ART/P; 1.0 cr.; A-F or Audit; spring, even years) The sounds and symbols of the International Phonetic Alphabet, rules for correct English, Italian, German, and French lyric diction. Transactions of German Lieder, French Melodie, Italian Arias, and English Songs into International Phonetic Alphabet. German, French, Italian, and English songs performed in class for critique.

MUS 1411. Vocal Performance Workshop. (ART/P; 1.0 cr.; prereq #: spring, offered periodically) Practical introduction to vocal performance. Students become familiar with a number of operas and musical comedies and perform selections emphasizing ensemble work.

MUS 1801. Introduction to American Popular Music. (IC; 4.0 cr.; [MUS 1049]; prerequisite: new college student in their first semester of enrollment at UMM; fall, offered periodically) Survey of popular musical styles in America from the early 20th century to today. An emphasis on classroom discussion and activities, and written assignments designed to encourage critical analysis of American popular music and its social contexts.

MUS 2101. Core Studies II: Music Theory III. (HUM; 4.0 cr.; prereq 1102, major or minor or #: concurrent enrollment in piano class/lessons until piano proficiency is passed for majors and minors; fall, every year) Chromatic harmony of the Classical Period; borrowed chords, Neapolitan and augmented sixths; harmonic and formal analysis of scores including variation, sonata, and rondo forms.

MUS 2102. Core Studies II: Music Theory IV. (HUM; 4.0 cr.; prereq 2101, major or minor or #: concurrent enrollment in piano class/lessons until piano proficiency is passed for majors and minors; spring, every year) Extended chromatic harmony of the Romantic and later eras—ninth, eleventh, and thirteenth chords; altered dominants and chromatic mediant; analysis of scores including nonfunctional harmony; and twelve-tone techniques.

MUS 2111. Functional Keyboard for the Music Major III. (ART/P; 1.0 cr.; prereq 1112, coreq 2101; #; special fee required; fall, every year) Elementary to early intermediate instruction for music majors and minors whose principal performing medium is voice or non-keyboard instrument; continued skill development begun in MUS 1112: introduction of easy solo and ensemble literature.

MUS 2112. Functional Keyboard for the Music Major IV. (ART/P; 1.0 cr.; prereq 2111, coreq 2102; #; special fee required; spring, every year) Intermediate instruction for music majors and minors whose principal performing medium is voice or non-keyboard instrument; continued skill development begun in MUS 2111; introduction of intermediate solo and ensemble literature.

MUS 2301. Instrumental Techniques--Woodwind. (1.0 cr.; prereq major or minor or #: fall, offered periodically) Practical study to develop elementary skills as well as a basic teaching knowledge and understanding of performance problems of the woodwind instruments.

MUS 2302. Instrumental Techniques--Brass. (1.0 cr.; prereq major or minor or #: spring, offered periodically) Practical study to develop elementary skills as well as a basic teaching knowledge and understanding of performance problems of the brass instruments.

MUS 2303. Instrumental Techniques--Strings. (1.0 cr.; prereq major or minor or #: fall, offered periodically) Practical study to develop elementary skills as well as a basic teaching knowledge and understanding of performance problems of the string instruments.

MUS 2304. Vocal Techniques. (1.0 cr.; prereq major or minor or #: spring, odd years) Practical study to develop elementary skills as well as a basic teaching knowledge and understanding of performance problems of the voice.

MUS 2305. Instrumental Techniques--Percussion. (1.0 cr.; prereq major or minor or #: spring, offered periodically) Practical study to develop elementary skills as well as a basic teaching knowledge and understanding of performance problems of the percussion instruments.

MUS 3051. Piano Pedagogy I. (ART/P; 2.0 cr.; prereq 1200 or #: fall, even years) This course is a study, demonstration, and discussion about the various elements of piano teaching methods, techniques, and materials for elementary and early intermediate levels. This includes analysis of various piano courses and piano literature, discussion of technical regimes, ideas for private and group lessons, and planning for the practical business aspect of teaching. Recommended for piano majors.

MUS 3052. Piano Pedagogy II. (ART/P; 2.0 cr.; prereq 1200 or #: fall, odd years) This course covers much intermediate literature from each of the four major periods of music with practical ideas to put into immediate use by current teachers. Piano literature to motivate and retain students as well as the study of performance practices as they relate to each musical style are emphasized.

MUS 3061. Guitar Pedagogy. (ART/P; 2.0 cr.; prereq 1221 or #: fall, spring, every year) Discussions and readings on guitar pedagogy, private and group lessons, instructing young students, practice methods and business issues associated with self-employment in teaching music. Instruction of beginners in a one-on-one situation and classroom presentation of lessons.

MUS 3101. Core Studies III: Medieval, Renaissance, and Baroque Music. (HIST; 4.0 cr.; prereq 1102, major or minor or #: fall, odd years) Historical development of Western music and representative literature of the various periods and styles.

MUS 3102. Core Studies III: Classical, Romantic, and 20th-Century Music. (FA; 4.0 cr.; prereq 1102, major or minor or #: spring, odd years) Historical development of Western music and representative literature of the various periods and styles.
MUS 3161. Introduction to World Music. (IP; 4.0 cr.; MUS 1061; prereq major or minor; non-music majors or minors should register for 1061; fall, every year) Survey of primarily non-Western music cultures, emphasizing the development of an appreciation for the music and an understanding of its significance in its culture of origin. For music majors.

MUS 3200. Advanced Individual Performance Study: Piano. (ART/P; 1.0 cr.; fall, spring, every year) Private instruction in piano for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3201. Advanced Individual Performance Study: Piano Accompanying. (ART/P; 1.0 cr.; fall, spring, every year) Private instruction in piano accompanying for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3202. Advanced Individual Performance Study: Organ. (ART/P; 1.0 cr.; fall, spring, every year) Private instruction in organ for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3203. Advanced Individual Performance Study: Harpsichord. (ART/P; 1.0 cr.; fall, spring, every year) Private instruction in harpsichord for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for unexcused absences from scheduled lessons.

MUS 3204. Advanced Individual Performance Study: Voice. (ART/P; 1.0 cr.; fall, spring, every year) Private instruction in voice for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3205. Advanced Individual Performance Study: Violin. (ART/P; 1.0 cr.; fall, spring, every year) Private instruction in violin for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3206. Advanced Individual Performance Study: Viola. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in viola for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3207. Advanced Individual Performance Study: Cello. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in cello for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3208. Advanced Individual Performance Study: Double Bass. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in double bass for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3209. Advanced Individual Performance Study: Flute. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in flute for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3210. Advanced Individual Performance Study: Oboe. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in oboe for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3211. Advanced Individual Performance Study: Clarinet. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in clarinet for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3212. Advanced Individual Performance Study: Saxophone. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in saxophone for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3213. Advanced Individual Performance Study: Bassoon. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in bassoon for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3214. Advanced Individual Performance Study: Trumpet. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in trumpet for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3215. Advanced Individual Performance Study: French Horn. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in French Horn for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3216. Advanced Individual Performance Study: Trombone. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in Trombone for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3217. Advanced Individual Performance Study: Baritone. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in Baritone for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3218. Advanced Individual Performance Study: Tuba. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in Tuba for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3219. Advanced Individual Performance Study: Percussion. (ART/P; 1.0 cr.; special fee required; fall, spring, every year) Private instruction in Percussion for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.
MUS 3220. Advanced Individual Performance Study: Recorder. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #; special fee required; fall, spring, every year)
Private instruction in recorder for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3221. Advanced Individual Performance Study: Guitar. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #; special fee required; fall, spring, every year)
Private instruction in guitar for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3222. Advanced Individual Performance Study: Electric Bass. (ART/P; 1.0 cr. [max 8.0 cr.]; prereq #; special fee required; fall, spring, every year)
Private instruction in electric bass for music students at an advanced level of performance. A jury examination is required for advanced performance study. Note: Applied music instructors are not expected to make up sessions for absences from scheduled lessons.

MUS 3311. Conducting Techniques. (2.0 cr.; prereq major or minor or #; fall, every year)
Development of basic ensemble conducting skills.

MUS 3321. Instrumental Conducting and Materials. (2.0 cr.; prereq 3311, major or minor or #; spring, every year)
Specialization of instrumental conducting and a survey of ensemble materials for various levels of ability and maturity.

MUS 3331. Choral Conducting and Materials. (2.0 cr.; prereq 3311, major or minor or #; spring, every year)
Specialization of choral conducting and a survey of ensemble materials for various levels of ability and maturity.

MUS 3351. Instrumental Arranging. (ART/P; 2.0 cr.; A-F only; prereq 1102 or #; spring, offered periodically)
Theoretical study of orchestral and band instruments and special problems of scoring and arranging for small and large instrumental ensembles.

MUS 3352. Choral Arranging. (ART/P; 2.0 cr.; A-F only; prereq 1102 or #; spring, offered periodically)
Practical study of arranging for vocal ensembles and for vocal ensembles with instruments; exercises dealing with special problems and limitations of different age and ability groups.

MUS 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

MUS 4101. Form and Analysis. (4.0 cr.; prereq 2102, major or minor or #; fall, every year)
Analysis of musical forms, including harmonic and melodic structure of the phrase, the binary principle, the ternary principle, sonata allegro, rondo, and later alterations of the forms.

MUS 4102. Counterpoint. (FA; 4.0 cr.; prereq 2102; fall, odd years)
Contrapuntal techniques of the 18th century with references to earlier 16th century species counterpoint.

MUS 4103. Seminar: Topics in Music History. (HIST; 4.0 cr.; prereq 1102, major or minor or #; spring, odd years)
A small, discussion-oriented seminar emphasizing a multi-faceted approach to an advanced musical topic. Topics vary each semester the course is offered and are determined by the instructor. Student work culminates in a semester-long research project and presentation.

MUS 4110. Seminar: Advanced Music Theory and Analysis. (FA; 4.0 cr. [max 8.0 cr.]; prereq 2102, major or minor or #; fall, odd years)
A discussion-oriented seminar on an advanced aspect or aspects of music theory and analysis. Repertoire and techniques vary each semester the course is offered and are determined by the instructor. Student work culminates in a semester-long research project and presentation.

MUS 4800. Senior Project and Portfolio. (1.0 cr.; S-N only; prereq major, #; fall, spring, every year)
Culminating activity that allows a graduating student to demonstrate competence as a musician. Projects may take the form of a solo recital, lecture-recital, research paper, chamber music recital, or other major study. Project should be determined in the student’s junior year and approved by the music faculty. Majors taking Mus 3200 through 3223 normally satisfy this requirement with a senior recital.

Objective, curricula, special methods, materials, and evaluation appropriate for teaching music in K-12.

Natural Science (NSCI)
Division of Science and Mathematics

NSCI 1051. The State of the Planet. (ENVT; 4.0 cr.; spring, offered periodically)
An investigation of the present physical state of the soil, water, and atmosphere of the earth and how these important systems are changing. Soil generation and erosion, desertification, the hydrologic cycle, global climate change, ozone depletion.

NSCI 1061. Salmon in Endangered Ecosystems. (ENVT; 4.0 cr.; includes an intensive 2.5 week field component; summer, offered periodically)
The natural history of salmon and the rivers they inhabit. Examination of how practices such as timber harvest, grazing of domestic livestock, and construction of hydropower dams have impacted river ecosystems and have contributed to the historic decline of salmon populations in the Pacific Northwest. There is an intensive field component to this course (about 2.5 weeks) in addition to in-class preparation and introduction of relevant concepts and background material.

NSCI 2061. Arctic Field Ecology and Geology. (ENVT; 4.0 cr.; summer, offered periodically)
Interdisciplinary study of the ecological systems and geologic processes of arctic and alpine environments, including discussion of the human ecology of the arctic and the response of biological and physical systems to global climate change. Taught in northern Sweden.

NSCI 2102. Field Experience in Natural History: The Italian Alps. (SCI; 4.0 cr.; summer, offered periodically)
Study of the geology, soils, vegetation, and glaciers of the Italian Alps. Understanding the geologic history, paleozoic evolution and extinction, mountain building, climate change; the “iceman” and early human habitation of the region; influence of the natural setting on humans and environmental problems associated with human development.

