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English Language Programs for International Students
(Bridging and Composition Program/Intensive English Program)

Subject – Bridging for International Students (BRDG)

BRDG 1101 - Reading and Vocabulary 1
1 to 3 Credits
Intermediate to High-Intermediate reading and vocabulary skill development for academic purposes. Particular focus on predicting content, identifying main and supporting ideas and details, making inferences, and enhancing both general and academic vocabulary. (Formerly incorporated in ESL 100 and ESL 101.) Offered fall semester. Corequisite(s): BRDG 1251.

BRDG 1111 - Reading and Vocabulary 2
1 to 3 Credits
High-Intermediate to Advanced reading and vocabulary skill development for academic purposes. Particular focus on critical thinking skills as applied to reading academic texts, including inference, interpretation, evaluation, analysis, and application. Reading selections include texts, articles, essays, and novels. Additional emphasis on academic vocabulary development to maximize comprehension. (Formerly incorporated in ESL 101 and ESL 102.) Offered spring semester. Corequisite(s): BRDG 1261.

BRDG 1201 - Listening and Speaking 1
1 to 6 Credits
Intermediate to High-Intermediate listening and speaking skill development for academic purposes. Listening strategies to strengthen comprehension of academic lectures and introduction to effective note-taking. Additional focus on enhancing speaking skills, including pronunciation practice and role-plays, as well as brief individual and group presentations and class discussions. (Formerly incorporated in ESL 100 and ESL 101.) Offered fall semester. Corequisite(s): BRDG 1251.

BRDG 1221 - Listening and Speaking 3
1 to 6 Credits
High-Intermediate to Advanced listening and speaking skill development for academic purposes. Further development of listening strategies to optimize comprehension of complex academic lectures and discussions, as well as more sophisticated note-taking. Additional focus on enhancing speaking skills, including pronunciation practice and role-plays, in-depth class discussions, as well as extensive individual and group presentations. (Formerly incorporated in ESL 101 and ESL 102.) Offered spring semester. Corequisite(s): BRDG 1261.

BRDG 1251 - ESL Lab 1
1 Credit
Individualized skill development and language-learning support through one-on-one and/or small group tutoring sessions. Corequisite(s): BRDG 1101, BRDG 1201.

BRDG 1261 - ESL Lab 2
1 Credit
Continued individualized skill development and language-learning support through one-on-one and/or small group tutoring sessions. Corequisite(s): BRDG 1111, BRDG 1221.
Subject – English for Academic Purposes (EAP)

**EAP 0011 - L1 Listening**

*2 Credits*
Provides beginning level practice. Novice learners communicatively begin to recognize the language necessary for basic classroom and social interactions. Learners begin to distinguish between letters and numbers for use in practical situations. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

**EAP 0012 - L1 Speaking**

*2 Credits*
Provides beginning level production of English. Novice learners communicatively work with the sound structure of English, focusing on correct pronunciation of consonants and vowels, both individually and as part of word units. By the end of the term, students recite the alphabet, pronounce sounds distinctive to English, recognize vowel patterns, and pronounce cardinal and ordinal numbers singly and in the context of larger and used numbers. Learners also use stock phrases for greetings and other practical situations. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

**EAP 0013 - L1 Reading**

*2 Credits*
Focuses on building the foundational skills necessary for developing English language reading proficiency. Students build vocabulary by studying functional words applicable to daily life. By the end of this course, students master the alphabet, differentiate between the form and function of various parts of speech, and read and understand simple sentences. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

**EAP 0014 - L1 Writing**

*2 Credits*
Provides instruction in basic English orthography and getting ideas on paper. Includes instruction and practice, where necessary, in letter formation, block and cursive writing, dictation and simple sentence structure. Stress is on written vocabulary development and spelling, including standard writing conventions for English sound patterns. Also introduces students to computer documents, keyboarding skills and word processing in English. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

**EAP 0015 - L1 Grammar**

*2 Credits*
Introduces English language learners to simple sentence structure in affirmative sentences, negative sentences and questions. Students learn common nouns, pronouns, adjectives and prepositions and their placement within a simple sentence. Common verbs and their conjugations for imperative, simple present, and past, and future, as well as present and past continuous tenses are practiced. By the end of the term, learners speak and write simple sentences. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0016 - Entry Orientation
2 Credits
For students new to ONU. Focuses on creative and practical English necessary for survival in an English language culture. Learners focus on life-skill themes and the language skills required to improve confidence, interact and succeed. They learn creative dialogues necessary for success in places such as restaurants, doctor's offices and hair salons. May be taken up to two times for improved communicative competence. Students take this course at their entry level, with outcomes appropriate to language skills. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0021 - L2 Listening
2 Credits
Emphasizes practice in both discriminating sounds within words and words within phrases. Students master understanding and responding to simple yes/no and Wh- questions. Students are introduced to stress, rhythm and intonation. Students listen to short narratives, descriptions of personal background and routines, and common social dialogues to understand the topic and main idea. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0022 - L2 Speaking
2 Credits
Provide high beginning production of English. Learners communicatively work with the sound structure of English, focusing on mastery of words, phrases and short interchanges appropriate to needs. Students build on their portfolio of stock and modified stock phrases, learn to structure questions and ask for clarification and additional information. By the end of the term, students engage in short conversations, ask and respond to questions and inquiries, and have strategies for clarification. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0023 - L2 Reading
2 Credits
Students learn basic connectors and their function within compound and complex sentences. Students also begin to read extensively with texts that are appropriate for this level. Instructors introduce students to common affixes in order to increase vocabulary. By the end of this course, students read and understand the main idea in basic paragraphs through the understanding of various sentence structures and increased vocabulary. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0024 - L2 Writing
2 Credits
Provides structures for getting ideas on paper, including time markers, sentence structures, and the use
of adjectives and adverbs. Introduces dependent clause structures especially at the adjective and noun clause forms. Stress continues on written vocabulary development and spelling and required basic competence in word processing in English. By the end of the term, students can compose simple and compound sentences, including imperative, interrogatives and negation. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0025 - L2 Grammar
2 Credits
Reviews and expands on simple sentence structures. Language learners master the tenses learned in L1 Grammar. In addition, possessives, articles, Quantitativeity expressions, adverbs, modals, gerunds, infinitives, and phrasal verbs are introduced and practiced. Compound sentences and simple adjective and adverb clauses are introduced. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0031 - L3 Listening
2 Credits
Emphasizes common dialogues in a university context. Students understand both the main idea and some details from the dialogues as well as from social interactions and drama, and begin to discriminate between formal and informal language. Students practice predictions and inference. They review stress, rhythm and intonation. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0032 - L3 Speaking
2 Credits
Provides low intermediate production of English. Learners communicatively work with conversational patterns in English. By end of the term, students will engage in short conversations, participate in group discussion, and make simple presentation on a single topic in class. In addition, they can negotiate meaning in common university settings such as registration, student advising, housing and campus activities. Pronunciation studies focus on sentence level stress and intonation patterns. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0033 - L3 Reading
2 Credits
Students analyze paragraph structure to recognize the main idea of longer texts. They are introduced to skimming and scanning and practice increasing individual reading speeds. Recognition of summary and paraphrase is introduced and continuing study of affixes to increase vocabulary. By the end of this course, students can read and understand the main idea of an essay through increased vocabulary and the understanding of sentence and paragraph structure. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval
**EAP 0034 - L3 Writing**  
*2 Credits*  
Focuses on solid development of writing at the sentence level, with emphasis on avoiding common sentence structural problems and common second language grammar errors. Students are introduced to the writing process. Students completing this term are able to write descriptive, narrative and informative sentences of simple, complex and compound types. This course is repeatable for a total of 4 hours.  
Course Attributes:  
Requires Department Approval

**EAP 0035 - L3 Grammar**  
*2 Credits*  
Students demonstrate mastery of possessives, articles, adjectives, Quantitativeity expressions, adverbs, and modals. The course offers further practice with gerunds, infinitives, and phrasal verbs. Students practice using complex sentences with dependent clauses. Passive structures and reported speech are also introduced and practiced. This course is repeatable for a total of 4 hours.  
Course Attributes:  
Requires Department Approval

**EAP 0037 - American Culture**  
*2 Credits*  
Introduces students to themes of American Culture such as major historical facts, important holidays, famous attractions, and famous people. Successful completion of EAP 0016 required prior to taking this course. This course is repeatable for a total of 4 hours.  
Course Attributes:  
Requires Department Approval

**EAP 0041 - L4 Listening**  
*2 Credits*  
Emphasizes practice with short academic lectures. Students begin to recognize the topic and big picture, and recognize language markers in order to focus on important details within the lecture. Students practice outlines and using common symbols to facilitate note-taking, distinguish between fact and opinion, recognize point of view, and differentiate between inductive and deductive reasoning. This course is repeatable for a total of 4 hours.  
Course Attributes:  
Requires Department Approval

**EAP 0042 - L4 Speaking**  
*2 Credits*  
Provides intermediate production of English. Learners communicatively work with presentation and discussion patterns and begin work on presentation organization. By the end of the term, students participate in group discussions of a functional nature, and give presentations on a researched topic in class, with the use of audio-visuals. Students also demonstrate topic organization in developing a presentation and respond to questions on the topic. This course is repeatable for a total of 4 hours.  
Course Attributes:  
Requires Department Approval
EAP 0043 - L4 Reading
2 Credits
Emphasizes extensive reading with texts of varying purposes. Students identify descriptive, narrative, persuasive, compare/contrast texts and this course uses longer texts to introduce the structure of an essay. Students continue to skim and scan and begin to make inferences. By the end of the course, students understand the main idea of lengthy texts including essays and short books as well as understand the purpose and voice. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0044 - L4 Writing
2 Credits
Focuses on development of writing at the paragraph level, including clear topic sentences, concluding and transitional phrasing and solid support materials. Students are introduced to the concepts of audience and voice in writing. Students completing this term write descriptive, narrative, process and informative paragraphs as well as paragraphs of introduction, summary and paraphrase. Competence in reviewing, revising, and editing written work is stressed. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0045 - L4 Grammar
2 Credits
Facilitates mastery of gerunds, infinitives, phrasal verbs, passive sentences and relative clauses. Noun clauses and reported speech are stressed, and shortened dependent clauses, unreal conditionals, and the subjunctive are presented. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

EAP 0047 - Content Based Instruction Unit
2 to 4 Credits
An integrated skills course based on a thematic unit within academic disciplines. Students expand discipline-specific academic vocabulary while reading and listening to academic topics within the theme. They interact with and begin to synthesize material through presentation, dialogue, and written assignment. Provides foundational background information for academic coursework. Course is offered at three levels with learning outcomes appropriate to each level. This course is repeatable for a total of 8 hours.

Course Attributes:
Requires Department Approval

EAP 0048 - Integrated Skills Unit
2 to 4 Credits
Focuses on bringing all the language tools a student has learned into a single setting. Students expand academic vocabulary while reading and listening, speaking and writing on a topical theme. Grammar is practiced in speaking and writing. Students are expected to utilize knowledge of grammar to edit and revise written work and learn strategies to continue language development through academic classes. Course is offered at three levels with learning outcomes appropriate to the level. This course is repeatable for a total of 8 hours.

Course Attributes:
EAP 0049 - TOEFL and Testing Strategies
1 to 2 Credits
Provides practice in exercises encountered on the TOEFL and similar language assessment tests. Test strategies are useful not only for the TOEFL test but also for success in academic courses. Students become familiar with common topics covered on the tests. Practice test portions and entire practice tests are administered and progress recorded. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0051 - L5 Listening
2 Credits
Emphasizes in-depth practice with short academic lectures. Students understand topic and subtopic/supporting structures. In addition, they begin to recognize non-verbal signals and pronunciation that signals important information. Students are expected to organize the important information and create expanded outlines of the lectures. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0052 - L5 Speaking
2 Credits
Provides high intermediate production of English. Learners develop presentation and discussion patterns in English and demonstrate competence in presentation organization. By the end of the term, students lead group discussion of a functional nature and give presentation on a multi-faceted researched topic in class with the use of audio-visuals. Students also demonstrate ability to instruct others in a basic skill and are introduced to establishing and supporting an argument in an academic setting. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0053 - L5 Reading
2 Credits
Focuses on mastery of reading skills such as summary, paraphrase, skimming, scanning, and making inferences. Students read academic texts and understand the purpose of the text. By the end of this course, students are prepared for academic studies in first year university English language reading. This course is repeatable for a total of 4 hours.
Course Attributes:
Requires Department Approval

EAP 0054 - L5 Writing
2 Credits
Focuses on competence of writing at the paragraph level, and introduces basic essay structure. Students completing this term write opinion and compare/contrast paragraph and explore one or two rhetorical essay structures. Students are introduced to using and including research in writing and basic forms of citation. A variety of styles on including reported speech are mastered and competence in the writing process is stressed. This course is repeatable for a total of 4 hours.
EAP 0057 - L5 Content-Based Instruction Unit
2 to 4 Credits
An integrated skills course based on a thematic unit within academic disciplines. Students expand discipline-specific academic vocabulary while reading and listening to academic topics within the theme. Students interact with and synthesize material through presentations, dialogues, and written assignments including five-paragraph essays and research papers. The course provides foundational background information for academic coursework. This course is repeatable for a total of 8 hours.

EAP 0058 - L5 Integrated Skills Unit
2 to 4 Credits
Focuses on bringing all language tools a student has learned into a single setting. Students expand academic vocabulary while reading and listening in a themed study. New vocabulary is practiced in presentations, dialogues, and written assignments. Grammar is practiced in both speaking and writing. Students are expected to utilize knowledge of grammar to edit written work and master synthesis of information by effectively displaying it in productive work. Students learn strategies to continue language development through academic coursework. This course is repeatable for a total of 8 hours.

EAP 0061 - L5a Listening
2 Credits
Open only to students who complete Level 5. Course emphasizes in-depth practice with short academic lectures. Students understand topic and sub-topics/supporting detail. In addition, students recognize non-verbal signals and pronunciation that signals important information. Students are expected to organize the important information and create expanded outlines of the lectures. This course is repeatable for a total of 4 hours.

EAP 0062 - L5a Speaking
2 Credits
Provides low advanced production of English and is open only to students who complete Level 5. Learners develop argument and persuasive discourse patterns in English and demonstrate high competence in presentation organization. By the end of the term, students lead group discussions on controversial topics and participate in debate settings with the use of researched materials. This course is repeatable for a total of 4 hours.

EAP 0064 - L5a Writing
2 Credits
Advances competence of writing at the essay level and helps the student produce writing reflective of a rhetorical style chosen for a purpose and audience. Students are introduced to using and including
research in writing and basic forms of citation. Students completing this term write arguments and compare/contrast paragraphs and explore one or two rhetorical essay structures. This course is repeatable for a total of 4 hours.

Course Attributes:
Requires Department Approval

**Subject - Honors Program (HONR)**

**HONR 1001 - Honors Transitions Experience**

*1 Credit*
Facilitates the transition from high school to honors-level work through in-depth explorations of the general education of major-related themes discussed in the various college-specific Transitions Experience classes.

**HONR 1221 - Honors Writing Seminar**

*3 Credits*
Introduction to college-level writing skills, including critical reading of challenging texts, advanced argumentation, researching and incorporating outside sources, and writing essays. Meets university first-year writing requirement.

Course Attributes:
Effective Comm Writing

**HONR 2001 - Honors Extradisciplinary Seminar**

*3 Credits*
Topics include but are not limited to: Minds and Computers, Encountering the Other; Innovation, Creativity, and the Entrepreneurial Mindset. Meets university extra-disciplinary seminar requirement. Must be enrolled in one of the following Fields of Study: Honors Program. This course may be repeated 2 times.

**HONR 2011 - Honors General Education Seminar**

*3 Credits*
Topics include but are not limited to: Asian Studies, Corporate Culture, The Study of Human Language, Disease and Society, Energy Systems, Animatronics, Cryptography, and The Big Ideas in Physics. Will be tagged to meet a University General Education Outcome. This course may be repeated 2 times.

Course Attributes:
Effective Comm Writing
Informed Responses-Aesthetics

**HONR 2021 - Honors Cultural Understanding Seminar**

*3 Credits*
Topics include but are not limited to: Theories of Human Nature, Prophets in the Ancient Near East, and Sub-Saharan West African Cultures as Portrayed in Film. This course may be repeated 1 time.

Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural
HONR 2041 - Honors Great Works Seminar
3 Credits
Reading and writing about significant works of literature. Topics include but are not limited to: Pushing the Boundaries-Exploration and Pioneering in the New World, The American Novel, Medieval Roots-Tolkien's Lord of the Rings, Film Adaptation, and Medicine in Literature.
Course Attributes:
AS-HUM - Humanities
Effective Comm Writing
Informed Responses-Aesthetics

HONR 2261 - Honors Nonverbal Communication Seminar
3 Credits
The multiple facets of communication that involve things other than actual words. How people communicate using the eyes, touch, the environment, time, space, color, smell and other nonverbal codes.
Course Attributes:
Communication Studies
Effective Comm Non-Writing

HONR 2401 - Honors Professional Ethics Seminar
3 Credits
Major ethical theories and their application to professions and topics that arise in the professional setting. The role of institutions in ethical theory, the nature of professions, and responsibilities to clients and the public.
Course Attributes:
AS-HUM - Humanities
Informed Ethical Responses

HONR 3011 - Honors Advanced Seminar
3 Credits
Topics include but are not limited to: History of American Popular Culture, The Witch Hunt 1450-1700. This course may be repeated 1 time.
Course Attributes:
Informed Responses-Aesthetics

HONR 3801 - Honors Contract Course
0 to 4 Credits
Work done under supervision of ONU Faculty in conjunction with an existing class at the 3000-level or above, or, with the approval of the Honors Program Committee, in conjunction with laboratory classes or following up on a research experience for undergraduates (REU), study abroad, internship, co-op, practicum, or service experience. This course may be repeated 1 time.

HONR 3851 - Honors Research Contract
1 to 3 Credits
Research work done under supervision of ONU Faculty. Including but not limited to research done in conjunction with laboratory classes, or following up on research experience for undergraduates. This course may be repeated 1 time.
HONR 3991 - Honors Capstone Enhancement Research
1 to 3 Credits
Research for the Honors Capstone Enhancement. This course may be repeated 1 time.

HONR 4001 - Honors Capstone Enhancement
1 Credit
Final version of the Honors Capstone Enhancement and oral presentation.

The Getty College of Arts and Sciences Courses

Subject - Transitions Experience (TREX)

See course sections for specific attributes.

TREX 1001 - Transitions Experience
3 Credits
Designed to facilitate students' transition from high school to university by introducing the skills and habits of mind necessary for success at this level. Individual sections will be designed around topics that deal with various disciplines. Students will develop critical and creative thinking skills and make connections between their major and the general education program. Must be enrolled in one of the following Colleges: Arts and Sciences. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

Subject - General Arts and Sciences (AASG)

AASG 0961 - Study Skills
1 Credit
To increase study efficiency by emphasizing improvement in motivation, concentration and memory. Attention is also given to selected study skills including time-management, listening, note-taking, reading comprehension and testing. CREDIT EARNED DOES NOT SATISFY GRADUATION REQUIREMENTS FOR ANY PROGRAM OFFERED AT THE UNIVERSITY. Formerly AASG 010.

AASG 0971 - Introduction to College Reading
2 Credits
Designed to increase reading proficiency by focusing on comprehension, vocabulary, reading speed, and study skills. Reading ACT score of 18 or below OR enrollment in AASG 0991 is required. CREDIT EARNED DOES NOT SATISFY GRADUATION REQUIREMENTS FOR ANY PROGRAM OFFERED AT THE UNIVERSITY. Formerly AASG 005. Must be enrolled in one of the following Classifications: Freshman.

AASG 0991 - Introduction to College Writing
3 Credits
Intensive instruction and practice in college-level writing. English ACT score of 16 or below is required. Student must pass writing proficiency to progress to ENGL 1221. CREDIT EARNED DOES NOT SATISFY
GRADUATION REQUIREMENTS FOR ANY PROGRAM OFFERED AT THE UNIVERSITY. Formerly ENGL 105. Corequisite(s): AASG 0971. Must be enrolled in one of the following Classifications: Freshman.

**AASG 1101 - Pre-Law Orientation**
*1 Credit*
How to prepare for admission to law school. Introduction to legal education and the legal profession. This course may be repeated 1 time.

**AASG 1111 - Introduction to Legal Reasoning**
*1 Credit*
Introduction to how to think like a lawyer. Includes rules and the rule of law, the use of precedent and authority, the interpretation of precedent and statutes, law making versus rule making. This course is repeatable for a total of 1 hour.

**AASG 1121 - Analytical Reasoning**
*1 Credit*
Explore analytical reasoning in the various branches of the law. Develop and improve analytical reasoning abilities. Appreciate the role of future coursework in developing analytical reasoning ability. Assess analytical reasoning abilities as measured by the LSAT.

**AASG 1131 - Pre-Law Seminar**
*1 Credit*
 Preparation for applying to law school and a career in the legal profession. Includes writing the application essay, constructing a resume, LSAT preparation, choosing the right law school, introduction to the legal profession. This course is repeatable for a total of 1 hour.

**AASG 1951 - Publication Activities Practicum**
*1 Credit*
Participation in design, photography, writing, and producing the Ohio Northern University yearbook. Formerly AASG 110. This course is repeatable for a total of 11 hours.

**AASG 3001 - Career Search Strategies**
*1 Credit*
An experiential environment facilitating learning skills that enable development and implementation of personalized and successful intern, professional employment and graduate/professional school search strategies. May not be enrolled in one of the following Classifications: Freshman.

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**Department of Aerospace Studies**

**Subject - Aerospace Studies (AERO)**

**AERO 1110 - Air Force Organization 1**
*2 Credits*
Organization of the United States Air Force. Focus on missions involving airlift forces, strategic forces, tactical forces as well as overseas forces. Development and employment of weapons systems and logistic support functions. Leadership laboratory activities. Offered fall semester.
**AERO 1120 - Air Force Organization 2**
*2 Credits*
Organization of the United States Air Force. Focus on U.S. Defense policies, military balance between U.S. and eastern European forces as well as capabilities of Army, Navy and Reserve/Guard forces. Officership/professionalism and introduction to flight. Leadership laboratory activities. Offered spring semester.

**AERO 2110 - Air Force History 1**
*2 Credits*
Development of air power from the first lighter-than-air vehicles through the establishment of the Department of the Air Force as an independent military force. Various concepts of employment of air power and factors which have prompted research and technological change. Examples of impact of air power on strategic thought. Leadership laboratory activities. Offered fall semester.

**AERO 2120 - Air Force History 2**
*2 Credits*
Development of air power since the establishment of the independent Air Force to the present. Various concepts of employment of air power and factors which have prompted research and technological change. Examples of impact of air power on strategic thought. Leadership laboratory activities. Offered spring semester.

**AERO 3110 - Air Force Management 1**
*3 Credits*
Integrated management course emphasizing individual as a leader in the Air Force. Human behavior, individual and in groups, historical development of management thought, discussion of classical leadership theory; oral and written communication, military writing and briefing formats. Leadership laboratory activities. Offered fall semester.
Course Attributes:
Requires Department Approval

**AERO 3120 - Air Force Management 2**
*3 Credits*
Continuation of AERO 3110. Air Force leadership, planning, organizing, coordinating, directing and controlling functions of management with emphasis on Air Force application, concept of command and staff, junior officer as administrative leader, Air Force personnel system, management of change, managerial strategy in changing environment. Leadership laboratory activities. Offered spring semester.

**AERO 4110 - American National Security 1**
*3 Credits*
Role of the President, the Congress and National Security Council in national security policy making; American defense strategy; alliances; regional security; arms control. Leadership laboratory activities. Offered fall semester.
Course Attributes:
Requires Department Approval

**AERO 4120 - American National Security 2**
*3 Credits*
Air Force Officer as part of national security forces; military law; laws of armed conflict; the military profession; transition to military life; relations with civilian community. Leadership laboratory activities. Offered spring semester.

## Department of Army ROTC

### Subject – Army ROTC (ARMY)

**ARMY 1000 - Lifetime Leadership Skills**  
*2 Credits*  
Skills needed to be successful in a wide range of environments to include academic, corporate and military. Subjects include but are not limited to time management, memory comprehension, effective and efficient reading and effective note taking. Extensive leadership studies of both corporate and military settings focuses on interpersonal skills, professional ethics and officership. No military obligation or prerequisites.

**ARMY 1010 - ROTC and the National Defense Organization**  
*3 Credits*  
Background, programs, benefits and objectives of Army ROTC. Organization and functions of national defense establishment, with emphasis on the role of the U.S. Army. Extensive discussion of the role and responsibility of the Army officer.

**ARMY 2010 - Leadership/Officership**  
*2 Credits*  
Theoretical and practical leadership instruction. Examination of several aspects of communication and leadership concepts such as written and oral communication, effective listening, assertiveness, personality, adult development, motivation, and organizational culture and change. Emphasis on developing intellectual curiosity and clarifying practical applications.

**ARMY 2020 - Military Tactics**  
*2 Credits*  
Army tactics, principles of engagement and usage of military maps. Simulation exercises and war games will be utilized in class highlighting military tactics. No military obligation.

**ARMY 3010 - Professionalism/Leadership**  
*3 Credits*  
Professionalism and leadership required of the U.S. Army Officer; application of leadership principles and styles through case studies and role-playing exercises with emphasis on military situations. Participation in leadership labs, physical training program and field training exercises required. Requires completion of one of the following: ROTC basic course at BGSU; ROTC Basic Camp at Fort Knox, KY; prior active duty service; Army Reserve or Army National Guard basic training.  
Course Attributes:  
Requires Department Approval

**ARMY 3020 - Small Unit Operations**  
*3 Credits*
Organization and employment of basic military teams. Squad- and platoon-level tactical operations. Progressive leadership development through application of tactical principles. Participation in leadership labs, physical training program and field training exercises required.

**ARMY 4010 - Unit Management and Officer Development**  
*3 Credits*  
Concepts and fundamentals of Army unit administration, supply and material readiness. Professional officership techniques and military ethics. Management at the small unit level. Organizing, planning, and participating in field training exercises, participation in physical training and leadership labs.  
Course Attributes:  
Requires Department Approval

**ARMY 4020 - Military Law & Leadership**  
*3 Credits*  
Organization and concepts of the U.S. Army judicial system including court martial and punitive actions. Fundamentals of the military decision making process. Discussions of various administrative details pertinent to newly commissioned lieutenants. Participation in field training exercises, physical training and leadership labs.

**ARMY 4700 - Studies In Military Science**  
*1 to 3 Credits*  
Offered on demand. Detailed study of selected military subjects. Offered on lecture basis in seminar or independent study depending on students’ needs and nature of material. This course is repeatable for a total of 6 hours.  
Course Attributes:  
Requires Instructor Approval

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**Department of Art and Design**

**Subject - Art (ART)**

**ART 1101 - Visual Foundations 1**  
*3 Credits*  
Composition, perception and analysis of visual space through direct observation and the manipulation of elements and principles of design. Offered fall semester.  
Course Attributes:  
AS-FINRT Fine Arts  
Informed Responses-Aesthetics

**ART 1111 - Visual Foundations 2**  
*3 Credits*  
Drawing and design as a means of expression, invention and communication through interaction of perceptual skills, visual language, subject matter and color organization, phenomena, and interaction. Offered spring semester. Prerequisite(s): ART 1101 or ART 150.  
Course Attributes:  
AS-FINRT Fine Arts
ART 1501 - 3-D Design
3 Credits
The visual language, methods and techniques of three-dimensional design. Emphasis on conceptual thinking skills. Offered spring semester.
Course Attributes:
AS-FINRT Fine Arts

ART 1601 - First Year Seminar
1 Credit
Familiarization to areas of art and design research, scholarship, and study within visual experiences and across disciplines. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts

ART 1651 - Visual Literacy
3 Credits
Analysis into the theories, practices, techniques, language and media of the visual arts and design. Fundamentals of art historical study, styles and periods. Focus on major works from prehistoric world through contemporary issues to cultural and social contexts. Emphasis on identifying relationships between composition, form and content. Offered fall and spring semesters.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics

ART 1981 - Special Topics in Art
1 to 3 Credits
Topics in art. Enrollment restricted to attendees of the Summer Honors Institute. May repeat as topic varies. This course may be repeated 3 times.
Course Attributes:
AS-FINRT Fine Arts

ART 1991 - Special Topics in Art and Design
1 to 3 Credits
May repeat as topic varies. This course may be repeated 2 times.
Course Attributes:
AS-FINRT Fine Arts

ART 2111 - Life Drawing
3 Credits
Composition, proportion, structure and form from direct observation of the human figure. Offered spring semester. Prerequisite(s): ART 1111 or (ART 160 and ART 170).
Course Attributes:
AS-FINRT Fine Arts

ART 2201 - Painting 1
3 Credits
Concepts and competencies of painting through direct observation. Offered fall semester.
ART 2211 - Painting 2
3 Credits
Creating and controlling visual space and form and their relationship to composition. Offered alternate spring semesters. Prerequisite(s): ART 2201 or ART 250.
Course Attributes:
AS-FINRT Fine Arts