NSCI 3100. Scientific Biography and Autobiography. (2.0 cr. [max 4.0 cr.]; prereq #; fall, spring, offered periodically)
The life, work, and times of eminent scientists through biography and autobiography.

NSCI 3201. Relativity and Cosmology. (SCI; 4.0 cr.; prereq Math 1102, Phys 1102 or #; fall, spring, offered periodically)
PHIL 1101. Introduction to Philosophy.  
(HUM; 4.0 cr.; =PHIL 1801; fall, spring, offered periodically)  
An introduction to fundamental philosophical problems in areas such as metaphysics (what exists?), epistemology (what can we know? and how can we know it?), and ethics (what actions are moral and immoral? and what is the good life?), with an emphasis on developing the reading, writing, and analytical skills required for philosophical investigation.

PHIL 1801. THINK: An Introduction to Philosophy.  
(IC; 4.0 cr.; =PHIL 1101; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)  
How should we live our lives? What happens after death? What is the relationship between the mind and body? Does God exist? Why do bad things happen to good people? Examine classical works in philosophy that address these big questions about human nature and its place in the universe. Authors include: Plato, Aristotle, Epicetus, Lucretius, Sextus Empiricus, Descartes, and Hume. Work on the development of philosophical writing, reading, and speaking skills.

PHIL 1802. Philosophy and Pop Culture.  
(IC; 4.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)  
An introduction to traditional issues in philosophy through the lens of characters presented in various pop cultural media.

(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)  
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PHIL 2101. Introduction to Symbolic Logic.  
(M/SR; 4.0 cr.; fall, every year)  
An introduction to formal or deductive logic, including basic concepts of logical argumentation; Aristotelian logic; and symbolic translations, truth tables, and theory of deduction. Samples from political speeches, philosophical essays as well as original LSAT questions are analyzed.

PHIL 2111. Introductory Ethics.  
(HUM; 4.0 cr.; spring, every year)  
An introduction to philosophical accounts of what makes right acts right and wrong acts wrong, issues involving the concept of goodness, and arguments or debates about moral responsibility.

PHIL 2112. Professional Ethics.  
(E/CR; 4.0 cr.; fall, every year)  
A critical examination of moral issues that arise in a person's professional life. Possible topics include affirmative action, autonomy in the workplace, ethical issues in advertising, corporate responsibility, coercive wage offers, distributive justice, and sexual harassment. Issues concerning race, gender, and women are included in selected modules.

PHIL 2113. International and Biomedical Ethics.  
(HUM; 4.0 cr.; spring, offered periodically)  
A general survey of topics in international and biomedical ethics. Topics may include: nuclear deterrence, humanitarian intervention, just war theory, famine relief, global justice, abortion, euthanasia, doctor-patient relationships, clinical trials, animal experimentation, and genetic engineering.

PHIL 2114. Environmental Ethics.  
(ENVT; 4.0 cr.; spring, odd years)  
Survey of fundamental theoretical debates in environmental ethics. General moral approaches are canvassed, as are the major positions in environmental ethics: anthropocentrism, sentientism, biocentric individualism, holism. Specific topics include: speciesism, the environmentalism-animal liberation debate, and the predation problem.

PHIL 2121. Philosophy of Religion.  
(HUM; 4.0 cr.; spring, offered periodically)  
A selection of main philosophical issues concerning religion such as the notion of a divinity, the attempts to prove or refute the existence of a divine being, the relationship between faith and reason, the link between religion and morality, the knowledge of a divinity.

PHIL 2141. Analytic Feminism.  
(HUM; 4.0 cr.; spring, offered periodically)  
Applies an analytical approach to issues discussed in feminist writings. A mixture of lecture and discussion. Requirements include essay exams, papers, attendance, service-learning projects with related reflective journals, and class participation.

PHIL 2151. Philosophy of Mind.  
(HUM; 4.0 cr.; fall, spring, offered periodically)  
An introduction to several problems in the philosophy of mind, such as the mind/body problem, consciousness, and psychological explanation.

PHIL 2161. Philosophy and Film.  
(HUM; 4.0 cr.; spring, every year)  
Addresses some traditional aesthetic questions about the status of film as well as examining film to be a form of philosophy. Also, the role of film as social commentary is discussed.

PHIL 2993. Directed Study.  
(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)  
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PHIL 3101. Metaphysics.  
(HUM; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; spring, odd years)  
Explores fundamental metaphysical issues such as the nature of reality, the notion of personal identity, the relationship between language, thought, minds, and the world. Philosophical works of both classic and contemporary philosophers such as Plato, Aristotle, Quine, Putnam, and Kripke are discussed.

PHIL 3112. Free Will.  
(HUM; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; spring, offered periodically)  
Explores ancient and contemporary debates surrounding the nature of free will, its plausibility given prevailing theories of physics and mind, and its value. Possible topics include the relevance of free will to autonomy, moral responsibility, and living meaningfully.

PHIL 3121. Political Philosophy.  
(SS; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; fall, even years)  
Explores fundamental issues in political philosophy (e.g., political authority; distributive justice; nature, origin, and justification of the state; natural and civil rights) by, among other things, an examination of the works of philosophers such as Plato, Hobbes, Mill, and Rawls.

PHIL 3131. Philosophy of Law.  
(SS; 4.0 cr.; spring, odd years)  
Critical examination of theoretical and practical normative issues in the philosophy of law, especially questions regarding the justification of punishment.

PHIL 3141. The Theory of Knowledge.  
(HUM; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; fall, even years)  
Explores historical and contemporary views on the limits, justification, and nature of human knowledge. Topics include experiential versus a priori knowledge, the nature of belief, skepticism, and different theories of justification.

PHIL 3151. History of Ancient Philosophy.  
(HIST; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; fall, even years)  
Explores the views of philosophers such as Plato, Aristotle, Epicurus, and the Stoics. Possible topics include ancient views on the nature and possibility of knowledge, the relationship of the soul to the body, and what the good life is for a human being.

(IP; 4.0 cr.; =HIST 3162); prereq %; summer, offered periodically)  
Same as Hist 3162. Study of the philosophy and history of the Scottish Enlightenment. Focus on its original setting through analysis and discussion of primary texts and scholarly interpretations, guest lectures, and small-group discussions with recognized experts in the study of the Scottish Enlightenment. Includes visits to historically significant cities and sites.

PHIL 3171. History of Modern Philosophy.  
(HIST; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; spring, odd years)  
Explores views of philosophers such as Descartes, Leibniz, Berkeley, Hume, and Kant. Possible topics include the relationship of the mind to the body, and whether and how it is possible to have knowledge of the external world.

PHIL 3993. Directed Study.  
(1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)  
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.
PHIL 4000. History of Philosophy Seminar. (HIST; 4.0 cr.; max 6.0 cr.; prereq 1101 or 2101 or 2111 or #; fall, every year) Intensive investigation of a particular philosophical problem, area, issue, or theory in moral philosophy. Topics vary.

PHIL 4002. Existentialism. (HIST; 4.0 cr.; prereq any 1xxx or 2xxx or #; fall, spring, offered periodically) Examination of some prominent thinkers often classified as "existentialists": Kierkegaard, Dostoevsky, Nietzsche, Sartre, and Camus. Topics include what human freedom is, what makes a life authentic (or inauthentic), what role passion and choice should play in acquiring our beliefs and values, and what difference (if any) God's existence or non-existence makes on the significance of our lives.

PHIL 4100. Moral Issues and Theories. (HUM; 4.0 cr.; max 8.0 cr.; prereq 2111 or #; fall, every year) Intensive investigation of a particular problem, area, issue, or theory in moral philosophy. Possible topics include moral responsibility, autonomy, weakness of will, and self-deception. Topics vary.

PHIL 4111. Ethical Theory. (HUM; 4.0 cr.; prereq 2111 or #; spring, odd years) This course in metaethics focuses on the nature of moral obligation. Topics include: Can moral obligations change with the passage of time? Are genuine moral dilemmas possible? Does "ought" imply "can"? Is moral obligation overriding? Is there a genuine distinction between "subjective" and "objective" moral obligation?

PHIL 4121. Philosophy of Language. (HUM; 4.0 cr.; prereq 2101 or #; spring, even years) Traditional and contemporary discussions of philosophical problems such as the nature of language, its relationships to the world, to human thought, and to truth; the nature of logical reasoning; metalogical problems. Readings from philosophers such as Frege, Russell, Quine, Putnam, Goodman, Wittgenstein, and Kripke.

PHIL 4130. Contemporary Issues in Philosophy. (HUM; 4.0 cr.; max 8.0 cr.; prereq 1101 or 2101 or 2111 or #; fall, odd years) Exposure to, and critical examination of, philosophical issues of special contemporary interest. Topics may include the nature of analytic philosophy and its relationship to other philosophical traditions such as continental or feminist philosophy, the debate on realism and anti-realism, the notion of objectivity.

PHIL 4131. Personal Identity, Proper Names, and Essences. (HUM; 4.0 cr.; prereq 1101 or 2101 or 2111 or #; fall, spring, offered periodically) A seminar primarily devoted to the discussion of readings, i.e., Naming and Necessity by Saul Kripke and Reasons and Persons by Darek Parfit. Questions such as: How do proper names function? Are there essential features of persons or objects? What makes each of us the same particular individual over time?

PHIL 4901. Senior Philosophical Defense. (2.0 cr.; A-F only; prereq phil major; fall, spring, every year) Writing and defending a senior philosophical thesis is the culminating experience for UMM philosophy majors. Majors develop a piece of their philosophical writing, producing multiple drafts in response to comments from a variety of philosophical viewpoints, and then orally defend their thesis.

PHIL 4993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Physics (PHYS) Division of Science and Mathematics

PHYS 1005. Journal Club. (1.0 cr. max 4.0 cr.; S-N only; fall, every year) Students learn about a wide variety of current topics in physics by reading and discussing recent journal articles.

PHYS 1052. The Solar System. (SCI-L; 5.0 cr.; no cr for students who have received cr for Phys 1051; fall, every year) History of astronomy; motions of celestial objects; gravity and electromagnetic radiation; the Earth and Moon; the planets and their moons; meteors and asteroids; the Sun; telescopes and other astronomical instruments. Stars and constellations of the fall sky. Night viewing sessions required. (4 hrs lect, 2 hrs lab)

PHYS 1053. Introduction to Stars, Galaxies, and Cosmology. (SCI; 4.0 cr.; spring, every year) Gravitaly and electromagnetic radiation; nuclear physics; stellar properties; stellar evolution; galaxies; quasars; and cosmology. Stars and constellations of the winter sky. Night viewing sessions required. (4 hrs lect)

PHYS 1063. Physics of Weather. (ENVT; 4.0 cr.; fall, every year) Structure and dynamics of the atmosphere, global energy balance, various atmospheric phenomena from the global scale to the local scale including global wind systems, cyclones, fronts and air masses, thunderstorms, tornadoes, past and present climate, weather forecasting, problems concerning the interaction between civilization and the atmosphere. Some observation and field work required.

PHYS 1064. High Altitude Ballooning: An Exploration of Near Space. (IC; 2.0 cr.; A-F only; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) A hands-on study of atmospheric and experimental physics. Laboratory experience with microcontrollers and electronics are developed and used to design and build a mini-spacecraft. High-altitude balloons carry the spacecraft into near-space, up to an altitude of about 90,000 feet. The launch and recovery are required class activities tentatively scheduled for a Saturday about two thirds of the way through the semester. The remainder of the semester involves data analysis from the balloon mission.