ART 2251 - Watercolor
3 Credits
Concepts, competencies and techniques of aqueous media through composition. Offered alternate spring semesters. This course may be repeated 2 times.
Course Attributes:
AS-FINRT Fine Arts

ART 2401 - Ceramics 1
3 Credits
Composition and methods of forming clay objects using various hand building and wheel throwing techniques, including decorating, glazing and firing. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts

ART 2411 - Ceramics 2
3 Credits
Advanced methods and techniques of forming clay objects; hand building, wheel throwing, glazing and firing. Offered spring semester. Prerequisite(s): ART 2401 or ART 255.
Course Attributes:
AS-FINRT Fine Arts

ART 2501 - Sculpture: Additive & Subtractive
3 Credits
The composition and rendering of sculpture in clay, plaster, wood, and stone. Emphasis on technical skills and the organization of form and space. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

ART 2551 - Sculpture: Small Metals
3 Credits
The visual language, concepts, materials and technical skills of small-scale sculpture. Offered alternate spring semesters.
Course Attributes:
AS-FINRT Fine Arts
ART 2601 - Art History 1  
3 Credits  
Western tradition of painting, sculpture and architecture from the Prehistoric era through the Renaissance. Offered fall semester.  
Course Attributes:  
AS-FINRT Fine Arts

ART 2611 - Art History 2  
3 Credits  
Western tradition of painting, sculpture and architecture from the 16th century to contemporary. Offered spring semester.  
Course Attributes:  
AS-FINRT Fine Arts

ART 2651 - Non-Western Art  
3 Credits  
Painting, sculpture and architecture beyond the Western tradition such as India, Southeast Asia, Africa, Japan, Korea, the Pacific area and the Americas. Offered alternate spring semesters. This course may be repeated 2 times.  
Course Attributes:  
AS-FINRT Fine Arts  
Non Western Cultural

ART 2801 - Book Arts  
3 Credits  
Extradisciplinary seminar. An introduction to the book arts as a medium of creative expression, communication, design, and innovation. Drawing upon both the historic and contemporary western bookbinding tradition, this course is an initiation into fundamental binding forms, techniques, and materials. Offered spring semester. This course may be repeated 2 times.  
Course Attributes:  
AS-FINRT Fine Arts

ART 2991 - Special Topics in Art and Design  
1 to 3 Credits  
May repeat as topic varies. This course may be repeated 2 times.  
Course Attributes:  
AS-FINRT Fine Arts

ART 3301 - Print and Paper 1  
3 Credits  
Provides hands-on experience in the fundamentals of screen printing and the making of traditional western style handmade papers. The objective is to produce reference samples of various kinds of sheets, as well as edition sheets of papers for book or printmaking purposes. Offered alternate fall semesters.  
Course Attributes:  
AS-FINRT Fine Arts
ART 3311 - Print and Paper 2

3 Credits

Provides hands-on experience in the fundamentals of relief printing, including letterpress, and the making of traditional western style handmade papers. The objective is to produce reference samples of various kinds of sheets, as well as edition sheets of papers for book or printmaking purposes. Offered alternate fall semesters.

Course Attributes:
AS-FINRT Fine Arts

ART 3501 - Sculpture: Mold Making & Casting

3 Credits

The composition and methods of plaster molds for reproduction and altering of direct cast ceramics and in lost wax casting of bronze. Emphasis on organizational problems of form and space. Offered alternate spring semesters.

Course Attributes:
AS-FINRT Fine Arts

ART 3511 - Sculpture: Installation

3 Credits

Design of sculptural environments and site-specific work. Offered alternate fall semesters.

Course Attributes:
AS-FINRT Fine Arts

ART 3991 - Special Topics in Art and Design

1 to 3 Credits

May repeat as topic varies. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

ART 4101 - Advanced Illustration

3 Credits

Innovative visual solutions in illustration and the mastery of advanced techniques through creative and professional work habits. Offered spring semester. Prerequisite(s): ART 1111 or (ART 160 and ART 170 and ART 210). This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

ART 4111 - Advanced Life Drawing

3 Credits

Structure of the human body with the aim of producing drawings of greater structural and visual integrity. Offered spring semester. Prerequisite(s): ART 2111 or ART 210. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

ART 4201 - Advanced Painting

3 Credits
Creating and controlling pictorial space and form and their relationship to concept and composition. Offered spring semester. Prerequisite(s): ART 2211 or ART 251. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

**ART 4301 - Advanced Print and Paper**
3 Credits
Self-directed study in printmaking and papermaking processes. Offered spring semester. Prerequisite(s): ART 3301 or ART 379 or ART 3311 or ART 377 or ART 375 or ART 385. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

**ART 4401 - Advanced Ceramics**
3 Credits
Directed study. Offered fall and spring semesters. Prerequisite(s): ART 2411 or ART 350. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

**ART 4501 - Advanced Sculpture**
3 Credits
Directed study. Offered fall and spring semesters. Prerequisite(s): ART 3501 or (ART 360 and ART 370) or ART 3511 or ART 365. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

**ART 4691 - Seminar in Art and Design**
1 to 3 Credits
May repeat as topic varies. This course may be repeated 4 times.

Course Attributes:
AS-FINRT Fine Arts

**ART 4801 - Advanced Book Arts**
3 Credits
Relationship between the book, text and image through narrative, pacing, and techniques in illustration, drawing and printmaking. Traditional and non-traditional applications utilized. May repeat to 6 credits. Offered spring semester. Prerequisite(s): ART 2801. This course may be repeated 2 times.

Course Attributes:
AS-FINRT Fine Arts

**ART 4901 - Senior Capstone in Art 1**
3 Credits
Yearlong investigative project that synthesizes liberal arts and major learning objectives. Offered fall semester.

Course Attributes:
AS-FINRT Fine Arts
ART 4911 - Senior Capstone in Art 2
3 Credits
Culmination and presentation of demonstrated knowledge of practices, methods, theories, concepts, and issues. Offered spring semester. Prerequisite(s): ART 4901 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts

ART 4921 - Externship
1 to 3 Credits
Supervised field experience in an approved studio, agency, firm, department, museum, university, arts organization, or non-profit. International or domestic study may count toward requirement with department authorization. Formal presentation to department required after completion. Offered fall and spring semesters. This course is repeatable for a total of 9 hours.
Course Attributes:
Requires Instructor Approval

ART 4981 - Independent Study in Art
1 to 3 Credits
May repeat as topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ART 4991 - Special Topics in Art and Design
1 to 3 Credits
May repeat as topic varies. This course may be repeated 2 times.

Subject - Design (DSGN)

DSGN 1101 - Photography and Communication
3 Credits
Communication in the context of image creation; composition and technical skills through aesthetics and style. Methods in concept, image and form development, presentation formats, sequence and narrative. Offered spring semester.
Course Attributes:
AS-FINRT Fine Arts

DSGN 1201 - Introductory Visual Communication Design
3 Credits
Basic methods, processes, language, composition and theory of working in two-dimensional communication design. Emphasis on problem analysis, creative concept development, analytical and technical skills. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts

DSGN 1301 - Typography
3 Credits
Examines typographic changes brought about through cultural, political and sociological influences; language theories; and technological development. Integrates lessons from the past with contemporary theory and technology. Lectures based on four language components: letter and word, sentence and meaning, language and structure, text and textuality. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts

**DSGN 1981 - Special Topics in Design**

*1 Credit*

Topics in design. Enrollment restricted to attendees of the Summer Honors Institute. May repeat as topic varies. This course may be repeated 3 times.

**DSGN 1991 - Special Topics in Design**

*1 to 3 Credits*

May repeat as topic varies. This course may be repeated 2 times.

**DSGN 2101 - Advanced Photography and Communication**

*3 Credits*

Visual language in context of form, content and meaning; aesthetics and style; sequence and narrative. Offered spring semester. Prerequisite(s): DSGN 1101 or ART 240. This course may be repeated 1 time.

Course Attributes:
AS-FINRT Fine Arts

**DSGN 2401 - Narrative Structures**

*3 Credits*

Design thinking and the exploration of the nature and practice of visual communication as a story-telling and framing activity in print media. Emphasis on research, concept development and technical skills. Offered spring semester. Prerequisite(s): DSGN 1301 or ART 223.

Course Attributes:
AS-FINRT Fine Arts

**DSGN 2601 - Design Research Methods**

*3 Credits*

Research design, gathering, analysis, application and presentation of information for graphic designers. Emphasis on role of research in problem solving process, from initial client intake, to problem definition, design requirements, screening, selection and refinement, to implementation and postproject evaluation. Offered alternate fall semesters.

Course Attributes:
AS-FINRT Fine Arts

**DSGN 2651 - History of Graphic Design**

*3 Credits*

Events, ideas, movements, artifacts and designers that have historical significance and influence on contemporary graphic design and the profession. Exploration of the role of design in society and the nature, influence and impact of changing design methods, materials, technologies, theories and values. Offered alternate fall semesters.

Course Attributes:
AS-FINRT Fine Arts

**DSGN 2801 - Design for Social Change**

*3 Credits*

Design thinking and the examination of historical, cultural, political or environmental relationships as it
p pertains to the ways in which design can improve our world. May repeat as topic varies. Offered alternate spring semesters. This course may be repeated 2 times.
Course Attributes:
AS-FINRT Fine Arts

DSGN 2991 - Special Topics in Design
1 to 3 Credits
May repeat as topic varies. This course may be repeated 2 times.

DSGN 3401 - Packaging and Identity Design
3 Credits
Investigation of comprehensive applied problems in visual communication addressing design identity, branding programs and consumer-oriented design. Offered fall semester. Prerequisite(s): DSGN 1301 or ART 340.
Course Attributes:
AS-FINRT Fine Arts

DSGN 3501 - Persuasive Design
3 Credits
Examination of form, content and context that shape persuasive communication including commercial, political and social contexts; persuasive strategies, critical techniques and ethical issues in shaping design. Offered spring semester. Prerequisite(s): DSGN 2401 or ART 341.
Course Attributes:
AS-FINRT Fine Arts

DSGN 3551 - Advertising Design 1
3 Credits
Form and content that shape communication branding strategies in advertising design. Examination of concept development, the psychology of effective visual messages and the creative, intelligent, emotional and persuasive writing/images of ad campaigns. Offered alternate spring semesters. Prerequisite(s): DSGN 2401 or ART 340.
Course Attributes:
AS-FINRT Fine Arts

DSGN 3561 - Advertising Design 2
3 Credits
Design thinking of integrated communications into media, three-dimensional artifacts and campaigns as an extension of brand experience and strategic solutions. Offered alternate spring semesters. Prerequisite(s): DSGN 3551 or ART 342.
Course Attributes:
AS-FINRT Fine Arts

DSGN 3701 - Visual Interface Design
3 Credits
Communication design of visual interfaces and the analytical behavioral, cognitive and linguistic dimensions of designing for dynamic information environments. May repeat to 6 credits. Offered fall semester. Prerequisite(s): DSGN 1301 or ART 340. This course is repeatable for a total of 3 hours.
Course Attributes:
DSGN 3751 - Interactive Design and Identity
3 Credits
Design thinking and processes in the context of e-commerce, branding and identity, usability and hierarchical form. May repeat to 6 credits. Offered spring semester. Prerequisite(s): DSGN 1301 or ART 341. This course is repeatable for a total of 3 hours.
Course Attributes:
AS-FINRT Fine Arts

DSGN 3991 - Special Topics in Design
1 to 3 Credits
May repeat as topic varies. This course may be repeated 2 times.

DSGN 4201 - Advanced Visual Communication Design
3 Credits
Design thinking and processes in the context of transformation design; interdisciplinary design issues addressed as a means of participation, response, adaptation and innovation beyond traditional design solutions to create fundamental change. May repeat as topic varies. Offered spring semester.
Prerequisite(s): DSGN 3501 or ART 440. This course may be repeated 2 times.
Course Attributes:
AS-FINRT Fine Arts

DSGN 4601 - Professional Practices in Design
3 Credits
In-house design and project management issues with emphasis on collaborative communication problem-solving, designer/client relationships, research strategies, legal issues, production methods and ethics in design. Offered fall semester. This course may be repeated 2 times.
Course Attributes:
AS-FINRT Fine Arts

DSGN 4691 - Seminar in Design
1 to 3 Credits
May repeat as topic varies. This course may be repeated 4 times.

DSGN 4901 - Senior Capstone in Design 1
3 Credits
Yearlong investigative project that synthesizes liberal arts and departments learning objectives. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts

DSGN 4911 - Senior Capstone in Design 2
3 Credits
Culmination and presentation of demonstrated knowledge of practices, methods, theories, concepts, and issues. Offered spring semester. Prerequisite(s): DSGN 4901 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts
DSGN 4921 - Internship
1 to 3 Credits
Supervised field experience in an approved commercial studio, agency, firm, department, museum, gallery, arts organization, or non-profit. Approval of department required prior to registration. Formal presentation to department required after completion. May repeat, but only 12 credits count toward graduation. Offered fall and spring semesters. This course is repeatable for a total of 11 hours.
Course Attributes:
Requires Instructor Approval

DSGN 4981 - Independent Study in Design
1 to 3 Credits
May repeat as topic varies. Unlimited repeats permitted.

DSGN 4991 - Special Topics in Design
1 to 3 Credits
May repeat as topic varies. This course may be repeated 2 times.

Department of Biological and Allied Health Sciences

Subject - Biological Sciences (BIOL)

BIOL 1031 - Life and Earth Sciences for Early and Middle Childhood Education Majors
3 Credits
Diversity, evolution, ecology, cell biology, inheritance and earth science as they affect and have affected life on earth. A Nature Center use fee and lab fee are charged. DOES NOT SATISFY ANY REQUIREMENTS FOR THE MAJOR IN BIOLOGY, CLINICAL LABORATORY SCIENCE, ENVIRONMENTAL AND FIELD BIOLOGY, OR MOLECULAR BIOLOGY. Formerly BIOL 103. Must be enrolled in one of the following Fields of Study: Early Childhood Education, Education, Middle Childhood Education.
Course Attributes:
AS - Math\Natural Sciences
Scientific and Quantitative Literacy

BIOL 1101 - Principles and Concepts of Human Biology
3 Credits
This course is designed to take the basic principles of cell structure and function and incorporate them into a working knowledge of the organ systems of the human body by using hands-on experiments and laboratory exercises to reinforce concepts presented in lecture. A lab fee is charged. Formerly BIOL 110. Must be enrolled in one of the following Fields of Study: Nursing, Pharmaceutical Business.
Course Attributes:
AS - Math\Natural Sciences

BIOL 1201 - Introductory Biology
4 Credits
An introduction to the concepts underlying the structure and function of cells including their organization, chemical foundations, metabolism, and the principles and mechanisms of heredity and
gene expression. Laboratory activities emphasize the scientific method in exploring these topics. A lab fee is charged. May not be enrolled in one of the following Departments: Biological & Allied Health Sciences.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 1311 - Biology 1: Cells and Molecules**

*4 Credits*

An introduction to the concepts underlying the structure and function of cells including their organization, chemical foundations, metabolism, and the principles and mechanisms of heredity and gene expression. Laboratory activities emphasize the scientific method in exploring these topics. A lab fee is charged. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Biochemistry ACS Certified, Biology, Civil Engineering, Clinical Laboratory Science, Computer Engineering, Electrical Engineering, Engineering Education, Environmental and Field Biology, Forensic Biology, Mechanical Engineering, Molecular Biology.

Course Attributes:
AS - Math\Natural Sciences
Scientific and Quantitative Literacy

**BIOL 1321 - Biology 2: Organismal Biology**

*4 Credits*

Comprehensive integrated study of plant and animal anatomy and physiology focusing on the major systems. Corresponding inquiry-based laboratories complement the lecture. A lab fee is charged. Offered fall and spring semesters. Prerequisite(s): BIOL 1311. Must be enrolled in one of the following Fields of Study: Biochemistry ACS Certified, Biology, Civil Engineering, Clinical Laboratory Science, Computer Engineering, Electrical Engineering, Engineering Education, Environmental and Field Biology, Forensic Biology, Mechanical Engineering, Molecular Biology.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 1341 - Human Anatomy and Histology**

*3 Credits*

Basic anatomy of human tissues and organ systems at the gross and microscopic levels. DOES NOT SATISFY ANY REQUIREMENTS FOR THE MAJOR IN BIOLOGY OR MOLECULAR BIOLOGY. Offered spring semester. Prerequisite(s): BIOL 1311 or BIOL 1201. Corequisite(s): BIOL 1361.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 1361 - Lab for Human Anatomy and Histology**

*1 Credit*

This course is designed to take the basic principles of cell structure and function and incorporate them into a working lab for BIOL 1341. Human systems studied using cat dissection, radiographs, anatomical models and histological slides. Offered spring semester. Prerequisite(s): BIOL 1311 or BIOL 1201. Corequisite(s): BIOL 1341.

**BIOL 1911 - Summer Honors Institute**

*1 Credit*
Topics in the Biological and Allied Health Sciences field. Enrollment is restricted to attendees of the Summer Honors Institute. May be repeated as the topic varies. This course may be repeated 6 times.

Course Attributes:
Requires Instructor Approval

**BIOL 1951 - Biology Orientation**

*1 Credit*

Presentations and discussions relating to adjustment and requirements of academic life within the University, College and the Department of Biological & Allied Health Sciences. Offered spring semester.

**BIOL 2001 - Biology 3: Diversity of Life**

*4 Credits*

Investigations of ecological and evolutionary processes, biodiversity, phylogenetic relationships, and paleogeography. A lab fee is charged. Offered spring semester. Prerequisite(s): BIOL 1321. Must be enrolled in one of the following Fields of Study: Biochemistry ACS Certified, Biology, Civil Engineering, Clinical Laboratory Science, Computer Engineering, Electrical Engineering, Engineering Education, Environmental and Field Biology, Forensic Biology, Mechanical Engineering, Molecular Biology.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2011 - Environmental Issues**

*3 Credits*

The interaction of humans and their surroundings with an emphasis on the problems arising from increasing human population, pollution, and resource use. Offered fall and spring semesters.

Course Attributes:
AS - Math\Natural Sciences
Scientific and Quantitative Literacy

**BIOL 2041 - Systematic Plant Survey**

*3 Credits*

The phylogeny, classification, morphology, and development of selected plant and algal taxa. A Nature Center use fee and lab fee are charged. Formerly BIOL 204. Offered alternate years. Prerequisite(s): BIOL 2001.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2101 - Genetics**

*4 Credits*

Cytogenetics, Mendelian, molecular, and population genetics. Molecular genetics has an emphasis on biotechnology. Labs are paper and computer based. Emphasis on human genetics. A lab fee is charged. Formerly BIOL 210. Offered fall and spring semesters. Prerequisite(s): (BIOL 1311 or BIOL 123) and (CHEM 1721 or CHEM 173 or CHEM 183 or CHEM 1821).

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2131 - Natural History**

*2 Credits*
The recognition, identification, and understanding of local biotic communities and their inhabitants. Field study is emphasized. A Nature Center use fee and lab fee are charged. Offered spring semester.

Course Attributes:
AS - Math\Natural Sciences
Informed Ethical Responses

**BIOL 2151 - Microbiology for Nurses**
*3 Credits*
The characteristics and control of microorganisms related to human infectious disease. Prerequisite(s): BIOL 2311 or BIOL 231. Corequisite(s): BIOL 2321. Must be enrolled in one of the following Fields of Study: Nursing.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2171 - Molecular Biology**
*3 Credits*
Structure and function of DNA, RNA and Proteins. Transcription, gene regulation, mobile DNA, and molecular evolution. On each topic prokaryotes and eukaryotes are compared. Lab is focused on molecular techniques. A lab fee is charged. Offered fall and spring semesters. Prerequisite(s): BIOL 2101 or BIOL 210.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2191 - Forensic Biology 1**
*4 Credits*
Introduction and Investigating the Crime Scene, Identifying and Processing Physical Evidence including, Hair and Fibers, Glass, Fingerprints, Questioned Documents, Firearms, Inorganic substances: Determination of Trace Metals from Gunshot Residue, Arson, Drugs of Abuse, Toxicology, Biological Fluids and Introduction to Forensic DNA Typing, Explosives and Detection of Weapons of Mass Destruction will be covered. Introduction to theory and practice of forensic chemical analysis from spot tests through instrumentation including practical application of this instrumentation. A laboratory fee is charged. High school biology, chemistry and physics are required. Offered fall semester. Prerequisite(s): BIOL 1311 Minimum Grade of C or BIOL 123 Minimum Grade of C.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2231 - Invertebrate Zoology**
*3 Credits*
The diversity, ecology, evolution, morphology and developmental biology of invertebrate animals. Emphasis on major phyla. A lab fee is charged. Offered spring semester. Prerequisite(s): BIOL 2001 or BIOL 123.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 2291 - Forensic Biology 2**
*4 Credits*
This course is a continuation of the Forensic Biology 2191 course. Topics will include the practice of forensic sciences including an emphasis on forensic toxicological methods and includes Legal Aspects of
Forensic Science, Admissibility Standards for Forensic Evidence in the Courts, including aspects of Federal Rules of Evidence, Frye and Daubert Hearings. Ethical considerations of past and present issues. In addition, the introduction to the practice of quality assurance and quality control in the laboratory. A lab fee is charged. Offered fall semester. Prerequisite(s): BIOL 2191 Minimum Grade of C or BIOL 219 Minimum Grade of C.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 2311 - Anatomy and Physiology 1**
3 Credits
Cells, tissues, skin, nervous, endocrine, skeletal, muscular, and cardiovascular systems. CREDIT CANNOT BE RECEIVED FOR BOTH BIOL 2311 AND BIOL 3241. A lab fee is charged. Offered fall and spring semesters. Prerequisite(s): BIOL 1101 or BIOL 110 or BIOL 1321 or BIOL 1341 or BIOL 124 or BIOL 122.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 2321 - Anatomy and Physiology 2**
3 Credits
Continuation of BIOL 2311. Blood, lymphatic, respiratory, digestive, excretory, and reproductive systems. CREDIT CANNOT BE RECEIVED FOR BOTH BIOL 2321 AND BIOL 3251. A lab fee is charged. Offered fall and spring semesters. Prerequisite(s): BIOL 2311 or BIOL 231.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 2381 - Emergency Medical Technician Training**
1 Credit
Ohio Department of Public Safety certified training program. Successful completion of course requirements, and National Registry of Emergency Medical Technicians examination provides national EMT_Basic certification. Open to all students. DOES NOT COUNT TOWARD THE MAJOR IN BIOLOGY. Offered fall semester.
Course Attributes:
Requires Instructor Approval

**BIOL 2401 - OSHA 40 Hour Safety Training**
2 Credits
Response operations for the remediation incidents involving hazardous materials. Provided by arrangement with the Rhodes State College in Lima. DOES NOT COUNT AS A BIOLOGY COURSE. Offered fall semester.

**BIOL 2451 - OSHA Refresher**
1 Credit
Complies with requirements regarding annual follow-up training for hazardous waste site workers who have previously completed BIOL 240 (OSHA Safety Training). Taught at Rhodes State College in Lima. DOES NOT COUNT AS A BIOLOGY COURSE. Offered fall semester. Prerequisite(s): BIOL 2401 or BIOL 240. This course may be repeated 3 times.

**BIOL 2511 - Ecology**
4 Credits
Study of the theory and application of how organisms interact with their biotic and abiotic environment. Considers organismal-, population-, community-, and ecosystem-level ecology. A lab fee is charged. Offered fall semester. Prerequisite(s): BIOL 2001 or BIOL 123.
Course Attributes:
AS - Math\Natural Sciences

BIOL 2531 - Nutrition for Nurses
3 Credits
The maintenance of health through conventional dietary strategies, energy factors associated with body weight and the pathology of various body systems with corresponding medical nutrition therapies. Offered spring semester. Prerequisite(s): BIOL 2321 or BIOL 232. Must be enrolled in one of the following Fields of Study: Nursing.
Course Attributes:
AS - Math\Natural Sciences

BIOL 2551 - Epidemiology
3 Credits
A broad overview of the field of epidemiology, with heavy emphasis on infectious diseases. Students will explore the relationship between behavior and health or disease, learn to identify patterns of disease transmission, and learn how to design an effective epidemiological study and how to evaluate and interpret the results of published studies. BIOL 1201 or BIOL 1311 or permission of instructor required prior to enrollment in this course. Offered spring semester. Prerequisite(s): BIOL 1201 or BIOL 1311 or BIOL 122.
Course Attributes:
AS - Math\Natural Sciences

BIOL 2591 - Forensic Crime Scene Investigation
4 Credits
The techniques of crime scene investigation and reconstruction will emphasize recognition and search, collection and preservation of physical evidence. Exercises will require acquisition of skills to sketch, note take and photograph crime scenes and evidence. Emphasis will be on the goal of crime scene reconstruction. Practical techniques for fingerprint evidence recovery, cast and impressions along with bloodstain evidence and crime scene photography will be practiced. A laboratory fee is charged. Offered spring semester. Prerequisite(s): BIOL 2291 or BIOL 239.
Course Attributes:
AS - Math\Natural Sciences

BIOL 2631 - Biogeography
4 Credits
Current and historic distribution of plants and animals related to major geological and evolutionary concepts. A Nature Center use fee and lab fee are charged. Formerly BIOL 263. Offered alternate spring semesters. Prerequisite(s): BIOL 2001 or BIOL 123.
Course Attributes:
AS - Math\Natural Sciences

BIOL 2691 - Forensic Computer Analysis
4 Credits
History of Computer crime, investigations of pre-search and on-scene activities, data analysis and file
recovery on devices such as computer and cell phones. Actual in class secured network simulations. Hands-on activities utilizing FBI approved software. A laboratory fee is charged. Formerly BIOL 229. Offered spring semester. Prerequisite(s): BIOL 2191 or BIOL 219.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 2751 - Medicinal Herbs**

*1 Credit*

Students will identify locally growing medicinal herbs, learn current and historical medicinal uses for herbs from many locales and practice hands-on techniques for preparation of herbal remedies. Students will participate in a Service Learning Project to establish a medicinal herb garden on campus, develop an educational pamphlet to serve as a self guided tour of the garden, develop web pages as an educational tool for the herb garden website and deliver a class presentation on one herb. A lab fee is charged.

**BIOL 2901 - Special Topics in Biological Sciences**

*1 to 3 Credits*

Grading system at the discretion of the instructor. May be repeated for credit as the topic varies. Maximum of 6 hours can be counted toward the major. Formerly BIOL 290. This course may be repeated 7 times. This course is repeatable for a total of 7 hours.
Course Attributes:
Requires Instructor Approval

**BIOL 3011 - Developmental Anatomy**

*3 Credits*

Development of the embryo through the first 8 weeks, as well as germ cell formation, fertilization, conception, and implantation events. Comparative embryological development presented, with focus on human development. A lab fee is charged. Offered spring semester. Prerequisite(s): BIOL 2001 or BIOL 123.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 3021 - Human Anatomy**

*4 Credits*

Human body systems using x-rays, MRIs, skeletal material, and cadaver dissection. A lab fee is charged. BIOL 2001 or BIOL 122 or permission of instructor required prior to enrollment in this course. Offered fall semester. Prerequisite(s): BIOL 2001 or BIOL 122.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 3031 - Histology**

*4 Credits*

Human cells, tissues, organs, and systems studied at the microscopic level. A lab fee is charged. Formerly BIOL 303. Offered fall semester. Prerequisite(s): BIOL 1201 or BIOL 1311 or BIOL 122.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 3051 - Environmental Toxicology**

*3 Credits*
Effects of both man-made and natural toxic agents in plant and animal systems. Offered fall semester. Prerequisite(s): (BIOL 1201 or BIOL 1311) and (CHEM 1721 or CHEM 1821 or CHEM 173 or CHEM 183). Course Attributes: AS - Math\Natural Sciences

**BIOL 3091 - Integrated Plant Anatomy and Physiology**
4 Credits
Principles of vascular plant morphology, anatomy, and ultra-structure are integrated with the basic physiological processes of growth, development, transport, and response to the environment. A lab fee is charged. Formerly BIOL 308 and BIOL 310. Offered alternate spring semesters. Prerequisite(s): BIOL 2001 or BIOL 123. Course Attributes: AS - Math\Natural Sciences

**BIOL 3111 - Microbiology**
4 Credits
Students will be expected to master the basic principles of microbiology. Although students will focus their studies on the different groups of bacteria and viruses, a brief survey of fungi, algae, and protozoans will also be performed. The significance of microbes will be discussed in terms of their medical, environmental, economical, and research importance as students practice laboratory techniques for culturing, identifying, and manipulating them. A lab fee is charged. Offered spring semester. Prerequisite(s): (BIOL 2001 or BIOL 122) and (CHEM 1721 or CHEM 1821 or CHEM 173 or CHEM 183). Course Attributes: AS - Math\Natural Sciences

**BIOL 3131 - Medical Microbiology**
3 Credits
Microbial cell biology, antimicrobial chemotherapy, interactions of microorganisms with humans and other organisms, microbial diversity. Offered fall and spring semesters. Prerequisite(s): (BIOL 1341 or BIOL 124) and (CHEM 1721 or CHEM 173 or CHEM 183 or CHEM 1821). Course Attributes: AS - Math\Natural Sciences

**BIOL 3151 - Medical Terminology**
1 Credit
Students will master the vocabulary of the medical field as it pertains to the ten major body systems. Additionally, students will review medical terminology associated with the following specific related disciplines: pharmacology, optometry, otorhinolaryngology, emergency medicine, gerontology, radiology, oncology, physical therapy, occupational therapy, rehabilitation services, surgery, psychiatry, alternative medicine, and pediatrics. Offered fall semester.