PHYS 1091. Principles of Physics I. (SCI-L; 5.0 cr.; prereq high school higher algebra; fall, every year) Introduction to physics without the use of calculus. Vectors, kinematics, Newton's laws of motion, work and energy, momentum, torque, fluids, thermal physics, laws of thermodynamics, oscillations and waves. (4 hrs lect, 2 hrs lab)

PHYS 1092. Principles of Physics II. (SCI-L; 5.0 cr.; prereq 1091; spring, every year) Coulomb's law, electric fields, electric potential, capacitance, electric current, resistance, DC circuits, magnetism, induction, reflection and refraction of light, mirrors and lenses, interference and diffraction, optical instruments, radioactivity (4 hrs lect, 2 hrs lab)

PHYS 1101. General Physics I. (SCI-L; 5.0 cr.; prereq Math 1101 or #; spring, every year) Vectors, kinematics, laws of motion, circular motion, work-energy theorem, conservation principles, rotational motion, gravitation, simple harmonic oscillations, wave phenomena, fluid mechanics, thermal properties of matter, kinetic theory, laws of thermodynamics. (4 hrs lect and rec, 2 hrs lab)

PHYS 1102. General Physics II. (SCI-L; 5.0 cr.; prereq 1101, Math 1102 or #; fall, every year) Coulomb's law, electric field, Gauss's law, electric potential, capacitance, dielectrics, current, resistance, circuits, magnetic field, Ampere's law, inductance, Faraday's law, AC circuits, Maxwell's equations, electromagnetic waves, nature of light, reflection, refraction, optical instruments, interference, diffraction. (4 hrs lect and rec, 2 hrs lab)

PHYS 1801. Energy Science. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) A scientific and quantitative look at the production and consumption of energy. Examination of the scientific foundations of numerous sources of energy and evaluation of the potential for each to satisfy the world's appetite for energy.

PHYS 1993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PHYS 2101. Modern Physics. (SCI-L; 4.0 cr.; prereq 1102, Math 2401 or #; spring, every year) Special relativity, quantum nature of matter and radiation, Bohr-Sommerfeld atom, atomic spectra, uncertainty principle, Schrodinger equation, hydrogen atom, electron spin, Pauli
PHYS 3151. Solid State Physics. (2.0 cr.; prereq 2101, Math 2101; fall, odd years)
An introduction to crystal lattices, Bravais lattices, electronic band structure in metals and semi-metals, cohesive energy of solids, phonon structure, magnetic properties.

PHYS 3152. Particle and Nuclear Physics. (2.0 cr.; prereq 2101, Math 2101; spring, odd years)
Leptons, baryons, quarks, the weak interaction, the strong interaction, the Standard Model, Feynman diagrams, nuclear stability, the shell model, decay modes, nuclear reactions.

PHYS 3153. Cosmology. (2.0 cr.; prereq 2101; spring, odd years)
The geometry of the universe, cosmological models, observational parameters, the age of the universe, dark matter, the cosmic microwave background, nucleosynthesis, inflation, dark energy.

PHYS 3401. Experimental Physics. (SCI-L; 4.0 cr.; prereq 2101; fall, even years)
An introduction to modern experimental methods. (3 hrs lect, 3 hrs lab)

PHYS 3501. Statistical Physics. (SCI; 4.0 cr.; prereq 2101; spring, even years)
Probability distributions, statistical ensembles, statistical thermodynamics, ideal gases, quantum statistics, kinetic theory of transport phenomena. (4 hrs lect)

PHYS 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

POL 1811. War and Terrorism. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically)
An in-depth look into war and terrorism from 1914 to the present. Why do nations go to war? Why do people resort to terrorism? How do we prevent war/terrorism and preserve peace? Grapple with these questions and by the end of the term, acquire a rich, sophisticated understanding of war/terrorism and independent, critical thinking skills on international conflicts as a whole.

POL 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

POL 2001. Political Science Research Methods. (SS; 4.0 cr.; prereq any 1xxx-level UMM Pol course, major or minor or ; fall, every year)
Students conceive and develop research questions and hypotheses; collect and critically review published research on their topic; analyze empirical evidence using statistical software; and write clearly, forcefully, and logically about their research. Examination of the philosophy and critiques of social-sciences methods.

POL 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

POL 3201. Legislative Process. (SS; 4.0 cr.; prereq 1201 or ; Stat 1601 or Stat 2601 recommended; fall, odd years)
The internal organization of Congress and state legislatures, with emphasis on how rules
and organizational changes affect the policy process. Topics include the evolution of the modern Congress and state legislatures, the committee system, the role of party leadership, and competing theories of congressional organization and behavior.

POL 3211. The American Presidency. (SS; 4.0 cr.; prereq 1201 or #; Stat 1601 or Stat 2601 recommended; fall, even years) Traces the development of the American presidency over time. Major theories of presidential behavior and success are examined, as well as the literature on presidential popularity and executive/congressional relations.

POL 3233. Civil Liberties and American Politics. (E/CR; 4.0 cr.; prereq 1201; spring, even years) Overview of the contested history of civil liberties in the United States. Topics include a discussion of the role of civil liberties in American political culture and the theoretical foundations of civil liberties as a concept. Supposed Supreme Court interpretations of the Bill of Rights and when and why its opinions on such subjects as freedom of speech have varied over time. Also examined are factors which have contributed to support and opposition to civil liberties throughout the history of the United States within the public as a whole.

POL 3234. Race, Class, and Power: Social Movements and Interest Groups in U.S. Politics. (HIVD; 4.0 cr.; prereq 1201; fall, even years) A broad overview of social movements and interest groups. Using a case study approach, the class considers the question of when and why social movements and interest groups in American politics arise and what makes them more or less successful.

POL 3261. State and Local Politics. (SS; 4.0 cr.; prereq 1201 or #; spring, odd years) Examination of the ways American democracy functions on the subnational level in states, rural communities, and urban centers. Analysis of principles, organizations, procedures, and functions of state and local government, both urban and rural, in the United States, with particular emphasis on comparing state politics and policy outcomes.

POL 3263. Political Psychology. (SS; 4.0 cr.; prereq 1201; Psy 1251 or # recommended; fall, odd years) Examines the utility of concepts from personality and social psychology for understanding the dynamics of individual and group political behavior. Explores the role of the individual, group processes, and the political context in political decision making by both leaders and nonleaders.

POL 3272. Making Environmental Public Policy. (ENVT; 4.0 cr.; prereq 1101 or 1201 or 1401; spring, even years) Exploration of the domestic and international politics of environmental and energy policy making. Focus on theoretical frameworks for policy making and political behaviors surrounding development of environmental and energy policies. Includes the applications of political dynamics and principles to specific areas of environmental and energy policy. Emphasis also given to politics of policy implementation.

POL 3351. Ancient and Medieval Political Thought. (HUM; 4.0 cr.; prereq 1101 or #; spring, odd years) A survey of Western social and political thought from 5th century BCE through the 15th century.

POL 3352. Modern Political Thought. (HUM; 4.0 cr.; prereq 1101 or #; spring, even years) A survey of Western social and political thought from the 16th through the 19th centuries.

POL 3354. Political Ethics. (E/CR; 4.0 cr.; prereq 1101 or #; fall, even years) Examination of the strengths, weaknesses, and implications of moral arguments in political decision making. Ethical frameworks drawn from theoretical readings are applied to a range of contemporary U.S. case studies such as state use of violence, interrogation in times of war, governmental secrecy and deceit, official disobedience, health-care access, welfare reform, and environmental regulation and protection.

POL 3355. Environmental Political Theory. (ENVT; 4.0 cr.; fall, odd years) An examination of political understandings of the relationship between humans and the natural environment. Topics include Western and non-Western perspectives on the natural environment, technological optimism and survivalism, the tragedy of the commons, environmental direct action movements, the environmental justice movement, and theories of green democracy and citizenship. Readings cover a variety of political perspectives and ideologies including neoconservatism, libertarianism, ecoanarchism, ecocapitalism, ecofeminism, social ecology, deep ecology, and postmodernism.

POL 3401. U.S. Foreign Policy. (SS; 4.0 cr.; prereq 1201 or 1401 or #; spring, even years) Institutions and processes of American foreign policy. Major factors to be considered and levels of analysis that allow for the examination and dissection of foreign policy decisions.

POL 3411. International Law. (E/CR; 4.0 cr.; prereq 1401 or #; spring, even years) Relations of international law to individuals, states, the international community, jurisdictional problems, survey of principles developed by diplomats and consuls, treaties, arbitration, treatment of aliens, pacific settlement. War, military occupation, war crimes, neutrality.

POL 3453. Russian Politics and Foreign Policy. (IP; 4.0 cr.; prereq 1401, 2001 or #; no credit for students who have received credit for POL 4453; spring, odd years) Domestic and foreign policies of Russian and the former Soviet Union from the Bolshevik Revolution to the present. Nature of the Soviet empire, Russian Federalism, democratic and market reforms, Russian foreign relations, and diplomatic style.

POL 3461. Diplomatic Negotiation. (IP; 4.0 cr.; summer, every year) This course focuses on the art of diplomatic negotiation. The course consists of three components: (1) the theory and practice of diplomatic negotiation; (2) negotiating styles; and (3) simulation of diplomatic negotiations (bilateral and multilateral negotiations, international conference, summitry, and mediation). This course is unique in that it is devoted to simulations/mock conferences. Students gain first-hand knowledge and skills of negotiation through simulation.

POL 3475. International Human Rights. (IP; 4.0 cr.; prereq 1401 or #; spring, odd years) Explores the historical and philosophical development of concepts of human rights and the contemporary international political and legal frameworks to address rights. Analyzes contemporary concerns about political, economic, and social rights, as well as specific human rights topics like human trafficking and war crimes. Compares American, European, Asian, and Developing World conceptions and critiques of human rights.

POL 3501. Government and Politics of Asia. (SS; 4.0 cr.; prereq 1101 or 1201 or 1401 or #; fall, odd years) Examination of governments, political and leadership changes, and economic developments in China, Japan, and Korea. Modernization, democratization, political pluralism, revolution, authoritarianism, and civil-military relations.

POL 3503. Women in Politics Worldwide. (IP; 4.0 cr.; prereq 1201 or #; spring, odd years) Examines the ways gender influences politics throughout the world. Topics covered include the “gender gap” and voter turnout, women’s involvement in linkage organizations, such as parties and interest groups, and final policy outcomes regarding women in different kinds of political systems.

POL 3504. Latin American Politics. (IP; 4.0 cr.; prereq 1401 or #; spring, even years) A comparative examination of central issues in and components of Latin American political life, with a particular focus on economic development, political development of democratic regimes, political violence and human rights, and the region’s role in the world. Countries analyzed may include Argentina, Brazil, Chile, Colombia, El Salvador, Mexico, Peru, and Cuba.

POL 3514. Pyramids and Politics on the Nile. (IP; 4.0 cr.; prereq #; summer, offered periodically) Four-week study-abroad course on Egyptian political history with an emphasis on the environmental challenges of the Nile River Valley. Guided excursions, guest speakers, and individual exploration at significant political, historical, and cultural sites in the Cairo area and along the Nile Valley from Aswan to Alexandria.

POL 3993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a
POL 3996. Field Study in Political Science. (1.0-16.0 cr.; prereq #; max of 4 cr may be applied to the major or minor; fall, spring, every year)
Field study of governmental organization; internship with legislature, a state or local administrative office, lobbying group, or other position involving direct experience with government, governmental officials, or political organizations and environment.

POL 4251. Political Participation and Voting Behavior. (SS; 4.0 cr.; prereq 1201 or #; fall, even years)
A broad overview of factors influencing the political behavior of groups and individuals both within and outside institutions. Particular emphasis on examining issues such as voter turnout, economic influences on voting patterns, and social movement mobilization.

POL 4266. Media and Politics. (4.0 cr.; prereq 1201, 2001 or #; spring, odd years)

POL 4301. Contemporary Political Thought. (HUM; 4.0 cr.; prereq 1101, 2001 or #; fall, odd years)
A survey of social and political thought in the 20th and 21st centuries.

POL 4302. International Comparative Political Theory. (IP; 4.0 cr.; prereq 1101, 2001 or #; fall, even years)
Examination of international political thought beyond the canon of Western political theory. Topics include modernity, democracy, legitimacy, justice, nonviolence, and nationalism, with an emphasis on the Islamic world, the Indian subcontinent, sub-Saharan Africa, and East Asia.