**BIOL 3191 - Forensic Microscopy**
3 Credits
Introduction to fundamentals of light and optics, to advanced microscopical analysis including forensic sample analysis utilizing bright field, dark field, polarizing, fluorescent and phase contrast microscopy. Laboratory application to forensic science for identification of hairs, fibers and trace evidence. A lab fee
BIOL 3221 - Bioscience Laboratory

1 Credit
Methods used in drug development; routine histological techniques, and in vitro and in vivo drug screening. In vivo models of selected diseases are presented. Experimental data analysis in microbiology, molecular biology and cell biology. A lab fee is charged. Formerly BIOL 322 and BIOL 323. Offered fall semester. Prerequisite(s): BIOL 313 or BIOL 3131.

BIOL 3241 - Medical Physiology 1

4 Credits
The first in a sequence of two courses that provides an in-depth survey of human physiology systems. The course includes didactic lectures, group discussion/scenario problem solving, and laboratories that present comparisons across various vertebrate and invertebrate species. The laboratories closely follow the content presented in lectures and incorporate some classical experiments pertaining to neural, skeletal muscle, and gastrointestinal physiology. Students will also work in teams to conduct literature reviews, design research proposals, and present these designs in podium presentations. A lab fee is charged. CREDIT CANNOT BE RECEIVED FOR BOTH BIOL 3241 AND BIOL 2311. Formerly BIOL 325. Offered fall semester. Prerequisite(s): (BIOL 2001 and CHEM 1721) or (BIOL 122 and CHEM 173) or (BIOL 122 and CHEM 183).

BIOL 3251 - Medical Physiology 2

4 Credits
The second in a sequence of two courses that provides an in-depth survey of human physiology systems. The course includes didactic lectures, group discussion/scenario problem solving, and laboratories that incorporate some classical experiments pertaining to cardiovascular, respiratory, renal, endocrine and reproductive physiology. Students will work in teams to collect, analyze and interpret data pertaining to the approved research protocols submitted in Medical Physiology I, and will present their findings in oral (poster) and written formats. A lab fee is charged. CREDIT CANNOT BE RECEIVED FOR BOTH BIOL 3251 and BIOL 2321. Offered spring semester. Prerequisite(s): BIOL 3241 or BIOL 324.

BIOL 3291 - Forensic Physical Methods

4 Credits
Introduction to advanced examination of firearms evidence, gunshot residue analysis, tool mark identification, vehicle lamp examination, serial number restoration and forensic shooting reconstruction and advanced fingerprint identification and latent prints with practical application of the Cogent CAFIS software and interpretation. An introduction to ACE-V application of the paradigm of analysis, comparison, evaluation and verification. A laboratory fee is charged. Offered fall semester. Prerequisite(s): BIOL 2291 Minimum Grade of C or BIOL 239 Minimum Grade of C.

Course Attributes:
AS - Math\Natural Sciences
BIOL 3311 - Physiology 1
4 Credits
The first in a sequence of two courses that provides an in-depth survey of human physiology systems. The course includes didactic lectures, pharmacy connections and practical applications of physiological principles through scenario analyses. Major themes covered in this course include: transport across the plasma membrane, the somatic and autonomic nervous systems, smooth and skeletal muscle physiology, and the gastrointestinal system. Formerly BIOL 331. Prerequisite(s): (BIOL 1341 and CHEM 1721) or (BIOL 124 and CHEM 173) or (BIOL 124 and CHEM 183). Must be enrolled in one of the following Fields of Study: Pharmacy.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3321 - Physiology 2
4 Credits
The second in a sequence of two courses that provides an in-depth survey of human physiology systems. The course includes didactic lectures, pharmacy connections and practical applications of physiological principles through scenario analyses. Offered spring semester. Prerequisite(s): BIOL 3311 or BIOL 331. Must be enrolled in one of the following Fields of Study: Pharmacy.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3401 - Professional Experience Co-op
4 Credits
Experience in a biologically or environmentally-related occupation with a governmental, consulting or industrial entity. Offered fall semester. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
AS - Math\Natural Sciences
Requires Department Approval

BIOL 3431 - Histological Techniques
3 Credits
Principles and procedures used in the preparation of biological specimens for microscopic study. Techniques include tissue spreads and smears, and paraffin and frozen sections using routine and histochemical stains. A lab fee is charged. Offered as needed. Prerequisite(s): BIOL 1321 or BIOL 122. This course is repeatable for a total of 4 hours.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3511 - Cell Biology
3 Credits
Students will be expected to integrate lecture and laboratory data regarding cell structure and function to develop an understanding of eukaryotic cells as dynamic entities. A lab fee is charged. Offered spring semester. Prerequisite(s): (BIOL 1311 Minimum Grade of C and CHEM 1721) or (BIOL 123 and CHEM 173) or (BIOL 123 and CHEM 183).
Course Attributes:
AS - Math\Natural Sciences
BIOL 3521 - Integrated Cell and Molecular Biology Laboratory  
2 Credits  
Execution of advanced research techniques in molecular/cellular biology utilizing plant and animal model systems with added emphasis on data analysis and interpretation. A lab fee is charged. Offered fall and spring semesters. Prerequisite(s): (BIOL 1311 or BIOL 122 or BIOL 123) and (CHEM 1721 or CHEM 1821 or CHEM 173 or CHEM 183). Corequisite(s): BIOL 2171, BIOL 3511.  
Course Attributes:  
AS - Math\Natural Sciences

BIOL 3541 - Bioinformatics  
4 Credits  
Introduction to the use of data mining using the extensive NCBI-based applications for the field of genomic and proteomics analysis. Computer-based laboratory and homework exercises using NCBI databases and other public domain sequence sources to explore genetic diseases, antibiotic resistance, protein function, the relationship between RNA sequence and protein structure prediction, and molecular phylogenetics with a slant to evolution theory. A laboratory fee is charged. Offered fall semester. Prerequisite(s): (BIOL 2101 or BIOL 210) and (BIOL 2171 or BIOL 217).  
Course Attributes:  
AS - Math\Natural Sciences

BIOL 3571 - Forensics DNA Analysis  
4 Credits  
Review of the historical methods of forensic DNA analysis and including multiple techniques for the extraction, Quantitativeification and analysis of genomic STR, mitochondrial DNA and Y-STR analysis. Laboratory will include sample collection methods, storage and characterization of various crime scene samples and performance of human DNA Quantitativeification, autosomal DNA analysis, mitoypying and Y-STR typing. Includes the statistical interpretation of forensic DNA evidence, DNA databases, and Quality Assurance. A laboratory fee is charged. Offered spring semester. Prerequisite(s): (BIOL 2291 or BIOL 239) and (BIOL 2171 or BIOL 217). Corequisite(s): CHEM 3111, CHEM 3151.  
Course Attributes:  
AS - Math\Natural Sciences  
Requires Instructor Approval

BIOL 3601 - North American Mammals  
3 Credits  
Natural history, behavior, ecology and systematics of North American orders and most North American families. A weekend field trip is required. A lab fee is charged. Offered on demand. Prerequisite(s): BIOL 1321.  
Course Attributes:  
AS - Math\Natural Sciences

BIOL 3611 - Entomology  
3 Credits  
Morphology, physiology, ecology, evolution and taxonomy of insects. Laboratory emphasizes field collection, identification and curation of insects. A weekend field trip is required. A Nature Center use fee and lab fee are charged. BIOL 2231 recommended. Offered alternate fall semesters. Prerequisite(s): BIOL 2001 or BIOL 123.
Course Attributes:
AS - Math\Natural Sciences

**BIOL 3621 - Parasitology**
3 Credits
Taxonomy, pathology, ecology, and evolution of major human and veterinary protozoan and metazoan parasites, including their distribution, life cycles, prevention and control. BIOL 2231 recommended. A lab fee is charged. Offered alternate fall semesters. Prerequisite(s): BIOL 2001 or BIOL 123.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 3631 - Ornithology**
3 Credits
Study of taxonomy, ecology, natural history, and behavior of birds, with emphasis on North American taxa. A weekend field trip is required. A Nature Center use fee and lab fee are charged. BIOL 2001 or BIOL 123 or permission of instructor is required prior to enrollment in this course. Formerly BIOL 363. Prerequisite(s): BIOL 2001 or BIOL 123.

Course Attributes:
AS - Math\Natural Sciences
Requires Instructor Approval

**BIOL 3641 - Herpetology**
3 Credits
Amphibians and reptiles emphasizing species native and introduced to Ohio and neighboring states. A weekend field trip is required. A Nature Center use fee and lab fee are charged. Formerly BIOL 364. Offered on demand. Prerequisite(s): BIOL 2001 or BIOL 123.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 3651 - Forensic Entomology**
3 Credits
Application of insects to legal proceedings, especially medico-criminal. The collection and identification of larval and adult insects from carrion models and their use in determining post-mortem interval is emphasized. Recent developments in the field of forensic entomology, including molecular and laboratory techniques, are examined. A lab fee is charged. Offered alternate fall semesters. Prerequisite(s): BIOL 2001 Minimum Grade of C or BIOL 2291 Minimum Grade of C or BIOL 122 Minimum Grade of C.

Course Attributes:
AS - Math\Natural Sciences

**BIOL 3661 - Environmental Research Methods**
3 Credits
The study of the design, execution, analysis, and communication of original research in environmentally-oriented fields. Offered fall semester. Prerequisite(s): (BIOL 2001 or BIOL 123) and (BIOL 2131 or BIOL 213). Corequisite(s): BIOL 3671, BIOL 3681, BIOL 3691, BIOL 3701.

Course Attributes:
AS - Math\Natural Sciences
BIOL 3671 - Field Botany
3 Credits
Identification of native aquatic and terrestrial flora with an emphasis on the use of keys, principles of classification, field work, ecological concepts, and herbarium methods. University defensive driving certification required. A Nature Center use fee and lab fee are charged. Offered fall semester. Prerequisite(s): (BIOL 2001 or BIOL 123) and (BIOL 2131 or BIOL 213). Corequisite(s): BIOL 3661, BIOL 3681, BIOL 3691, BIOL 3701.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3681 - Ichthyology
3 Credits
Fish biology, particularly Ohio freshwater teleosts, emphasizing field exercises, techniques and systematics. University defensive driving certification required. A Nature Center use fee and lab fee are charged. Offered fall semester. Prerequisite(s): (BIOL 2001 or BIOL 123) and (BIOL 2131 or BIOL 213). Corequisite(s): BIOL 3661, BIOL 3671, BIOL 3691, BIOL 3701.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3691 - Field Invertebrate Biology
3 Credits
Field investigations of aquatic and terrestrial invertebrates emphasizing the diversity, ecology, conservation, and methods for their study. University defensive driving certification required. A Nature Center use fee and lab fee are charged. Offered fall semester. Prerequisite(s): (BIOL 2001 or BIOL 123) and (BIOL 2131 or BIOL 213). Corequisite(s): BIOL 3661, BIOL 3671, BIOL 3681, BIOL 3701.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3701 - Marine Biology
3 Credits
Organisms and their habitats emphasizing southeastern and Gulf coastal and offshore environments. A two-week field trip to a selected marine environment is required. University defensive driving certification required. Additional fee is charged. Offered fall semester. Prerequisite(s): (BIOL 2001 or BIOL 123) and (BIOL 2131 or BIOL 213). Corequisite(s): BIOL 3661, BIOL 3671, BIOL 3681, BIOL 3691.
Course Attributes:
AS - Math\Natural Sciences
Requires Instructor Approval

BIOL 3711 - Advanced Marine Biology
3 Credits
Ecological, physical and chemical aspects of marine systems. A two-week field trip to a selected marine environment is required. An additional fee is charged. Prerequisite(s): BIOL 3701 or BIOL 271.
Course Attributes:
AS - Math\Natural Sciences
Requires Instructor Approval

BIOL 3721 - Topics in Marine Biology
3 Credits
Ecological, physical and chemical aspects of marine systems. A two-week field trip to a selected marine environment is required. An additional fee is charged. Formerly BIOL 372. Offered alternate spring semesters. Prerequisite(s): BIOL 3701 or BIOL 271.
Course Attributes:
AS - Math\Natural Sciences
Requires Instructor Approval

BIOL 3831 - Animal Behavior
3 Credits
Invertebrates and vertebrates, stressing observational and descriptive techniques. Offered alternate years. A lab fee is charged. Prerequisite(s): BIOL 2001 or BIOL 123.
Course Attributes:
AS - Math\Natural Sciences

BIOL 3971 - Self-Directed Studies in the Biological Sciences
1 to 3 Credits
Investigation of specialty fields within the biological sciences by utilizing interactive and/or multimedia programs. A maximum of 3 hours may be counted toward the major. Cannot be used as a general education class. Graded S/U. Formerly BIOL 397. Offered fall and spring semesters. Prerequisite(s): BIOL 2001 or BIOL 123.