POL 4451. Comparative Foreign Policy. (4.0 cr.; prereq 1401, 2001 or #; fall, even years)
Comparative examinations of foreign policies of selected countries, i.e., the United States, China, the two Koreas, and Japan. U.S. foreign policy toward Northeast Asia, the triangular relationship between Washington, Beijing, and Moscow; China's rise, North Korea's future, and Japan-U.S. military alliance.

POL 4452. International Relations. (4.0 cr.; prereq 1401, 2001 or #; fall, odd years)
Theory and practice of contemporary international relations. Realism and idealism, national power, systems theory, integration theory, war and peace, conflict resolution, and the world government.

POL 4905. Senior Research Seminar in Political Science. (2.0 cr.; prereq 2001, Stat 1601 or Stat 2601, at least one Pol 4XXX course; fall, spring, every year)
Guided research in political science. Requires the refinement and expansion of a research paper students previously completed in a 4000-level political science course. The end result of this revision and expansion is an original, significant research paper of a substantial length. Also requires that the student make an oral presentation of the final work to the discipline faculty and graduating seniors. With faculty approval, the student may produce such a paper based on a research paper previously completed in a 3000-level political science course.

POL 4993. Directed Study. (1.0-6.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

**Psychology (PSY)**
**Division of Social Sciences**

PSY 1051. Introduction to Psychology. (SS; 4.0 cr.; fall, spring, every year)
An introduction to the science of mind and behavior. Topics include history of psychology, research methods, biological bases for behavior, life span development, sensation and perception, learning, cognitive and social processes, personality, psychopathology, and applications of psychology.

PSY 1061. Introduction to the Development of the Child and Adolescent. (SS; 4.0 cr.; prereq 1051 or #; spring, every year)
Theory, data, and research approaches in development from birth through adolescence. Prenatal and physical development as well as perceptual, cognitive, language, personality, and social development. Multicultural/global perspective. Designed for students aiming for teacher certification, who receive priority in registration. Does not count for elective credit for the 16-credit psychology component of the LAHS major or for the psychology major or minor. Does count toward the 8-credit "other" category for the LAHS major. A more in-depth alternative to this course is Psy 3401 and Psy 3402. Students double majoring in education and psychology should consider the Psy 3401 and 3402 alternative to this course.

PSY 1301. Psychology and Film. (SS; 4.0 cr.; summer, offered periodically)
The application of psychological theories and principles, with emphasis on social psychology, to film. Examination of how films apply to social issues (e.g., media violence) and how audiences impact upon movie viewing. Class activities include watching films and then analyzing them from a psychological perspective.

PSY 1993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PSY 2001. Research Methods in Psychology. (SS; 4.0 cr.; prereq 1051, Stat 1601 or Stat 2601, psy major or minor, or #; fall, spring, every year)
Design, analysis, and interpretation of research in psychology. Instruction on different research techniques and ethics in research. Students conduct, analyze, and evaluate empirical research and gain experience preparing APA-style research reports. Includes laboratory/discussion sessions.

PSY 2112. Psycholinguistics. (SS; 4.0 cr.; A-F only; prereq 1051; spring, offered periodically)
An introduction to the crossroads of psychology and linguistics. Topics include: introduction to linguistics, language production and comprehension at various levels, dialogue, language development, reading, and language abnormalities. Specific methods are discussed throughout.

PSY 2411. Introduction to Lifespan Developmental Psychology. (SS; 4.0 cr.; prereq 1051; fall, every year)
An introduction to theory, data, and research approaches in development from the prenatal period through childhood, adolescence, adulthood, and aging until the cessation of life. Includes physical, perceptual, cognitive, language, moral, personality, socio-emotional, family, and career development and changes over time, as well as issues of death, dying, and bereavement. Includes a multicultural focus.

PSY 2581. Drugs and Human Behavior. (SS; 2.0 cr.; prereq 1051 or #; no credit for students who have received credit for Psy 1081; spring, every year)
Survey of psychoactive drugs, their effects on mind and behavior, and prevention and treatment of drug abuse.

PSY 2993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PSY 3051. The Psychology of Women and Gender. (HDIV; 4.0 cr.; prereq 1051 or #; spring, every year)
Exploration of the interactive biological, psychological, and socio-cultural processes that shape the lives of women and the experience of gender. Topics include: the psychobiology of sex; the social construction of sex and gender; socialization and development; media representations; identity and sexuality; language and communication; motivation and personality; relationships; work and family lives; mental and physical health; mid- and later life development; victimization; therapy; intersections of race, class, and gender; and feminist approaches to teaching, learning, and knowing.

PSY 3101. Learning Theory and Behavior Modification. (SS; 4.0 cr.; prereq 2001 or #; fall, every year)
Major theories of learning and their importance for understanding human and nonhuman
behavior. Classical and operant conditioning, generalization, discrimination, stimulus control, animal cognition. Behavior modification theories and techniques and their application to clinical populations. Lab projects demonstrate learning and behavioral modification theories, concepts, and techniques and illustrate research methods and theory testing. Includes lab.

PSY 3111. Sensation and Perception. (SS; 4.0 cr.; prereq 2001 or #; fall, every year) Empirical study of sensory processes and perceptual organization with emphasis on vision and audition. Anatomy and physiology of sense organs, psychophysics, signal detection theory, attention, speech perception, and perceptual-motor coordination. Includes lab.

PSY 3112. Cognition. (SS; 4.0 cr.; prereq 2001 or #; spring, every year) Empirical study of memory, language behaviors, representation of knowledge, judgment, decision making, problem solving, and creative thinking. Includes lab.

PSY 3201. Comparative Psychology. (SCI-L; 4.0 cr.; prereq [1051, 2001] or Biol 2111; spring, every year) Comparison of the causations of human and non-human animal behavior from both an evolutionary and biological point of view. The contributions of evolutionary selection pressures, genetics, environment, learning, and culture on the expression of behavior in a wide variety of species, through topics such as adaptation, fitness, altruism, social behavior, parental care, reproductive behavior, mating systems, and aggression. Focus on explaining modern human behavior as informed by non-human behavior. Includes lab component.

PSY 3211. Biological Psychology. (SCI-L; 5.0 cr.; prereq [1051, 2001] or Biol 1101 or Biol 1111; fall, every year) Brain organization and function; an emphasis on an understanding of the neural processes that underlie human and nonhuman behavior. Incorporates information from psychology, neuroscience, endocrinology, physiology, chemistry, neurology, and zoology to investigate the physiological bases of behavior. Topics include sensory processes, drugs and addiction, biological rhythms, sexual differentiation, reproduction, methods in neuroscience, neuropsychological disorders, and clinical assessment. Lab projects focus on neuroanatomical organization and function of the brain. (4 hrs lect. 1 hr lab)

PSY 3221. Behavioral Biology of Women. (SCI; 4.0 cr.; prereq 3201 or 3211) or Biol 2111 or #; spring, odd years) Exploration of proximate and ultimate influences on female behavior in human and nonhuman species. Topics include sexual differentiation, gender differences in cognition, biological basis of sexual orientation, female sexual selection, dominance, and other topics of interest to students. Readings consist of primary journal articles.

PSY 3261. Human Sexuality. (SS; 4.0 cr.; prereq 1051, 2001; no credit for students who have received cr for Psy 1071; fall, every year) Survey of aspects of human sexuality, including intimacy and communication; male and female anatomy, physiology, and response; development of sexual differentiation, gender identity, gender role, and gender orientation; varieties of sexual expression; pregnancy and child birth; contraception and disease prevention; sexual coercion and abuse; sexual dysfunctions and their treatment.

PSY 3302. Personality. (SS; 4.0 cr.; prereq 1051 or #; spring, every year) Nature of personality constructs and theories. Conscious vs. nonconscious processes; emotion and motivation; nature and measurement of personal traits; their dimensional structure, stability, development, and heritability.

PSY 3313. Psychopathology. (SS; 4.0 cr.; prereq 1051 or #; spring, every year) Psychological disorders and their treatment, including anxiety, personality, mood, schizophrenia, eating, substance and other recognized disorders of adults.

PSY 3314. Child and Adolescent Psychopathology. (SS; 4.0 cr.; A-F only; prereq 1051 or #; fall, every year) Broad overview of child and adolescent psychopathology—initially focusing on understanding basic concepts, historical context, developmental influences, theoretical perspectives, research methodology, and issues related to classification and assessment—followed by comprehensive information concerning the major childhood disorders (e.g., ADHD, depression, anxiety, pervasive developmental disorders).

PSY 3315. Parenting and Family Therapy. (SS; 4.0 cr.; prereq 1051; spring, every year) Examination of the effects of parenting on the growth and development of children. Emphasizes specific parenting styles and practices and their effects on the social/ emotional development and functioning of children at each stage of life. Provides an overview of the theoretical and practice of family counseling/therapy. Major systemic theoretical orientations are explored.

PSY 3401. Developmental Psychology I: Child Psychology. (SS; 4.0 cr.; prereq 1051 or #; fall, every year) Theory, data, and research in development from conception to adolescence. Prenatal and physical development as well as perceptual, cognitive, personality, and social development. Language acquisition and Piaget's theory of cognitive development.

PSY 3402. Developmental Psychology II: Adolescence. (SS; 2.0 cr.; prereq 1051 or #; spring, every year) Theory, data, and research in adolescent development with emphasis on physical, cognitive, and social development.

PSY 3403. Developmental Psychology III: Adulthood and Aging. (E/CR; 4.0 cr.; prereq 1051 or #; fall, every year) An overview of current concepts, theories, and methods in the study of adult development and aging.

PSY 3404. Culture and Human Development. (HDIV; 4.0 cr.; prereq 1051; spring, every year) Examination of the role of culture in human development through current research and examples from around the world. Learn about similarities and cultural differences in human development, and the regularities that explain these variations. Topics include the concept of culture in developmental psychology, diversity in child rearing practices, enculturation, gender roles, schooling, development in multicultural contexts, and the influence of technology and cultural change on development. Students learn to think culturally about their own development and see how it applies to their future careers.

PSY 3501. Social Psychology. (SS; 4.0 cr.; prereq 1051 or Soc 1101 or #; fall, every year) Theories and research in the study of interpersonal behavior. Topics include attraction, prejudice, altruism, persuasion, group dynamics, and social influence.

PSY 3502. Psychology and Law. (SS; 4.0 cr.; prereq 1051; spring, even years) A psychological perspective to the law and to the legal system. Topics include jury decision making, forensic psychology, trial processes, eyewitness testimony, and sentencing.

PSY 3503. Consumer Psychology. (SS; 4.0 cr.; prereq Stat 1601 or Stat 2601 or #; spring, odd years) Psychological basis for understanding consumers. Some of the topics include consumer behavior, consumer cognitive processes, and consumer judgments and decisions.

PSY 3504. Educational Psychology. (SS; 4.0 cr.; prereq 1051; spring, offered periodically) Discussion of psychological principles/theories in relation to learning in academic settings. Topics may include: a consideration of developmental and social issues that are likely to impact the learner; a discussion of individual differences in learning; an examination of different theoretical approaches to learning applied specifically to educational settings; an analysis of factors related to student motivation and behavior; and a discussion of issues related to testing and measurement in academic settings.

PSY 3513. Negotiation. (SS; 4.0 cr.; =[MGMT 3513]; prereq 3501 or Mgmt 3221 or Psy/Mgmt 3701; spring, offered periodically) Same as Mgmt 3513. Examines the theoretical and applied aspects of negotiation. Topics include negotiation theory, strategy, skills and tactics, communication processes, global negotiation, and ethics. Use of negotiation simulations.