BIOL 4231 - Topics in Ecology and Biogeography
3 Credits
Current literature on selected topics. May be repeated for credit as the topics vary. Formerly BIOL 423. Offered spring semester. Prerequisite(s): (BIOL 2511 or BIOL 251) and (BIOL 2631 or BIOL 263). Unlimited repeats permitted.
Course Attributes:
AS - Math\Natural Sciences
Requires Instructor Approval

BIOL 4511 - Advanced Topics in Cell Biology
2 Credits
Current literature on selected cell biology. May be repeated for credit as the topics vary. Formerly BIOL 451. Offered fall semester. Prerequisite(s): (BIOL 3511 or BIOL 351) and (CHEM 3111 or CHEM 311) or (PHBS 3411 or PHBS 341). This course is repeatable for a total of 6 hours.
Course Attributes:
AS - Math\Natural Sciences

BIOL 4621 - Biological Fluids
3 Credits
Lecture/laboratory coverage of various human body fluids, including urine, sweat, seminal fluid, amniotic fluid, cerebrospinal fluid, and serous fluids, the physical and biochemical methods used to analyze them, and correlations of results with states of health and disease. A lab fee is charged. Minimum grade of C for MLS majors. Offered fall semester.
Course Attributes:
AS - Math\Natural Sciences
Requires Instructor Approval
**BIOL 4631 - Clinical Immunology**  
*3 Credits*
Lecture/laboratory coverage of the structure and function of the human immune system and methods used to diagnose, prognose, and monitor its response in health and disease states. A lab fee is charged. Minimum grade of C for MLS majors. Offered summers.  
Course Attributes:  
AS - Math\Natural Sciences  
Requires Instructor Approval

**BIOL 4641 - Hematology and Hemostasis**  
*5 Credits*
Lecture/laboratory coverage of human blood ontogeny, kinetics, pathophysiology, and methods used to diagnose, prognose, and monitor diseases of the blood, blood forming tissues, and disorders of ASBIOL BIOL hemostasis. A lab fee is charged. Minimum grade of C for MLS majors. Offered fall semester.  
Course Attributes:  
Requires Instructor Approval

**BIOL 4671 - Diagnostic Microbiology**  
*5 Credits*
Lecture/laboratory coverage of microbes of medical interest, emphasizing application of conventional methods and emerging technologies to isolate, identify, and detect antimicrobial susceptibility of bacteria, viruses, fungi, and parasites associated with human disease. A lab fee is charged. Minimum grade of C for MLS majors. Offered summers.  
Course Attributes:  
Requires Instructor Approval

**BIOL 4811 - Internship Program**  
*12 Credits*
Experience enables the student to experience working with scientists in a professional workplace. Only 4 credit hours can be used in the major. The Major Field Test (ETS) is required. A special fee is assessed. Formerly BIOL 481. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Senior.

**BIOL 4821 - Internship in Environmental Studies**  
*12 Credits*
Experience working with scientists in a professional workplace. Only 4 credit hours can be used in the major. The Major Field Test (ETS) is required. A special fee is assessed. Formerly BIOL 482. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Environmental Studies. Must be enrolled in one of the following Classifications: Senior.

**BIOL 4831 - Forensic Biology Internship**  
*4 Credits*
Capstone experience for Forensic Biology Major or Biology Major/Molecular Biology Majors with Criminal Justice Option. This experiential program is designed for the student to work in a forensic testing laboratory or laboratory approved by the Director of the Forensic Biology Major and the Internship Committee. Completion of three years of forensic biology coursework or senior status. Only 4 credit hours can be used in the major. ETS Major Field Test in Biology or American Board of Criminalistics (ABC) Forensic Science Aptitude Test is required. A special fee is assessed. Formerly BIOL
483. Prerequisite(s): BIOL 3571 Minimum Grade of C or BIOL 357 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Biology, Forensic Biology, Molecular Biology.
Course Attributes:
AS - Math\Natural Sciences
Requires Department Approval

**BIOL 4841 - Experiential Biology**
*4 Credits*
Summer off-campus field and laboratory experiences. Only available during summer terms. 400 hours of experiential experience required. ETS Major Field Test in Biology is required. A special fee is assessed. Must be enrolled in one of the following Classifications: Junior.
Course Attributes:
AS - Math\Natural Sciences
Requires Department Approval

**BIOL 4901 - Special Topics in Biological Sciences**
*1 to 4 Credits*
Disciplines such as mammalogy and plant taxonomy. May be repeated for credit as topic varies. A lab fee is charged. Formerly BIOL 490. This course is repeatable for a total of 7 hours.

**BIOL 4921 - Capstone Experience**
*1 Credit*
Experience off-campus REU research program, study abroad, internship or other approved experience in a biological field of study. Student must be approved by the Department in the semester prior to enrollment. Offered fall and spring semesters.

**BIOL 4941 - Capstone Seminar**
*1 Credit*
Oral and written presentations of Capstone Experience. A special fee is assessed. Offered fall and spring semesters. Prerequisite(s): BIOL 4921 Minimum Grade of C.

**BIOL 4971 - Independent Research in Biology**
*1 to 3 Credits*
For students interested in mentored research project with the proposed topic approved by the department and chair. The completed research will involve a scientific paper. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Biology, Clinical Laboratory Science, Environmental Studies, Forensic Biology, Molecular Biology. This course is repeatable for a total of 7 hours.

**Subject - Geology (GEOL)**

**GEOL 2801 - Geology**
*3 Credits*
Physical geology and paleogeology, including chemical properties of minerals and rocks, geologic processes, and earth materials. May be taken without GEOL 2811. Formerly GEOL 280. Offered fall semester.
Course Attributes:
AS - Math\Natural Sciences

GEOL 2811 - Geology Lab
1 Credit
Labs utilize minerals, rock, sediments, maps and field trips to illustrate techniques used by geologists. A Nature Center use fee and lab fee are charged. Corequisite(s): GEOL 2801.

GEOL 2901 - Special Topics in Geology
1 to 4 Credits
Labs utilize minerals, rock, sediments, maps, and field trips to illustrate techniques used by geologists. A Nature Center use fee is charged. May be repeated for credit up to total of 8 hours as the topic varies. Formerly GEOL 290. Offered fall semester. Prerequisite(s): GEOL 2801 or GEOL 280. This course is repeatable for a total of 7 hours.

GEOL 2971 - Independent Study in Geology
1 to 3 Credits
Independent study in geology. Formerly GEOL 297. Offered fall semester. This course is repeatable for a total of 6 hours.
Course Attributes:
Requires Instructor Approval

Subject - Medical Laboratory Science (MLS)

MLS 4601 - Foundations of Medical Laboratory Science
3 Credits
Lecture/laboratory coverage of the professional practices, including safety, regulatory issues, phlebotomy and specimen collection, handling, and processing, quality assurance, professionalism and ethics. Lab fee charged. Offered summers. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

MLS 4611 - Professional Practice & Development
3 Credits
Web-based, interactive coverage of clinical laboratory management including organizational structure, laboratory operations, leadership, team building, legal issues, interpersonal and interdisciplinary communication, resources management, career development and education methodology. Offered fall semester. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

MLS 4651 - Blood Banking & Transfusion
3 Credits
Lecture/laboratory coverage of blood groups biochemistry, genetics, and immunology, and discipline specific practices including donor selection, component preparation, detection and identification of antibodies, and compatibility testing. Lab fee charged. Offered fall semester. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.
Course Attributes:
Requires Instructor Approval
**MLS 4661 - Medical Chemistry**  
*4 Credits*  
Lecture/laboratory coverage of analytical principles, techniques, and applications of tests to diagnose, assess, and manage health and disease states. Lab fee charged. Offered summers. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.  
**Course Attributes:**  
Requires Instructor Approval

**MLS 4681 - Medical Laboratory Practicum**  
*2 Credits*  
Practical experience emphasizing policies and procedures governing operations including safety, specimen collection and phlebotomy, resource management, communications and information systems. Lab fee charged. Offered spring semester.

**MLS 4691 - Medical Hematology Practicum**  
*4 Credits*  
Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a clinical setting, and further develop discipline-specific competency. Lab fee is charged. Offered spring semester. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

**MLS 4701 - Blood Bank Practicum**  
*4 Credits*  
Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a clinical setting, implement therapy protocols, and further develop discipline-specific competency. Lab fee charged. Offered spring semester. Prerequisite(s): MLS 4651 Minimum Grade of C or MLS 465 Minimum Grade of C. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

**MLS 4711 - Medical Chemistry Practicum**  
*4 Credits*  
Practical experience emphasizing application of knowledge and skills to perform a wide variety of testing in a clinical setting and further develop discipline-specific competency. Lab fee charged. Offered spring semester. Prerequisite(s): MLS 4661 Minimum Grade of C or MLS 466 Minimum Grade of C. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

**MLS 4721 - Medical Microbiology Practicum**  
*4 Credits*  
Practical experience emphasizing application of knowledge and skills in a clinical setting to perform a wide variety of testing and to further develop discipline-specific competency. Lab fee charged. Offered spring semester. Prerequisite(s): BIOL 4671 Minimum Grade of C or BIOL 467 Minimum Grade of C. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

**MLS 4731 - Immunology and Infectious Diseases Practicum**  
*2 Credits*  
Practical experience emphasizing application of knowledge and skills in a clinical setting to perform a wide variety of testing and to further develop discipline-specific competency. Lab fee charged. Offered
spring semester. Prerequisite(s): BIOL 4631 Minimum Grade of C or BIOL 463 Minimum Grade of C. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

**MLS 4741 - Case Studies in Medical Laboratory Science**

*1 Credit*

Exploration of current topics in the field of laboratory medicine culminating in a written manuscript suitable for publication in a discipline-specific journal. The course may be repeated to appreciate various topical prospects. Offered spring semester. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science.

**MLS 4901 - Special Topics in Medical Laboratory Science**

*1 to 3 Credits*

Exploration of current topics in the field of laboratory medicine culminating in a written manuscript suitable for publication in a discipline-specific journal. The course may be repeated to appreciate various topical prospects. Must be enrolled in one of the following Major fields of study: Medical Laboratory Science. This course is repeatable for a total of 6 hours.

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**Department of Chemistry and Biochemistry**

**Subject - Chemistry (CHEM)**

**CHEM 1001 - Chemistry in Society**

*3 Credits*

The behavior of matter at the macroscopic level and explanations of this behavior using molecular-level models. Applications in everyday life. Chemistry 1711 recommended for science majors. Credit may be received for only one of the following courses: CHEM 1001, CHEM 1201, CHEM 1501, CHEM 1711, or CHEM 1811. Offered fall and spring semesters.

Course Attributes:
- AS - Math\Natural Sciences
- Scientific and Quantitative Literacy

**CHEM 1201 - Chemistry for the Health Sciences**

*5 Credits*

Chemical principles and theories in the areas of atomic structure, chemical bonding, solution chemistry, redox chemistry and acid/base chemistry. Basic principles and applications of kinetics and thermodynamics. Stereochemistry, functional groups and the basic properties of functional groups. Structures, properties and functions of biologically relevant carbohydrates, lipids, and proteins. Facets of DNA structures and replication as well as relevant concepts in protein synthesis. Principles of enzyme catalysis in biochemical processes with application to specific pathways in both carbohydrate and lipid metabolism. Basic bioenergetic principles as present in the citric acid and oxidative phosphorylation. Lab supports principles presented in lecture. Credit may be received for only one of the following courses: CHEM 1001, CHEM 1201, CHEM 1501, CHEM 1711, or CHEM 1811. High school chemistry recommended. Offered fall and spring semesters.

Course Attributes:
- AS - Math\Natural Sciences
- Scientific and Quantitative Literacy
CHEM 1501 - Chemistry for Engineering
3 Credits
Atomic structure, the mole, stoichiometry, chemical reactions, thermochemistry, electron configuration, periodicity, bonding, molecular structure, states of matter, solutions, thermodynamics, kinetics, equilibrium, acids, bases, and electrochemistry. Taken concurrently with CHEM 1551. Credit may be received for only one of the following courses: CHEM 1001, CHEM 1201, CHEM 1501, CHEM 1711, or CHEM 1811. High school chemistry recommended. Offered fall semester. Prerequisite(s): CHEM 1551.
Course Attributes:
AS - Math\Natural Sciences

CHEM 1551 - Chemistry for Engineering Lab
1 Credit
Lab for CHEM 1501. Taken concurrently with CHEM 1501. Offered fall semester. Prerequisite(s): CHEM 1501.

CHEM 1711 - General Chemistry 1
5 Credits
Macroscopic concepts of the elements, compounds and reactions. Stoichiometry, thermochemistry and properties of ideal gases as applied to reactive systems. Emphasis on acid-base, redox, and descriptive chemistry. Atomic theory and its application to bonding. Laboratory supports principles presented in lecture, including spectroscopy. Credit may be received for only one of the following courses: CHEM 1001, CHEM 1201, CHEM 1501, CHEM 1711, or CHEM 1811. High school chemistry required. Offered fall semester.
Course Attributes:
AS - Math\Natural Sciences
Scientific and Quantitative Literacy

CHEM 1721 - General Chemistry 2
5 Credits
Molecular structure, condensed phases, chemical reactions and mechanisms. Physical principles controlling chemical reactions including kinetics, thermodynamics, electrochemistry, and acid-base equilibrium conditions. Laboratory supports principles presented in lecture, including kinetics and equilibrium. Credit may be received for either CHEM 1721 or CHEM 1821, but not for both. Offered spring semester. Prerequisite(s): CHEM 1711 or CHEM 1811 or CHEM 172 or CHEM 182.
Course Attributes:
AS - Math\Natural Sciences

CHEM 1811 - General Chemistry 1 - Majors
5 Credits
Macroscopic concepts of the elements, compounds and reactions. Stoichiometry, thermochemistry and properties of ideal gases as applied to reactive systems. Emphasis on acid-base, redox, and descriptive chemistry. Atomic theory and its application to bonding. Laboratory supports principles presented in lecture, including spectroscopy. Credit may be received for only one of the following courses: CHEM 1001, CHEM 1201, CHEM 1501, CHEM 1711, or CHEM 1811. Offered fall semester.
Course Attributes:
AS - Math\Natural Sciences
Scientific and Quantitative Literacy
CHEM 1821 - General Chemistry 2 - Majors
5 Credits
Molecular structure, condensed phases, chemical reactions and mechanisms. Physical principles controlling chemical reactions including kinetics, thermodynamics, electrochemistry, and acid-base equilibrium conditions. Laboratory supports principles presented in lecture, including kinetics and equilibrium. Credit may be received for either CHEM 1721 or CHEM 1821, but not for both. Offered spring semester. Prerequisite(s): CHEM 1711 or CHEM 1811 or CHEM 172 or CHEM 182.
Course Attributes:
AS - Math\Natural Sciences

CHEM 1901 - Special Topics
1 to 3 Credits
Can be repeated as topic varies. Unlimited repeats permitted.

CHEM 2001 - Capstone 1
1 Credit
Methods and objectives of chemical research. Undergraduate research opportunities in the department. Science literature search engines. Summer research opportunities at other institutions. Offered fall semester. Prerequisite(s): CHEM 1821 or CHEM 1721 or CHEM 183 or CHEM 173.
Course Attributes:
Informed Ethical Responses

CHEM 2311 - Analytical Chemistry 1
4 Credits
Practice and principles of modern chemical methods of analysis including instrumental methods. Offered fall semester. Prerequisite(s): CHEM 1721 or CHEM 1821 or CHEM 183 or CHEM 173.
Course Attributes:
AS - Math\Natural Sciences

CHEM 2401 - Elements of Physical Chemistry
3 Credits
Principles and applications of selected areas of physical chemistry including thermodynamics, kinetics, and spectroscopy. Credit may be received for CHEM 2401 or CHEM 3411 but not for both. Offered alternate spring semesters. Prerequisite(s): CHEM 1501 or CHEM 1721 or CHEM 1821 or CHEM 183 or CHEM 173 or CHEM 226.
Course Attributes:
AS - Math\Natural Sciences

CHEM 2481 - Chemical Applications of Mathematics
3 Credits
Application of mathematical techniques to problems in chemistry. Offered spring semester. Prerequisite(s): (CHEM 1721 or CHEM 1821 or CHEM 183 or CHEM 173) and (MATH 1641 or MATH 165).
Course Attributes:
AS - Math\Natural Sciences

CHEM 2511 - Organic Chemistry 1
3 Credits
Bonding, acidity, functional groups, conformations, stereochemistry, nomenclature, fundamental reactions/mechanisms (SN1, SN2, E1, E2) of organic chemistry, addition reactions to alkenes and alkynes, oxidation and reduction, and structure determination using IR, NMR, and MS spectroscopy. Taken concurrently with CHEM 2551. Credit may be received for CHEM 2511 or 2611, but not for both. Offered fall semester. Prerequisite(s): (CHEM 1721 or CHEM 1821 or CHEM 183 or CHEM 173) and CHEM 2551.