PSY 3521. Health Psychology. (SS; 4.0 cr.; prereq 1051; spring, every year) Health implications of interactions among behavioral, environmental, and physiological states. Physiological bases of behavior and health; stress and coping; behavioral antecedents of disease; psychoneuro-immunology; disease prevention and health promotion.
PSY 3542. Multicultural Psychology. (HDIV; 4.0 cr.; [PSY 3541]; prereq 1051; fall, every year) Theoretical and methodological approaches to multicultural psychology. Multicultural psychology is the systematic study of behavior, cognition, and affect settings where people of different backgrounds interact. Exploration of these interactions both within and outside the United States. Topics may include worldviews, communication styles, acculturation, prejudice, white privilege, identity development, physical and mental health, and multicultural competencies.

PSY 3611. History and Philosophy of Psychology. (HIST; 4.0 cr.; prereq 1051 or #; spring, every years) Historical roots and comparative features of major theoretical systems in psychology, including scientific methodology, research interests, and techniques. Movements within psychology that are discussed include: structuralism, functionalism, behaviorism, Gestaltism, psychoanalytic, and existential movements and modern syntheses, as well as other topics of interest to students.

PSY 3701. Organizational Behavior. (SS; 4.0 cr.; [MGMT 3701]; prereq Stat 1601 or Stat 2601, jr or sr; fall, offered periodically) Same as Mgmt 3701. Uses the theories and research of the behavioral sciences to understand how organizations function at the individual, group, and organizational levels. Topics include stress in the workplace; group dynamics; power, leadership, and attribution theory.

PSY 3800. Research Practicum. (1.0-12.0 cr.; S-N only; prereq #; fall, spring, every year) Research activity carried out under the supervision of a psychology faculty member.

PSY 3993. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.;] prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PSY 4101. Helping Relationships. (4.0 cr.; prereq 3302 or 3313; fall, spring, every year) Approaches to counseling and psychotherapy. Theories of helping relationships. Acquisition of helping skills, including attending behavior, reflection of feeling, paraphrasing, confrontation, and summarization. Major humanistic, cognitive, and behavioral approaches. Didactic instruction, observation of counseling and psychotherapeutic techniques, and practical experiences.

PSY 4102. Intro to Prof Conduct, Legal Constraints, Ethics in Human Services. (E/CR; 2.0 cr.; prereq jr, 8 cr or 3xxx or 4xxx human services courses or #; no credit for students who have received credit for IS 4101; fall, spring, every year) Concepts of professional ethics in human services professions; ethically relevant legal mandates and constraints on professional practice; practical problems in the application of ethical principles.

PSY 4301. Clinical Assessment and Therapeutic Interventions. (4.0 cr.; prereq 3313 or 4101; spring, every year) Evaluation of psychological assessments and interventions from different perspectives. Topic examples: structured and unstructured assessments; career counseling and assessment; motivational interviewing; family and couples therapy; interpersonal therapy; group therapy; and solution-focused therapy.

PSY 4770. Empirical Investigations in Psychology. (1.0-6.0 cr.; [max 12.0 cr.;] prereq 2001, #; only 12 cr may be applied to the BA or the Psy major; fall, spring, every year) Independent research study by a student in any area of psychology. A research proposal may be required by a faculty member prior to approval to enroll in the course.

PSY 4896. Field Experiences in Psychology. (1.0-4.0 cr.; S-N only; prereq #, which normally requires 4101, 4102, other courses appropriate to field experience; only 4 cr may be applied to the BA or the Psy major; fall, spring, every year) Individually arranged, supervised observation of and assistance with activities of professional psychologists in schools, clinics, hospitals, and other field settings.

PSY 4910. Advanced Seminar in Cognitive Psychology. (4.0 cr.; A-F only; [PSY 4710]; prereq 2001, 3111 or 3112, sr status, #; fall, every year) Advanced seminar on selected topics in the area of Cognitive Psychology. Members of the seminar read and discuss primary source material on a topic of common interest. In addition, each student investigates a related topic in greater depth. The student writes a paper and gives a public presentation based on the in-depth investigation.

PSY 4920. Advanced Seminar in Biological or Comparative Psychology. (4.0 cr.; A-F only; [PSY 4720]; prereq 2001, 3201 or 3211, sr status, #; spring, every year) Advanced seminar on selected topics in the area of Biological and Comparative Psychology. Members of the seminar read and discuss primary source material on a topic of common interest. In addition, each student investigates a related topic in greater depth. The student writes a paper and gives a public presentation based on the in-depth investigation.

PSY 4930. Advanced Seminar in Personality or Clinical Psychology. (4.0 cr.; A-F only; [PSY 4730]; prereq 2001, 3302 or 3313, sr status, #; spring, every year) Advanced seminar on selected topics in the area of Personality or Clinical Psychology. Members of the seminar read and discuss primary source material on a topic of common interest. In addition, each student investigates a related topic in greater depth. The student writes a paper and gives a public presentation based on the in-depth investigation.

PSY 4940. Advanced Seminar in Developmental Psychology. (4.0 cr.; A-F only; [PSY 4740]; prereq 2001, 3401 or 3402 or 3403, sr status, #; fall, every year) Advanced seminar on selected topics in the area of Developmental Psychology. Members of the seminar read and discuss primary source material on a topic of common interest. In addition, each student investigates a related topic in greater depth. The student writes a paper and gives a public presentation based on the in-depth investigation.

PSY 4950. Advanced Seminar in Social Psychology. (4.0 cr.; A-F only; [PSY 4750]; prereq 2001, 3501, sr status, #; spring, every year) Advanced seminar on selected topics in the area of Social Psychology. Members of the seminar read and discuss primary source material on a topic of common interest. In addition, each student investigates a related topic in greater depth. The student writes a paper and gives a public presentation based on the in-depth investigation.

PSY 4960. Advanced Seminar in Health Psychology. (4.0 cr.; A-F only; [PSY 4760]; prereq 2001, 3521 or 3201 and 3211), sr status, #; fall, every year) Advanced seminar on selected topics in the area of Health Psychology. Members of the seminar read and discuss primary source material on a topic of common interest. In addition, each student investigates a related topic in greater depth. The student writes a paper and gives a public presentation based on the in-depth investigation.

PSY 4993. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.;] prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

PSY 4994. Directed Study. (1.0-5.0 cr.; [max 10.0 cr.;] prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.
SEED 4102. Teaching and Learning Strategies. (2.0 cr.; A-F only; prereq admission to the secondary teacher education program; coreq 4103, 4104, 4105, methods; fall, every year) Provides greater depth in previously taught concepts and skills, including teaching and learning strategies for middle and secondary classrooms, planning for lesson and unit instruction and assessment, learning theory, use of technology in the classroom, discipline, and classroom management.

SEED 4103. Practicum Experience in the Middle and Secondary School. (4.0 cr.; S-N only; prereq admission to the secondary teacher education program; coreq 4102, 4104, 4105, methods; fall, every year) Field experience in the middle and secondary school.

SEED 4104. Teaching Diverse Learners. (HDIV; 2.0 cr.; A-F only; prereq admission to the secondary teacher education program; coreq 4102, 4103, 4105, methods; fall, every year) Study of teaching/learning in diverse settings. Topics include multiple intelligences/learning styles; multicultural education; race, gender, sexual orientation, disability, culture, and class; effects of inequity on schooling; preventing and responding to prejudice and discrimination; and intercultural communication.

SEED 4105. Reading and Literacy in the Content Areas. (2.0 cr.; A-F only; prereq admission to the secondary teacher education program; coreq 4102, 4103, 4104, methods; fall, every year) Study of how teachers in the various academic disciplines can support reading and literacy in their classrooms and use reading and literacy to enhance learning in the disciplines. Topics include theory and instructional strategies in the areas of reading comprehension, fluency, and vocabulary development.

SEED 4115. Advanced Content Reading. (HUM; 2.0 cr.; A-F only; prereq 4105; fall, spring, every year) Study of how teachers in the various academic disciplines can support reading and literacy in their classrooms and use reading and literacy to enhance learning in the disciplines. Topics include subject-specific theories, strategies, and projects.

SEED 4201. Directed Student Teaching in the Middle and Secondary School. (HDIV; 12.0 cr.; S-N only; prereq 4102, 4103, 4104, 4105, methods, CMR 1042 or CMR 1052, passing scores on MTLE basic skills or #; spring, every year) Students teach for a period of 10 to 12 weeks demonstrating application of approaches to teaching and learning in the middle and secondary grades under the guidance of a cooperating teacher and University supervisor.

SEED 4202. Directed Student Teaching in the Middle and Secondary School. (1.0-16.0 cr.; S-N only; prereq passing scores on MTLE basic skills or #; fall, spring, every year) For students who need alternative or additional student teaching experience. Students demonstrate application of approaches to teaching and learning in middle and secondary grades under the guidance of a cooperating teacher and University supervisor.

SEED 4204. Directed Student Teaching in International School at the Middle and Secondary Level. (IP; 12.0 cr.; S-N only; prereq 4102, 4103, 4104, 4105, methods, CMR 1042 or CMR 1052, passing scores on MTLE basic skills or #; spring, every year) Students teach for a period of 10 to 12 weeks demonstrating application of approaches to teaching and learning in the middle and secondary grades under the guidance of a cooperating teacher and University supervisor.

SEED 4205. Directed Student Teaching in the Secondary School. (1.0-16.0 cr.; A-F only; prereq passing scores on MTLE basic skills or #; fall, spring, summer, every year) For students from colleges that require A-F grading for student teaching through the Global Student Teaching Program.

SEED 4993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

Social Science Educ Methods (SSEC) Division of Education

SSEC 4121. Methods of Teaching Social Science in the Middle and Secondary School. (4.0 cr.; A-F only; prereq admission to the secondary teacher education program, coreq SeEd 4102, SeEd 4103, SeEd 4104, SeEd 4105; fall, every year) Objectives, curricula, special methods, materials, and evaluation appropriate for teaching social science in the middle and secondary school.

SSEC 4122. Methods of Teaching Social Science in the Middle School. (1.0 cr.; A-F only; spring, every year) Objectives, curricula, special methods, materials, and evaluation appropriate for teaching social science in the middle school.

Sociology (SOC) Division of Social Sciences

SOC 1101. Introductory Sociology. (SS; 4.0 cr.; fall, spring, every year) Introduction to the field of sociology, the exploration of societies, and how societies operate. Sociology broadens social insights, fosters critical thinking, guides analytical thinking, and develops writing skills. By actively thinking about issues facing societies today, students learn to examine life situations and the influence of societies and groups on people’s lives, careers, hopes, fears, and personalities. Emphasis on how society is stratified: how organizations and institutions influence the way people think, talk, feel, and act and how different groups (e.g., racial and ethnic) and divisions (e.g., gender and social class) within society have different access to power and privilege. People live their lives in relation to social and physical environments; sociologists study these environments and their effects on people’s experiences and behavior.

SOC 1811. Global Sociology: Migration, Economic Globalization, Class, and Gender Inequality. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Examination of the global impact of migration on both societies receiving immigrants and societies from which people emigrate, the effect of economic globalization, class and gender inequality. A major goal of the course is to provide students with a systematic way of making sense of a rapidly changing and complex world. Learn from sociological perspectives what it means to live in an interdependent world.

SOC 1812. Human Rights in the Age of Globalization. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; spring, offered periodically) Exploration of the relationship between globalization and human rights. Globalization as the driving force of capitalism has produced both positive and negative impacts on human rights. Optimists argue that integration into the global world of the free market will foster democracy and human rights, while critics challenge this optimism. Explores these contradictory views and processes. The course is interdisciplinary and integrates perspectives and concepts from different academic fields.

SOC 1813. Political Economy of “Natural” Disaster. (IC; 2.0 cr.; prereq new college student in their first semester of enrollment at UMM; fall, offered periodically) Examine the political economy of natural disasters through a survey of events drawn from around the world. Disasters can be viewed from multiple social perspectives (economic, political, ecological, and personal) and each of these carries implicit and explicit political judgments about how the environment should be managed. The following events offer rich documentation (academic and popular media) about the impact of governmental decisions prior to and in the aftermath of each event: famine-South Asian famine of 1770s, earthquake-Haiti 2010, deforestation/erosion-Nepal 1970s, hurricane-Katrina 2005, flood-Johnstown Flood of 1889, tsunami-South Asian tsunami of 2004.

SOC 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year) Individualized on- or off-campus research project or other learning activity not covered in the regular Sociology curriculum. Topic determined by the student and instructor.

SOC 2101. Systems of Oppression. (HDIV; 4.0 cr.; prereq 1101 or Anth 1111 or #; fall, every year) Patterns of group dominance, exploitation, and hate in the United States and globally. Emphasis on sexism, racism, and classism with some attention to other systems of oppression such as heterosexism and ageism.
SOC 2993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; [max 10.0 cr.; prereq approved directed study form; fall, spring, every year]) Individualized on- or off-campus research project or other learning activity not covered in the regular Sociology curriculum. Topic determined by the student and instructor.

SOC 3103. Research Methodology in Sociology. (SS; 4.0 cr.; prereq 1101; fall, every year) An introduction to research procedures used in sociology. Developing a research design and applying it to a concrete problem. Questions of validity and reliability examined in the context of research projects developed by the students.

SOC 3111. Sociology of Modernization. (IP; 4.0 cr.; prereq 1101 or Anth 1111 or #; spring, every year) Process of modernization in non-Western societies. Social, economic, and political impact of modernization from different theoretical perspectives. Assessment of those theoretical perspectives as a means to understand dynamics of change in Third World countries.

SOC 3112. Sociology of the Environment and Social Development. (ENVT; 4.0 cr.; prereq 1101 or #; fall, odd years) Introduces students to the sociological study of the environment and social development. Examines the impact of international environmental and development efforts on individuals at the local level. Focuses on grassroots environmental activism and social development work. Explores and discusses power relations and systems of inequality within the context of environmental and social development efforts.

SOC 3121. Sociology of Gender and Sexuality. (HDIV; 4.0 cr.; prereq 1101 or Anth 1111 or #; fall, every year) Introduces students to the sociological study of gender and sexuality. Focuses on gender difference and gender inequality. Analyzes the changing roles, opportunities, and expectations of women and men as their societies (and subsequently, gender relations and power) undergo change in today's world. Following a theoretical overview, examines how gender and sexuality affect everyday experiences.

SOC 3122. Sociology of Childhoods. (HDIV; 4.0 cr.; prereq 1101 or #; spring, even years) Introduces students to the sociological study of childhoods. Examines the interaction between societies and their youngest members-how societies shape children's lives through social institutions such as families, education, and the state. Takes a close look at children's access to privileges and resources as determined by children's experiences of race, gender, class, nationality, and sexual orientation.

SOC 3123. Sociology of Aging. (HDIV; 4.0 cr.; prereq 1101; spring, every year) An introduction to sociology of aging. Examination of the major theories of social aging as well as the historical and cross-cultural variations in aging and differences by race, ethnicity, gender, and social class.

SOC 3124. Sociology of Law. (SS; 4.0 cr.; prereq 1101; spring, every year) Explores the emergence and function of law through the lens of social theories. The course assumes law is embodied in the social structure of society; hence, it is the product of social interaction. Based on this assumption, it examines the role of law in maintaining and reproducing social order, class, race, and gender inequalities. The course is interdisciplinary and comparative in its scope and integrates jurisprudence and various social science theories.

SOC 3131. World Population. (ENVT; 4.0 cr.; prereq 1101 or #; fall, every year) Population theory and demographic method. Dynamics of fertility and mortality as the basis of population forecasting and its policy implications. Emphasis on the tie between Third World demographic trends and population issues in the rest of the world.

SOC 3141. Sociology of Deviance. (E/CR; 4.0 cr.; prereq 1101 or #; fall, even years) Introduces students to the sociological study of deviance. Explores the social reality of deviance within contemporary society and examines the social construction of deviant categories. Focuses on images of deviance as social constructs, rather than as intrinsic elements of human behavior. Investigates the complex relationships between individual behavior and social structure, with a focus on power, inequality, and oppression. Also, examines the socio-cultural definitions of morality and behavior.

SOC 3204. Culture, Food, and Agriculture. (ENVT; 4.0 cr.; =ANTH 3204; prereq 1101 or Anth 1111 or #; spring, every year) Same as Anth 3204. Examines the globalization of food systems utilizing a political ecology perspective to understand global and local dimensions of production, marketing, and consumption. Emphasis on connections between food production and national identity, relations of power, genetic engineering, environmental destruction, the politics of world hunger, and local efforts to achieve sustainability.

SOC 3251. African Americans. (HDIV; 4.0 cr.; prereq 1101 or Anth 1111; fall, spring, offered periodically) Examination of African American religious, economic, political, family, and kinship institutions in the context of the greater American society. Studies over problems and the degree of success or failure of these struggles are examined and placed in historical context.

SOC 3252. Women in Muslim Society. (IP; 4.0 cr.; prereq 1101 or Anth 1111; spring, offered periodically) The cultures and social statuses of women in several Muslim countries are examined and placed in their political, economic, and religious contexts.

SOC 3403. Sociological Theory. (SS; 4.0 cr.; prereq 1101; 4 addtl cr in Soc recommended; fall, every year) Survey of major developments in sociological theory, with attention to both classical and contemporary variants. Emphasis on sociological ideas in relation to the principal intellectual currents of European society, American society, and non-Western thought.

SOC 3601. Social Justice and Human Rights in Latin America. (IP; 4.0 cr.; =ANTH 3601; prereq 1101 or Anth 1111 or #; fall, every year) Same as Anth 3601. Examination of social, economic, and political transformations in Latin America with an emphasis on social justice and human rights. Critical approaches to understand U.S.-Latin American relations, labor struggles, rebellions to define alternative development, indigenous resistance to encroachment on resources and ways of life, civil war and genocide, and efforts to create a more environmental and socially sustainable development.

SOC 3602. Women in Latin America. (IP; 4.0 cr.; =ANTH 3602; prereq 1101 or Anth 1111 or #; spring, every year) Same as Anth 3602. Study of the social, economic, and political positions of women in Latin American countries. Topics include class and ethnic differences, women in the labor force, and women's participation in political movements through the lens of feminist theory.

SOC 3993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) Individualized on- or off-campus research project or other learning activity not covered in the regular Sociology curriculum. Topic determined by the student and instructor.

SOC 4991. Sociology Independent Project Seminar. (4.0 cr.; =SOC 4902, SOC 4901; prereq 3103, 3403; spring, every year) A capstone seminar to guide sociology majors in the completion of an independent study project, including selection and definition of a research project, designing and planning its execution, developing a literature review and bibliography, applying relevant theoretical perspectives to research materials, and organizing and writing a research paper.

SOC 4993. Directed Study. (1.0-5.0 cr.; max 10.0 cr.; prereq approved directed study form; fall, spring, every year) Individualized on- or off-campus research project or other learning activity not covered in the regular Sociology curriculum. Topic determined by the student and instructor.

Spanish (SPAN) Division of Humanities

SPAN 1001. Beginning Spanish I. (4.0 cr.; fall, summer, every year) Development of basic skills of Spanish (reading, speaking, writing, listening) and an introduction to the cultural contexts of Latin America and Spain.

SPAN 1002. Beginning Spanish II. (FL; 4.0 cr.; prereq 1001 or placement or #; fall, spring, summer, every year) Continuation of the sequence beginning with 1001.
SPAN 1993. Directed Study. (1.0-5.0 cr.; max. 10.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

SPAN 2001. Intermediate Spanish I. (IP; 4.0 cr.; prereq 1002 or 1003 or placement or #; fall, every year)
Emphasizes the continued development of oral expression, vocabulary building, spelling, grammar, reading, and composition through the use of authentic materials such as short films and news features, cultural readings, literary selections, and contemporary music that strengthen students' proficiency in Spanish and their understanding of Hispanic cultures.

SPAN 2002. Intermediate Spanish II. (IP; 4.0 cr.; prereq 2001 or #; spring, every year)
Continuation of the sequence beginning with 2001.

SPAN 2121. Associated Languages: Intensive Portuguese. (IP; 4.0 cr.; prereq 2002 or Fren 2002 or #; fall, spring, offered periodically)
Intensive, accelerated study of the basic skills of Brazilian Portuguese (reading, writing, listening, and speaking) with emphasis on oral competency.

SPAN 2993. Directed Study. (1.0-5.0 cr.; max. 10.0 cr.; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

SPAN 3001. Conversation, Composition, and Culture. (IP; 2.0 cr.; prereq 2002 or #; fall, every year)
Practice in effective oral and written communication in Spanish for advanced students, with an emphasis on the diversity of contemporary Hispanic cultures and a review of basic grammatical concepts.

SPAN 3012. Spanish Grammar in Practice. (IP; 2.0 cr.; prereq 3011 or #; spring, every year)
A review of advanced Spanish grammar with emphasis on areas of concern and challenge for the non-native speaker, and on strengthening academic writing skills in Spanish.

SPAN 3111. Readings in Spanish I. (HUM; 2.0 cr.; prereq 3011 or #; fall, every year)
Introduction to representative works of contemporary Hispanic literature from diverse genres and cultural contexts, with emphasis on strategies for comprehension and interpretation.

SPAN 3112. Readings in Spanish II. (HUM; 2.0 cr.; prereq 3012, 3111 or #; spring, every year)
Further examination of representative works of Hispanic literature from diverse genres, time periods, and cultural contexts, with emphasis on literary concepts and terminology, analysis, research and writing practices, and interpretation.

SPAN 3211. Literature and Culture of Latin America. (HUM; 4.0 cr.; prereq 3012, 3112, or #; spring, offered periodically)
Study of important exemplary works of Latin American literary and cultural production through major historical periods. Texts are examined in light of multiple contexts, such as artistic, political, historical, and philosophical.

SPAN 3621. Seminar: Confessions and Letters in Latin American Fiction. (HUM; 4.0 cr.; prereq 3012, 3112 or #; spring, offered periodically)
Study of confessions and letters in Latin American fiction. Fiction is seen as a combination of texts within other texts. The combination becomes part of the fictional game which imitates and enhances reality.

SPAN 3622. Seminar: Exile and Emigration in Latin American Fiction. (IP; 4.0 cr.; prereq 3012, 3112 or #; fall, offered periodically)
Study of contemporary Latin American literary texts where characters face forms of exile, abandonment, and displacement as a result of emigration to Europe and the United States.

SPAN 3682. Seminar: Realism and Reform in 19th-Century Spain. (HUM; 4.0 cr.; prereq 3012, 3112 or #; fall, offered periodically)
Study of representative texts (prose and poetry) from the second half of the 19th century in Spain, with emphasis on the expression of the Romantic vision within the particular political context of the period, marked by tensions between liberal reform and traditional conservatism.