Course Attributes:
AS - Math\Natural Sciences

**CHEM 2521 - Organic Chemistry 2**
3 Credits
Reactions with/on radicals, dienes, aromatics, alcohols, carbonyls, amines, the structure and chemistry of carbohydrates, and organic polymer chemistry. Taken concurrently with CHEM 2561. Credit may be received for CHEM 2521 or 2621, but not for both. Formerly known as CHEM 253. Offered spring semester. Prerequisite(s): (CHEM 2511 and CHEM 2551 and CHEM 2561) or (CHEM 2611 and CHEM 2651 and CHEM 2561) or (CHEM 252 and CHEM 2561) or (CHEM 262 and CHEM 2561).

Course Attributes:
AS - Math\Natural Sciences

**CHEM 2551 - Organic Chemistry Lab 1**
1 Credit
Basic laboratory techniques used for synthesis, isolation, purification, and analysis of organic compounds are studied in the course. Some functional group interconversion, substitution, and elimination processes are introduced. Structure analysis using spectroscopy. The lab experiments are designed to illustrate practical implementation of the theories and concepts learned in lecture. Taken concurrently with CHEM 2511. Credit may be received for CHEM 2551 or 2651, but not for both. Offered fall semester. Prerequisite(s): CHEM 2511.

**CHEM 2561 - Organic Chemistry Lab 2**
1 Credit
Reactions with/on radicals, dienes, aromatics, alcohols, carbonyls, amines, the structure and chemistry of carbohydrates, and organic polymer chemistry. Taken concurrently with CHEM 2521. Credit may be received for CHEM 2561 or 2661, but not for both. Offered spring semester. Prerequisite(s): CHEM 2521.

**CHEM 2611 - Organic Chemistry 1 - Majors**
3 Credits
Bonding, acidity, functional groups, conformations, stereochemistry, nomenclature, fundamental reactions/mechanisms (SN1, SN2, E1, E2) of organic chemistry, addition reactions to alkenes and alkynes, oxidation and reduction, and structure determination using IR, NMR, and MS spectroscopy. Taken concurrently with CHEM 2651. Credit may be received for CHEM 2511 or 2611, but not for both. Offered fall semester. Prerequisite(s): (CHEM 1721 or CHEM 1821 or CHEM 183 or CHEM 173) and CHEM 2651.

Course Attributes:
AS - Math\Natural Sciences

**CHEM 2621 - Organic Chemistry 2 - Majors**
3 Credits
Reactions with/on radicals, dienes, aromatics, alcohols, carbonyls, amines, the structure and chemistry
of carbohydrates, and organic polymer chemistry. Taken concurrently with CHEM 2661. Credit may be received for CHEM 2521 or 2621, but not for both. Formerly known as CHEM 263. Offered spring semester. Prerequisite(s): (CHEM 2511 and CHEM 2551 and CHEM 2661) or (CHEM 2611 and CHEM 2651 and CHEM 2661) or (CHEM 252 and CHEM 2661) or (CHEM 262 and CHEM 2661).

Course Attributes:
AS - Math\Natural Sciences

CHEM 2651 - Organic Chemistry Lab 1 - Majors
1 Credit
Basic laboratory techniques used for synthesis, isolation, purification, and analysis of organic compounds are studied in the course. Some functional group interconversion, substitution, and elimination processes are introduced. Structure analysis using spectroscopy. The lab experiments are designed to illustrate practical implementation of the theories and concepts learned in lecture. Taken concurrently with CHEM 2611. Credit may be received for CHEM 2551 or 2651, but not for both. Offered fall semester. Prerequisite(s): CHEM 2611.

CHEM 2661 - Organic Chemistry Lab 2 - Majors
2 Credits
Free radical reactions, cycloaddition, electrophilic aromatic substitution, and other reactions relevant to the lecture material are explored. The reactivity of phenols, enolates, amines, and carboxylic acid derivatives is investigated. The structure of carbohydrates, and representative multiple-step organic syntheses of relevant pharmaceutical agents are explored. Grignard and multiple step synthesis are introduced. Use of the chemical literature. Routine acquisition of NMR, IR, MS spectra and other physical data are used for structure elucidation of unknown organic compounds. In-depth coverage of two-dimensional NMR, IR UV, and MS spectroscopy. Taken concurrently with CHEM 2621. Credit may be received for CHEM 2561 or 2661, but not for both. Formerly known as CHEM 266. Offered spring semester. Prerequisite(s): CHEM 2611.

CHEM 2901 - Special Topics
1 to 3 Credits
Can be repeated as topic varies. Unlimited repeats permitted.

CHEM 2971 - Independent Study
1 to 4 Credits
Offered fall and spring semesters. This course is repeatable for a total of 4 hours.

CHEM 3001 - Capstone 2
1 Credit
Careers in the chemical/biochemical sciences. Critical evaluation of scientific literature. Preparation for oral presentations. Offered spring semester. Prerequisite(s): CHEM 2001 or CHEM 200.
Course Attributes:
Effective Comm Writing

CHEM 3111 - Biochemistry
3 Credits
Fundamentals of biochemistry with emphasis on the structures and properties of the major classes of biological molecules and the relationships between biomolecular structure and function; introduction to enzyme catalysis and metabolic pathways. Optional associated laboratory: CHEM 3151. Offered fall
CHEM 3151 - Biochemistry Lab
1 Credit
Structure and properties of proteins, carbohydrates, lipids, and nucleic acids; introduction to enzyme kinetics and proteomics. Taken concurrently with CHEM 3111 or PHBS 3411. Offered fall semester. Prerequisite(s): CHEM 3111 or PHBS 3411.

CHEM 3201 - Medicinal Chemistry
3 Credits
Fundamentals of drug design and drug action including SAR, stereochemical considerations, free energy relationships, receptors, enzymes, prodrugs and drug metabolism. Isolation, synthesis, characterization, and biology of bioactive natural products. Offered alternate spring semesters. Prerequisite(s): (CHEM 2521 and CHEM 2561) or (CHEM 2621 and CHEM 2661) or (CHEM 253 or CHEM 263).

CHEM 3261 - Medicinal Chemistry Lab
1 Credit

CHEM 3411 - Physical Chemistry 1
4 Credits
Classical thermodynamics. Quantitative mechanics of atoms and molecules. Laboratory illustrates principles and applications. Offered fall semester. Prerequisite(s): (CHEM 2481 and PHYS 2311 and PHYS 2321 and PHYS 2341 and PHYS 2351) or (MATH 2631 and MATH 2651 and MATH 3261 and PHYS 2311 and PHYS 2321 and PHYS 2341 and PHYS 2351).

CHEM 3421 - Physical Chemistry 2
4 Credits
Molecular structure, statistical thermodynamics, and reaction dynamics. Laboratory illustrates applications in spectroscopy and kinetics. Offered spring semester. Prerequisite(s): CHEM 3411 or CHEM 342.

CHEM 3601 - Organic Synthesis
4 Credits
Retrosynthetic analysis, functional group transformations, asymmetric synthesis, organometallic chemistry. Laboratory involves multistep synthesis utilizing techniques to work with air and water sensitive materials, standard purification techniques, and organic product characterization. Offered alternate spring semesters. Prerequisite(s): (CHEM 2621 and CHEM 2661) or CHEM 263.
CHEM 3711 - Inorganic Chemistry 1
3 Credits
Bonding, structures, preparation, properties, compounds, and reactions of main group and transition metal elements. Laboratory involves basic methods of synthesis and characterization. Offered fall semester. Prerequisite(s): (CHEM 2621 and CHEM 2661) or CHEM 263.

CHEM 3751 - Inorganic Chemistry 1 Lab
1 Credit
Lab for CHEM 3711. Offered fall semester. Corequisite(s): CHEM 3711.

CHEM 3901 - Special Topics
1 to 3 Credits
Can be repeated as topic varies. Unlimited repeats permitted.

CHEM 4001 - Capstone 3
2 Credits
Oral presentation and a formal paper on a chemical topic. Offered spring semester. Prerequisite(s): CHEM 3001 or CHEM 300.
Course Attributes:
Critical and Creative Thinking
Effective Comm Non-Writing

CHEM 4111 - Advanced Biochemistry: Proteins and Metabolism
3 Credits
In depth study of protein structure and function; enzyme kinetics and mechanisms; regulation and integration of metabolism; bioenergetics. Offered alternate spring semesters. Prerequisite(s): CHEM 3111 or CHEM 311.
Course Attributes:
AS - Math\Natural Sciences

CHEM 4121 - Advanced Biochemistry: Information Transfer
3 Credits
DNA replication and repair; transcription; RNA modifications; translation; control of gene expression; signal transduction. Offered alternate spring semesters. Prerequisite(s): CHEM 3111 or CHEM 311.
Course Attributes:
AS - Math\Natural Sciences

CHEM 4161 - Advanced Biochemistry Lab
2 Credits
Purification and characterization of biological macromolecules; enzyme kinetics and uses of enzymes in biochemical analyses. Offered spring semester. Prerequisite(s): CHEM 3151 or CHEM 315.

CHEM 4321 - Analytical Chemistry 2
3 Credits
Theoretical and experimental study of modern methods of instrumental analysis. Principles, design and
use of chemical instrumentation. Laboratory stresses independent, investigative experimentation. Can be taken concurrently with CHEM 3421. Offered alternate spring semesters. Prerequisite(s): (CHEM 2311 or CHEM 351) and (CHEM 3421 or CHEM 343).

Course Attributes:
AS - Math\Natural Sciences

**CHEM 4421 - Advanced Physical Chemistry**
3 Credits
Selected topics from group theory, advanced Quantum mechanics, spectroscopy and chemical dynamics. Knowledge of computer programming recommended. Can be taken concurrently with CHEM 3421. Offered alternate spring semesters. Prerequisite(s): CHEM 3421 or CHEM 343.

Course Attributes:
AS - Math\Natural Sciences

**CHEM 4601 - Physical Organic Chemistry**
3 Credits
Application of molecular orbital theory, thermodynamics, and kinetics to the study of organic reaction mechanisms. Can be taken concurrently with CHEM 3421. Offered alternate spring semesters. Prerequisite(s): (CHEM 2521 or CHEM 2621 or CHEM 253 or CHEM 263) and (CHEM 3421 or CHEM 343).

Course Attributes:
AS - Math\Natural Sciences

**CHEM 4721 - Inorganic Chemistry 2**
3 Credits
Theory, bonding, spectroscopy, reaction mechanisms and organometallic compounds. Laboratory involves advanced methods of synthesis and characterization. Can be taken concurrently with CHEM 3421. Offered alternate spring semesters. Prerequisite(s): (CHEM 3711 or CHEM 324) and (CHEM 3421 or CHEM 343).

Course Attributes:
AS - Math\Natural Sciences

**CHEM 4811 - Senior Research 1**
2 Credits
Mentored research project. Offered fall semester. Prerequisite(s): CHEM 3001 or CHEM 300.

**CHEM 4821 - Senior Research 2**
2 Credits
Mentored research project. Offered spring semester. Prerequisite(s): CHEM 4811.

**CHEM 4901 - Special Topics**
1 to 3 Credits
Can be repeated as topic varies. Unlimited repeats permitted.

**CHEM 4971 - Independent Study**
1 to 4 Credits
Offered fall and spring semesters. This course is repeatable for a total of 4 hours.
Department of Communication and Theatre Arts

Subject - Communication Studies (CACS)

CACS 1111 - Presentational Speaking
3 Credits
Basic principles of preparation, organization, and delivery of original informative and persuasive speeches. Offered fall and spring semesters.
Course Attributes:
Communication Studies
Effective Comm Non-Writing

CACS 2031 - Communication Studies Practicum
1 to 3 Credits
Hands-on experiential learning related to a variety of areas of communication studies. Offered fall and spring semesters. This course is repeatable for a total of 5 hours.
Course Attributes:
Requires Instructor Approval

CACS 2111 - Advanced Presentational Speaking
3 Credits
Advanced principles of preparation, organization, and delivery of original informative, persuasive, group and special occasion speeches in natural, conversational, and audience-centered styles. Offered spring semester. Prerequisite(s): CACS 1111 Minimum Grade of C or COMM 211 Minimum Grade of C.
Course Attributes:
Communication Studies
Effective Comm Non-Writing
Informed Ethical Responses

CACS 2151 - Communication in the Classroom
3 Credits
Emphasis on special audiences and situations unique to classroom teaching. Focus on interpersonal and speaking skills as they relate to interactions with students, parents, and the educational system. Offered fall and spring semesters.
Course Attributes:
Communication Studies
Critical and Creative Thinking
Effective Comm Non-Writing

CACS 2201 - Cross-Cultural Communication
3 Credits
Equips students with an awareness of the social construction of values, cognitions, performances across cultural lines. Familiarization with major theories, concepts, and skills in cultural adaptation and identity management. Offered fall semester.
Course Attributes:
Communication Studies
Diversity-Human Interaction
CACS 2251 - Interpersonal Communication
3 Credits
Explores issues and theories which will assist students in their abilities to interact interpersonally in personal and professional relationships. Offered fall and spring semesters.
Course Attributes:
Communication Studies
Effective Comm Writing

CACS 3111 - Rhetorical Theory
3 Credits
In depth examination and application of classical and contemporary rhetorical theories about the nature and dynamics of human communication. Offered alternate spring semesters. Prerequisite(s): CACS 1111 Minimum Grade of C or COMM 211 Minimum Grade of C or CACS 2251 Minimum Grade of C or COMM 225 Minimum Grade of C.
Course Attributes:
Communication Studies

CACS 3211 - Group Dynamics and Team Interaction
3 Credits
Group dynamics, theory, and problem solving/decision making methods are examined; emphasis on working effectively in teams and effective team interaction. Offered fall semester.
Course Attributes:
Communication Studies