SPAN 3683. Seminar: Modernity and Identity in Spain, 1900-1930. (HUM; 4.0 cr.; prereq 3012, 3112 or #; fall, offered periodically)
Study of representative texts (prose and poetry) from the early decades of the 20th century in Spain with particular emphasis on their responses to changes brought by modernity: advancing technology, modern psychology, political experimentation, spiritual exploration, and artistic innovation.
### Sport Studies and Athletics (SSA)

#### Division of Education

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Prerequisites</th>
<th>Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>SSA 1051</td>
<td>Fitness for Life</td>
<td>(2.0 cr.)</td>
<td>fall, spring, every year</td>
<td>Factors associated with a positive lifestyle, assessment of each individual's current wellness status, and development of a personal lifetime program for improving one's quality of life.</td>
</tr>
<tr>
<td>SSA 1052</td>
<td>Societal Issues in Health and Wellness</td>
<td>(SS; 2.0 cr.)</td>
<td>fall, spring, every year</td>
<td>A study of how perceptions of society's health and wellness issues affect our individual health/fitness choices.</td>
</tr>
<tr>
<td>SSA 1101</td>
<td>First Aid</td>
<td>(1.0 cr.)</td>
<td>fall, spring, every year</td>
<td>Lectures, demonstrations, practical work in emergencies and first aid. Emphasis on accident prevention. Completion of the course prepares students for National Safety Council First Aid and CPR Certification.</td>
</tr>
<tr>
<td>SSA 1213</td>
<td>Golf</td>
<td>(0.5 cr. [max 1.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td>Introductory instruction in the skills and techniques of golf.</td>
</tr>
<tr>
<td>SSA 1219</td>
<td>Strength Training</td>
<td>(0.5 cr. [max 1.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td>Introductory instruction in the skills and techniques of golf.</td>
</tr>
<tr>
<td>SSA 1224</td>
<td>Wellness Skills: R.A.D.-Basic Self-Defense System</td>
<td>(0.5 cr. [max 1.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td>A comprehensive program of realistic, self-defense tactics and techniques for women. Includes awareness, prevention, risk reduction and avoidance, progressing to the basics of hands-on defense training. Utilizes nationally approved/recognized curriculum.</td>
</tr>
<tr>
<td>SSA 1231</td>
<td>Beginning Taekwondo</td>
<td>(0.5 cr. [max 1.0 cr.]; S-N only)</td>
<td>fall, spring, every year</td>
<td>Philosophy of the martial arts. Basic stances and blocking, kicking, and striking techniques, terminology, footwork and sparring fundamentals.</td>
</tr>
<tr>
<td>SSA 1233</td>
<td>Advanced Taekwondo</td>
<td>(0.5 cr. [max 1.0 cr.]; S-N only)</td>
<td>fall, spring, every year</td>
<td>Advanced stances and blocking, kicking, and striking techniques, terminology, footwork and sparring fundamentals.</td>
</tr>
<tr>
<td>SSA 1401</td>
<td>Varsity Baseball</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>spring, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1402</td>
<td>Varsity Basketball</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>spring, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1403</td>
<td>Varsity Cross Country</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1404</td>
<td>Varsity Football</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1405</td>
<td>Varsity Golf</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1406</td>
<td>Varsity Softball</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>spring, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1407</td>
<td>Varsity Tennis</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N or Audit)</td>
<td>spring, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1408</td>
<td>Varsity Track and Field</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>spring, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1410</td>
<td>Varsity Volleyball</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1411</td>
<td>Varsity Soccer</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1412</td>
<td>Varsity Swimming &amp; Diving</td>
<td>(0.5 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, every year</td>
<td></td>
</tr>
<tr>
<td>SSA 1801</td>
<td>Mind and Body: Mental Skills and Martial Arts</td>
<td>(IC; 2.0 cr.)</td>
<td>new college student in their first semester of enrollment at UMM; fall, spring, offered periodically</td>
<td>Mental skills such as stress management, imagery, and concentration have been practiced for centuries by martial artists and more recently by elite performers in a variety of fields (e.g., athletics, artistic and dramatic performance, medicine, and business). These skills and more are introduced through readings, analyzed during discussions, emphasized via the practice of martial arts skills and techniques, and applied to students' individual needs.</td>
</tr>
<tr>
<td>SSA 1993</td>
<td>Directed Study</td>
<td>(1.0-5.0 cr. [max 2.0 cr.]; S-N only)</td>
<td>fall, spring, every year</td>
<td>An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.</td>
</tr>
<tr>
<td>SSA 2012</td>
<td>Human Anatomy</td>
<td>(3.0 cr.)</td>
<td>BIOL 2102; spring, every year</td>
<td>Same as Biol 2102. Structure of human systems at their organ and cellular levels. (two 65-min lectures, one 120-min lab)</td>
</tr>
<tr>
<td>SSA 2110</td>
<td>Exercise Physiology</td>
<td>(2.0 cr.)</td>
<td>fall, every year</td>
<td>Human physiological adaptations resulting from activity/exercise.</td>
</tr>
<tr>
<td>SSA 2111</td>
<td>Kinesiology</td>
<td>(SCI; 2.0 cr.)</td>
<td>fall, every year</td>
<td>Scientific principles of movement and tissue responses to force; analysis of basic movement in sports and other physical activities.</td>
</tr>
<tr>
<td>SSA 2121</td>
<td>Prevention and Care of Injuries</td>
<td>(4.0 cr.)</td>
<td>spring, every year</td>
<td>Introduction to safety measures, care, prevention, and rehabilitation of injuries in sports and other physical activities. (three 65-min lectures, one 65-min lab)</td>
</tr>
<tr>
<td>SSA 2201</td>
<td>Baseball Coaching</td>
<td>(2.0 cr.)</td>
<td>every year</td>
<td>History, psychology, and theory of the game, techniques of coaching each position, rules, batting, practice and game organization, strategy, officiating.</td>
</tr>
<tr>
<td>SSA 2202</td>
<td>Basketball Coaching</td>
<td>(2.0 cr.)</td>
<td>fall, every year</td>
<td>History, psychology, and theory of the game, offensive and defensive formations, strategy, practice and game organization, officiating, rules, techniques of coaching each position.</td>
</tr>
<tr>
<td>SSA 2203</td>
<td>Football Coaching</td>
<td>(2.0 cr.)</td>
<td>every year</td>
<td>History, psychology, and theory of the game, offensive and defensive formations, strategy, practice and game organization, officiating, rules, techniques of coaching each group.</td>
</tr>
<tr>
<td>SSA 2204</td>
<td>Softball Coaching</td>
<td>(2.0 cr.)</td>
<td>spring, even years</td>
<td>History, psychology, and theory of the game, techniques of coaching each position, rules, batting, practice and game organization, strategy, officiating.</td>
</tr>
<tr>
<td>SSA 2205</td>
<td>Track and Field Coaching</td>
<td>(2.0 cr.)</td>
<td>every year</td>
<td>History, psychology, and theory of the sports, techniques for all track and field events, methods of coaching, practice and meet organization, strategy, rules, officiating.</td>
</tr>
<tr>
<td>SSA 2206</td>
<td>Volleyball Coaching</td>
<td>(2.0 cr.)</td>
<td>fall, even years</td>
<td>History, psychology, and theory of the game, offensive and defensive formations, strategy, practice and game organization, officiating, rules.</td>
</tr>
<tr>
<td>SSA 2208</td>
<td>Soccer Coaching</td>
<td>(2.0 cr.)</td>
<td>fall, odd years</td>
<td>History, psychology, and theory of the sport, individual techniques, practice and game organization, officiating, rules and strategies.</td>
</tr>
<tr>
<td>SSA 2302</td>
<td>Introduction to Sport Management</td>
<td>(2.0 cr.)</td>
<td>A-F only; fall, spring, every year</td>
<td>Provides students with an overview of and a foundation in sport management. Topics include the history of sport management, the relevance of managerial concepts to sport, typical settings for sport managers, areas of study within sport management, sustainability in sport, and globalization and sport, among others.</td>
</tr>
</tbody>
</table>
SSA 2311. Sports Officiating. (2.0 cr.; summer, offered periodically) Knowledge of the rules, techniques, and mechanics for officiating basketball, baseball, and softball at the high school level.

SSA 2324. Advanced R.A.D. (Rape Aggression Defense System). (1.0 cr.; S-N only; prerequisite 2224; fall, every year) Builds on self-defense techniques and awareness of sports and avoidance strategies learned in basic R.A.D., adding defenses against the edged weapon and firearm. Covers more prone defense strategies, multiple subject encounters, and low and diffused light simulation exercises.

SSA 2331. Personal Training Preparation. (2.0 cr.; S-N only; fall, spring, offered periodically) Concepts, theory, practice, and research in personal training and conditioning. Basic anatomy and physiology, principles of strength training, overview of training equipment, fitness assessments, designing individual exercise programs, legal liabilities, national certifications, and review of research. Preparation for national certification examinations in the areas of personal training and strength conditioning.

SSA 2333. The Story of Sports. (SS; 4.0 cr.; summer, offered periodically) Sports have become an important way to view and understand the broad developments of society in the 20th century. Many of these developments have been presented in the form of movies, music, poetry, short stories, novels, and stories handed down through the generations. Study these developments, how they are told through stories, and how sports can be useful for examining 20th century society and culture.

SSA 2401. Sociological Aspects of Sports. (SS; 2.0 cr.; spring, every year) Sociological aspects of physical education, sports, and recreation and the implications this knowledge has for effective teaching, coaching, and athletic training.

SSA 2402. Psychological Aspects of Sports. (SS; 2.0 cr.; prerequisite 2401; spring, every year) Psychological aspects of physical education, sports, and recreation and the implications this knowledge has for effective teaching, coaching, and athletic training.

SSA 2501. Sports in Media I. (SS; 2.0 cr.; A-F only; spring, every year) An introduction to the relationship between the media and sports in America. A broad range of topics include broadcast, print, and social media, as well as promotion and public relations and their roles as vehicles for promoting sports.

SSA 2502. Sports in Media II. (SS; 2.0 cr.; A-F only; prerequisite 2501; spring, every year) A continuation of Sports in Media I that will dissect and analyze the relationship between sports and media. Topics include the development, organization, and implementation of media tactics and associated historical social, cultural, and legal issues.

SSA 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prerequisite approved directed study form; fall, spring, every year]) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

SSA 3101. Sport Industry Analysis. (SS; 4.0 cr.; prerequisite 2302, Stat 1601 or Stat 2601 or #; spring, every year) An examination of the rapidly developing sports industry from a promotional and sales management perspective. Focus on sport promotion, sport consumers, sales, sponsorship, licensing, and e-commerce.

SSA 3172. Leadership in Sport Organizations. (SS; 2.0 cr.; A-F only; prerequisite 2302, Mgmt 3171; no cr for students who have received cr for Mgmt 3172; fall, offered periodically) Examination of theories and case studies of organizational leadership within sport. Students learn about additional theories and models of sport leadership and practice and develop their leadership skills.

SSA 3201. Coaching Practicum. (1.0 cr.; S-N only; prerequisite #; fall, spring, every year) Supervised field experience in coaching, consisting of no fewer than 40 hours.

SSA 3210. Internship in Sport Studies and Athletics. (1.0-12.0 cr. [max 24.0 cr.; S-N only; prerequisite #; fall, spring, every year]) An educational experience in a work environment providing field applications for the student's theoretical classroom learning experiences. Learning contract approved by instructor prior to registration.

SSA 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prerequisite approved directed study form; fall, spring, every year]) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

STAT 1601. Introduction to Statistics. (M/SR; 4.0 cr.; prerequisite high school higher algebra; fall, spring, every year) Scope, nature, tools, language, and interpretation of elementary statistics. Descriptive statistics; graphical and numerical representation of information; measures of location, dispersion, position, and dependence; exploratory data analysis. Elementary probability theory, discrete and continuous probability models. Inferential statistics, point and interval estimation, tests of statistical hypotheses. Inferences involving one and two populations, ANOVA, regression analysis, and chi-squared tests; use of statistical computer packages.

STAT 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.; prerequisite approved directed study form; fall, spring, every year]) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.


STAT 2601. Statistical Methods. (M/SR; 4.0 cr.; prerequisite Math 1101 or Math 1021; fall, every year) Descriptive statistics, elementary probability theory; laws of probability, random variables, discrete and continuous probability models, functions of random variables, mathematical expectation. Statistical inference; point estimation, interval estimation, tests of hypotheses. Other statistical methods; linear regression and correlation, ANOVA, nonparametric statistics, statistical quality control, use of statistical computer packages.

STAT 2611. Mathematical Statistics. (M/SR; 4.0 cr.; prerequisite Math 1101; spring, every year) Introduction to probability theory. Principles of data reduction; sufficiency principle. Point estimation; methods of finding and evaluating...
estimators. Hypothesis testing; methods of finding and evaluating tests. Interval estimation; methods of finding and evaluating interval estimators. Linear regression and ANOVA.

STAT 2993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)

An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

STAT 3501. Survey Sampling. (M/SR; 4.0 cr.; prereq 1601 or 2601 or 2611 or #; fall, every even year)
Introduction to basic concepts and theory of designing surveys. Topics include sample survey designs including simple random sampling, stratified random sampling, cluster sampling, systematic sampling, multistage and two-phase sampling including ratio and regression estimation, Horvitz-Thomson estimation, questionnaire design, non-sampling errors, missing value-imitation method, sample size estimation, and other topics related to practical conduct of surveys.

STAT 3601. Data Analysis. (M/SR; 4.0 cr.; prereq 1601 or 2601 or 2611 or #; fall, every year)
Nature and objectives of statistical data analysis, exploratory and confirmatory data analysis techniques. Some types of statistical procedures; formulation of models, examination of the adequacy of the models. Some special models; simple regression, correlation analysis, multiple regression analysis, analysis of variance, use of statistical computer packages.

STAT 3611. Multivariate Statistical Analysis. (M/SR; 4.0 cr.; prereq 1601 or 2601 or 2611 or #; spring, every year)

STAT 3993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

STAT 4601. Biostatistics. (4.0 cr.; prereq 1601 or 2601 or 2611 or #; spring, offered periodically)
Design and analysis of biological studies: biological assays, case-control studies, randomized clinical trials, factorial designs, repeated measures designs, observational studies, and infectious disease data. Analysis of survival data: basic concepts in survival analysis, group comparisons, and Cox regression model. Use of statistical computer packages.

STAT 4611. Statistical Consulting. (4.0 cr.; prereq 3601, 3611; fall, spring, offered periodically)
Statistical consulting skills needed to deal effectively with clients or project teams, formulate statistical models, explain analyses, use standard statistical computer packages, and write reports in language understandable to non-statisticians.

STAT 4631. Design and Analysis of Experiments. (4.0 cr.; prereq 3601 or #; fall, spring, offered periodically)
Design and analysis of experimental designs; blocking, randomization, replication, and interaction; complete and incomplete block designs; factorial experiments; crossed and nested effects; repeated measures; confounding effects.

STAT 4651. Applied Nonparametric Statistics. (4.0 cr.; prereq 1601 or 2601 or 2611 or #; fall, spring, offered periodically)
Application of nonparametric statistical methods. Examples use real data, gleaned primarily from results of research published in various journals. Nonparametric inference for single samples, paired samples, and independent samples, correlation and concordance, nonparametric regression, goodness-of-fit tests, and robust estimation.

STAT 4671. Statistical Computing. (4.0 cr.; prereq 1601 or 2601 or 2611 or #; summer, every year)
Entering, exploring, modifying, managing, and analyzing data by using selected statistical software packages such as R or SAS. The use of statistical software is illustrated with applications of common statistical techniques and methods. Designed for students who have a basic understanding of statistics and want to learn the computing tools needed to carry out an effective statistical analysis.

STAT 4681. Introduction to Time Series Analysis . (4.0 cr.; prereq 3601 or #; fall, odd years)
Introduction to the analysis of time series including some with a connection to environmental such as spatial and spatio-temporal statistics. Randomness test, ARMA, ARIMA, spectral analysis, models for stationary and non-stationary time series, seasonal time series models, conditional heteroscedastic models, spatial random processes, covariance functions and variograms, interpolation and kriging.

TH 1040. Backstage on Broadway. (1.0 cr. [max 4.0 cr.]; S-N only; prereq #; fall, spring, offered periodically)
Supervised field trip to New York; attending selected professional theatre productions; backstage tours; discussions with theatre professionals.

TH 1050. London Theatre Tour. (1.0 cr. [max 4.0 cr.]; S-N only; prereq #; fall, spring, offered periodically)
Supervised field trip to London, England; attending selected professional theatre productions; backstage tours; discussions with theatre professionals.

TH 1060. Production Experience. (1.0 cr. [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year)
Participation in some aspect of theatre production other than performing (e.g., scenery, props, costumes, lighting). An interview and approval from theatre faculty is required.

TH 1070. Performance Experience. (ART/P: 1.0 cr. [max 8.0 cr.]; S-N only; prereq #; fall, spring, every year)
Participation in theatrical production as a performer. A production audition is required with approval from the theatre faculty.

TH 1101. The Theatre Experience: An Introduction. (FA; 4.0 cr.; practicum two hours per week, selected from M-Th from 2:00-5:00 p.m.; fall, every year)
Fundamental examination and practical application of the theory, history, and practice of theatrical performance as a reflection of society. Focus is on the theatre event as a collaborative effort and transitory art form. (lect, 2 hrs practicum).

TH 1111. Fundamentals of Acting. (ART/P; 4.0 cr.; prereq 1101, theatre arts major or minor or #; spring, every year)
Approaches characterization from a physical and psychological view. Focus is on use of imagination, text analysis, body and voice to develop characters from modern realistic dramatic literature.

TH 1301. Fundamentals of Design. (ART/P; 4.0 cr.; fall, every year)
Problem-solving approach to elements, principles, and functions of design; their place in the theatre and elsewhere.

TH 1993. Directed Study. (1.0-5.0 cr. [max 10.0 cr.]; prereq approved directed study form; fall, spring, every year)
An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

TH 2101. Fundamentals of Directing. (ART/P; 4.0 cr.; prereq 1111, theatre arts major or minor or #; fall, every year)
Introduces the practical components of the director as artist, teacher, and collaborator. Focus is on the craft of directing modern realistic dramatic literature through text analysis, communication of concepts, and stylistic techniques.
TH 2111. Creative Drama with Children.  
(ART/P; 4.0 cr.; prerequisite 1101 or theatre or elem ed major or #; fall, spring, offered periodically) Development of classroom skills in the use of dramatic techniques to teach a broad range of subjects to children. Exercises, presentations, and experiential learning techniques are modeled and practiced in class.

TH 2201. Voice and Movement.  
(ART/P; 4.0 cr.; prerequisite 1111, theatre arts major or minor or #; spring, every year) Explores the use of the voice and the body as means for expression in performance and everyday communication. Focus is on expansion and enhancement of vocal and physical skills through release of tension, posture, vocal exercises, and muscle extension.

TH 2211. Oral Interpretation.  
(ART/P; 4.0 cr.; offered alternate yrs; fall, spring, offered periodically) Introduces the study of literature through text analysis and performance. Focus is on the student's discovery of the aesthetic, communicative, and performative elements of a variety of personal narratives, prose, and poetry.

TH 2221. Readers' Theatre.  
(ART/P; 4.0 cr.; prerequisite 2211; fall, spring, offered periodically) Explores the theory and practice of adapting literature into group performance. Focus is on text analysis, script development, directing, and performing both dramatic and non-dramatic literary texts.

(ART/P; 1.0 cr.; S-N only; prerequisite #; students will audition/interview to be on radio; spring, offered periodically) Provides an opportunity to develop a radio theater show from script through broadcast performance. Parts are assigned through audition. Involves significant research and rehearsal time in various capacities for all students enrolled.

TH 2231. Playwriting.  
(ART/P; 4.0 cr.; fall, spring, offered periodically) Introduces the processes for writing and revising an original play. Focus is on writing, revising, and presenting a short play, including idea generation, invention, drafting, and peer response.

TH 2301. Stagecraft.  
(ART/P; 4.0 cr.; spring, every year) Development of stagecraft from the Greeks to the present. Basic forms of stage scenery and their functions in the theatre. Tools, materials, and techniques employed in creating the visual environment of the stage. (3 hrs lect, 3 hrs practicum)

TH 2993. Directed Study.  
(1.0-5.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

TH 3001. Theatre Scene Painting Studio.  
(FA; 4.0 cr.; prerequisite #; fall, odd years) Instruction in a systematic approach to painting theatrical scenery. Traditional techniques and the tools and paints that have been developed to support those techniques.

TH 3003. Stage Management.  
(ART/P; 4.0 cr.; prerequisite #; fall, spring, offered periodically) Introduces the principles of theatrical stage management; explores the stage manager's functions and duties through all phases of the production process including pre-production, rehearsal, and performance.

TH 3004. Fabrication and Scenic Painting for Film and Stage.  
(FA; 4.0 cr.; spring, offered periodically) Introduces the students to the tools and paints that have been developed to support those techniques.

TH 3101. World Theatre: History and Literature I.  
(FA; 4.0 cr.; fall, every year) Theatrical practice and dramatic literature from origins through late 17th century, tracing the roots leading to, and influences on, early modern European theatre practice and dramatic literature, as well as examining select Asian, African, and/or pre-Columbian American theatrical practice.

TH 3102. World Theatre: History and Literature II.  
(FA; 4.0 cr.; spring, every year) Theatrical practice and dramatic literature from the late 17th century to the present, examining select Asian, African, and/or Western Hemisphere theatrical practice, as well as tracing the roots leading to, and influences on, current world theatre practice and dramatic literature.

TH 3201. Advanced Acting.  
(ART/P; 4.0 cr.; prerequisite 1101, 1111, 2101; fall, spring, offered periodically) Begins with advanced acting techniques based in psychological realism and moves to an exploration of select classical and non-realistic forms. Styles to be examined are chosen from a list, including ancient Greek, Elizabethan, comedy of manners, absurdism, postmodernism, musical theatre, etc.

TH 3202. Advanced Directing.  
(ART/P; 4.0 cr.; prerequisite 1101, 1111, 2101; fall, spring, offered periodically) Begins with advanced directing techniques based in psychological realism and moves to an exploration of select classical and non-realistic forms. Styles to be examined are chosen from a list, including ancient Greek, Elizabethan, comedy of manners, absurdism, postmodernism, musical theatre, etc.

TH 3301. Stage Lighting.  
(ART/P; 4.0 cr.; prerequisite 1301, 2301; fall, even years) History and development of lighting for the stage. Theory and concepts of lighting as a visual art and its function in the theatre. Lighting design as a creative process and practical solution of lighting design problems. Lighting equipment and its use.

TH 3302. Stage Costuming.  
(FA; 4.0 cr.; prerequisite 1301, 2301; fall, odd years) History and development of stage costume. Theory and concepts of stage costuming as a visual art and its function in the theatre. Costume design as a creative process. Practical demonstrations of knowledge of design, history, and functions of stage costume.

(ART/P; 4.0 cr.; fall, offered periodically) Theory, concepts, and practice of using a computer as a drawing and drafting tool.

TH 3304. Art Direction for Film and Television.  
(FA; 4.0 cr.; fall, spring, offered periodically) Introduction of art direction for film and television. The roles and duties of the production designer and art director for fictional film and television series.

TH 3305. Stage Make-Up.  
(ART/P; 4.0 cr.; fall, spring, offered periodically) Basic understanding of makeup as an art form and its role in the theatre. Examination of the structure and techniques used in the field and the tools and materials needed to successfully perform in the role of stage makeup artist.

TH 3450. Irish Drama: Print, Culture, and Performance.  
(IP; 4.0 cr.; max 8.0 cr.; some course readings expected before departure; summer, offered periodically) Includes theatre performances and tours, workshops, and seminars from leading Irish scholars and actors; class sessions; cultural visits and exploration of Irish cities, landscapes, and historical sites throughout Ireland.

TH 3993. Directed Study.  
(1.0-5.0 cr.; prerequisite approved directed study form; fall, spring, every year) Individual study arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.

TH 4301. Scenic Design.  
(FA; 4.0 cr.; prerequisite 1301, 2301; fall, odd years) Designing scenery as an expressive environment for the theatre. Elements and functions of design and principles of composition. Problems in coordination and execution of design in the interpretation of dramatic literature using a variety of staging techniques. Study of various styles of historical and contemporary stage productions and theatre architecture through the writings and designs of such artists and theorists as Appia, Craig, Meyerhold, Jones, and Svoboda.

TH 4901. Senior Project.  
(2.0-4.0 cr.; prerequisite theatre arts major or #; fall, spring, every year) Culminating activity to demonstrate the student's competence in some area of theatre arts. Projects may be completed independently (e.g., a research paper, a solo acting performance) or as part of a group effort. Acting, scenery, lighting, costume design, playwriting, and theatre history are some areas in which the project may be undertaken.

TH 4993. Directed Study.  
(1.0-5.0 cr.; prerequisite approved directed study form; fall, spring, every year) An on- or off-campus learning experience individually arranged between a student and a faculty member for academic credit in areas not covered in the regular curriculum.