CACS 3251 - Communication Theory
3 Credits
In depth examination and application of communication theories about the nature and dynamics of human communication/interaction. Offered alternate spring semesters. Prerequisite(s): CACS 1111 Minimum Grade of C or COMM 211 Minimum Grade of C or CACS 2251 Minimum Grade of C or COMM 225 Minimum Grade of C.
Course Attributes:
Communication Studies

CACS 3311 - Interviewing
3 Credits
Basic principles and structures of interviewing are examined and applied to interview situations such as employment, performance/appraisal, journalism, counseling, etc. Offered fall semester.
Course Attributes:
Communication Studies

CACS 3351 - Internship in Communication Studies
1 to 9 Credits
A supervised program of experiences applying discipline related theories and practices to a working experience. This course is repeatable for a total of 9 hours.
Course Attributes:
Requires Department Approval
CACS 3451 - Organizational Communication
3 Credits
Major organization and communication theories and their practical applications for effective communication within organizations. Communication processes, various roles and relationships in organizations, leadership communication, ethics, and problematic communication situations. Offered fall semester.
Course Attributes:
Communication Studies

CACS 3481 - Health Communication
3 Credits
Theory and practice of health communication. Examines communication between practitioner/client, in community/consumer health education, in health teams and groups, in health care delivery systems, in support systems for caretakers and patients, and in intercultural settings. Offered fall semester.
Course Attributes:
Communication Studies
Effective Comm Non-Writing
Integration Across Disciplines

CACS 3501 - Film Study and Analysis
3 Credits
In depth exploration of the rhetorical principles found in popular contemporary films that define social trends, analyze social issues, and serve as metaphors for the human experience. Offered alternate fall semesters.
Course Attributes:
Communication Studies
Informed Responses-Aesthetics

CACS 4211 - Political Communication and Campaigns
3 Credits
Political communication and the means to assess political activities through rhetorical methods of analysis. Methods may include those presented by classical and contemporary theorists such as Aristotle, Lloyd Bitzer, and Kenneth Burke. Offered alternate fall semesters.
Course Attributes:
Communication Studies
Effective Comm Non-Writing
Integration Across Disciplines

CACS 4951 - Communication Studies Capstone Seminar
2 Credits
A multi-component project completed during the senior year. Integration of skills and experiences acquired during study to complete the major, project and design and planning. Offered fall semester.
Must be enrolled in one of the following Fields of Study: Communication Arts/Communication Studies, Communication Arts. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing
CACS 4961 - Communication Studies Capstone Presentation
1 Credit
Communication Studies Capstone completion and presentation. Offered spring semester.
Prerequisite(s): CACS 4951 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Communication Arts/Communication Studies, Communication Arts, Organizational Communication. Must be enrolled in one of the following Classifications: Senior.

Subject - Communication Arts and Electronic Media (CAEM)

CAEM 1501 - Introduction to Mass Media
3 Credits
A survey course that examines various aspects of mass media including broadcasting, cable, the internet, and the emerging electronic media. Offered fall semester.
Course Attributes:
Effective Comm Writing
Informed Ethical Responses

CAEM 2561 - Multimedia Writing
3 Credits
A study of the principles and techniques of copywriting for multimedia including radio and television and corporate audio/video. Offered spring semester. Prerequisite(s): CAEM 1501 Minimum Grade of C or COMM 150 Minimum Grade of C.

CAEM 2571 - Electronic Media and Broadcasting Practicum
1 to 12 Credits
Production practicum utilizing the facilities of WONB Radio and/or ONU Cable for the purpose of directed study using various production programs and utilizing various production skills. Offered fall and spring semesters. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Instructor Approval

CAEM 2581 - Electronic Media and Broadcasting Practicum: Audio
1 to 12 Credits
Production practicum utilizing the facilities of WONB Radio. Highly skilled non-majors are welcome to take the course. Offered fall and spring semesters. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Instructor Approval

CAEM 2591 - Electronic Media and Broadcasting Practicum: Video
1 to 12 Credits
Production practicum utilizing the facilities of ONU Cable. Highly skilled non-majors are welcome to take the course. Offered fall and spring semesters. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Instructor Approval

CAEM 3351 - Internship in Electronic Media and Broadcasting
1 to 12 Credits
A skills course blending classroom theory with practical experience through working in an outside organization. This course is repeatable for a total of 12 hours.

Course Attributes:
Requires Department Approval

**CAEM 3511 - Multimedia Production**
*3 Credits*
Principles and techniques of multimedia production. Course will include lab times utilizing the facilities of WONB Radio and ONU Cable Television. Offered fall semester. Prerequisite(s): CAEM 2561 Minimum Grade of C or COMM 256 Minimum Grade of C.

**CAEM 3551 - Multimedia Journalism**
*3 Credits*
Principles of multimedia news gathering and reporting primarily for television and radio. Subjective and objective analysis of news, its presentation, and its effects. Practical assignments emphasized. Offered alternate spring semesters. Prerequisite(s): CAEM 1501 Minimum Grade of C or COMM 150 Minimum Grade of C.

Course Attributes:
Effective Comm Writing

**CAEM 3571 - Introduction to DVD Design**
*2 Credits*
Hands-on course designed to provide an introductory understanding of video DVD creation. Using Apple DVD Studio Pro as the core software, the student will learn the process of DVD authoring beginning with the basic user interface of iDVD, and growing to use the advanced interface options of the software. Students will create a finished menu-driven DVD as a final project. Offered spring semester. Prerequisite(s): CAEM 3511 Minimum Grade of C or COMM 351 Minimum Grade of C.

**CAEM 4511 - Beginning Digital Editing**
*2 Credits*
The technology and practice of digital editing, conversion of analog video and digital capture to a final assembly. Editing software, importing files, assembling, applying the transitions, adding titles, editing techniques and theory. Software from AVID Technology will be used, however other brands will be discussed. Offered fall semester. Prerequisite(s): CAEM 3511 Minimum Grade of C or COMM 351 Minimum Grade of C.

**CAEM 4521 - Broadcast Sales, Marketing and Promotions**
*3 Credits*
Skills involved in selling broadcast time and station promotion. Offered alternate spring semesters. Prerequisite(s): CAEM 1301 Minimum Grade of C or COMM 150 Minimum Grade of C.

**CAEM 4531 - Mass Media and Society**
*3 Credits*
The legal, ethical, and social responsibilities of journalists and other multimedia communicators. Offered alternate fall semesters. Prerequisite(s): CAEM 1501 Minimum Grade of C or COMM 150 Minimum Grade of C.

Course Attributes:
Informed Ethical Responses
CAEM 4541 - Corporate Video Production
3 Credits
An overview of industrial video production and script writing for applications in business, education, and industry. Principles and techniques for non-linear video editing production of an industrial video using Apple’s Final Cut Pro software. Offered alternate spring semesters. Prerequisite(s): CAEM 3511 Minimum Grade of C or COMM 351 Minimum Grade of C.

CAEM 4551 - Multimedia Management
3 Credits
Sales, programming, marketing, and management techniques unique to the multimedia. Offered alternate spring semesters. Prerequisite(s): CAEM 1501 Minimum Grade of C or COMM 351 Minimum Grade of C.

CAEM 4561 - Advanced Digital Editing
2 Credits
Develops proficiency in using the AVID editing system, creation of videos, developing sophisticated editing skills, emphasis on editing aesthetics. Offered spring semester. Prerequisite(s): CAEM 3511 Minimum Grade of C or COMM 351 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior, Junior.

CAEM 4951 - EMB: Senior Capstone
2 Credits
A production/performance based course which serves as the senior capstone for the Broadcasting and Electronic Media concentration. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Broadcasting Electronic Media, Communication Arts/Electronic Media, Communication Arts, Electronic Media & Broadcasting. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
- Critical and Creative Thinking
- Effective Comm Writing
Requires Instructor Approval

Subject - Public Relations (CAPR)

CAPR 1301 - Introduction to Public Relations
3 Credits
The role, function, and responsibilities of the public relations practitioner within organizations. Offered fall and spring semesters.
Course Attributes:
- Integration Across Disciplines

CAPR 2031 - Public Relations Practicum
1 to 12 Credits
Course provides students the opportunity to experience public relations firsthand through professional involvement with service and non-profit projects. Offered fall and spring semesters. Prerequisite(s):
CAPR 2361 Minimum Grade of C or COMM 236 Minimum Grade of C. This course is repeatable for a total of 8 hours.

CAPR 2361 - Public Relations Writing
3 Credits
Study of basic concepts for public relations writing projects and production of written public relations materials. The course consists of lectures, discussions, and supervised writing labs. Offered fall and spring semesters. Prerequisite(s): CAPR 1301 Minimum Grade of C or COMM 130 Minimum Grade of C.

CAPR 2461 - Public Relations & Social Media
3 Credits
An introduction to basic concepts in public relations social media. Practitioners define social media in several ways. The course examines the similarities and differences while participating in hands-on writing and editing using the Internet and other social media tools. Offered fall semester. Prerequisite(s): CAPR 2361 Minimum Grade of C or COMM 236 Minimum Grade of C.

Course Attributes:
Integration Across Disciplines

CAPR 3351 - Public Relations Internship
1 to 12 Credits
A skills course blending classroom theory with practical experience through working in an outside organization. Offered fall and spring semesters. Prerequisite(s): CAPR 2361 Minimum Grade of C or COMM 236 Minimum Grade of C. Must be enrolled in one of the following Departments: Communication & Theatre Arts. Must be enrolled in one of the following Fields of Study: Communication Arts/Public Relations, Communication Arts. This course is repeatable for a total of 12 hours.

Course Attributes:
Requires Instructor Approval

CAPR 3361 - Advanced Public Relations Writing
3 Credits
The course presents opportunities for research, indentifying and writing public affairs columns, editorials, features, and position papers for use in the public relations arena. Offered fall semester. Prerequisite(s): CAPR 2361 Minimum Grade of C or COMM 236 Minimum Grade of C. Must be enrolled in one of the following Departments: Communication & Theatre Arts. Must be enrolled in one of the following Fields of Study: Communication Arts/Public Relations, Communication Arts.

CAPR 3421 - Public Relations Research
3 Credits
The planning and evaluation process and methods for public relations. Offered spring semester. Prerequisite(s): CAPR 3361 Minimum Grade of C or COMM 336 Minimum Grade of C. Must be enrolled in one of the following Departments: Communication & Theatre Arts. Must be enrolled in one of the following Fields of Study: Communication Arts/Public Relations, Communication Arts.

Course Attributes:
Scientific and Quantitative Literacy

CAPR 3521 - Publicity Media and Campaigns
3 Credits
A course analyzing techniques for motivating target audiences with practical analysis. The preparation of
communication materials to elicit reactions or support from specialized groups in order to build and/or maintain mutually beneficial relationships. Offered spring semester. Prerequisite(s): CAPR 3361 Minimum Grade of C or COMM 336 Minimum Grade of C. Must be enrolled in one of the following Departments: Communication & Theatre Arts. Must be enrolled in one of the following Fields of Study: Communication Arts/Public Relations, Communication Arts.

Course Attributes:
Integration Across Disciplines

**CAPR 3731 - Issues in Public Relations**
1 to 3 Credits
Current topics in the field including but not limited to: the role of public relations in organizational decision making, ethics, and special practice areas. Offered spring semester. Prerequisite(s): CAPR 2361 Minimum Grade of C or COMM 236 Minimum Grade of C. Must be enrolled in one of the following Departments: Communication & Theatre Arts. Must be enrolled in one of the following Fields of Study: Communication Arts/Public Relations, Communication Arts. Unlimited repeats permitted.

Course Attributes:
Informed Ethical Responses

**CAPR 4951 - Public Relations Case Studies**
3 Credits
Public relations case studies concerning problems in industry, business, education, government, social welfare, and trade associations. Offered spring semester. Prerequisite(s): CAPR 3521 Minimum Grade of C or COMM 330 Minimum Grade of C. Must be enrolled in one of the following Departments: Communication & Theatre Arts. Must be enrolled in one of the following Fields of Study: Communication Arts/Public Relations, Communication Arts.

Course Attributes:
Informed Ethical Responses

**Subject – Communication and Theatre Arts (CATA)**

**CATA 1001 - Orientation**
0 Credits
Familiarization with the departmental requirements for majors, planning a program of courses, university catalog and library. Required of departmental majors. Offered fall semester. Must be enrolled in one of the following Fields of Study: Communication Arts/Communication Studies, Communication Arts/Electronic Media, Communication Arts/Public Relations, Communication Arts/Musical Theatre, International Theatre Production, Theatre, Theatre Arts/International Production, Theatre Arts/Musical Theatre, Theatre Arts/Theatre.

**CATA 1901 - Special Topics in Communication and Theatre Arts**
1 to 3 Credits
Course may be repeated as topics vary, but only 24 hours will count toward graduation. Offered fall and spring semesters. Unlimited repeats permitted.

**CATA 2901 - Special Topics in Communication and Theatre Arts**
1 to 3 Credits
Course may be repeated as topics vary, but only 24 hours will count toward graduation. Offered fall and spring semesters. Unlimited repeats permitted.

**CATA 2991 - Independent Study in Communication and Theatre Arts**  
*1 to 3 Credits*  
A topic in Communication and Theatre Arts that is of particular interest to the student. Offered fall and spring semesters. Unlimited repeats permitted.  
Course Attributes:  
Requires Department Approval

**CATA 3901 - Special Topics in Communication and Theatre Arts**  
*1 to 3 Credits*  
Course may be repeated as topics vary, but only 24 hours will count toward graduation. Unlimited repeats permitted.

**CATA 4901 - Special Topics in Communication and Theatre Arts**  
*1 to 3 Credits*  
Course may be repeated as topics vary, but only 24 hours will count toward graduation. Offered fall and spring semesters. Unlimited repeats permitted.

**CATA 4991 - Independent Study in Communication and Theatre Arts**  
*1 to 3 Credits*  
A topic in Communication and Theatre Arts that is of particular interest to the student. Offered fall and spring semesters. Unlimited repeats permitted.  
Course Attributes:  
Requires Department Approval

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**Subject - Arts Administration (TAAD)**

**TAAD 2111 - Art of Presenting: Arts Administration**  
*3 Credits*  
General overview of programming, arts management skills, boards, mission statements, long and short range plans, personnel development, logistics of running various arts organizations and planning effective seasons. Offered alternate fall semesters.

**TAAD 2311 - Arts Marketing/Audience Development**  
*3 Credits*  
Course focuses on marketing strategies for non-profit arts organizations and audience development. This includes the study of community outreach and arts education in addition to general audience development. Offered alternate spring semesters. Prerequisite(s): TAAD 2111 Minimum Grade of C or COMM 380 Minimum Grade of C.

**TAAD 2411 - Grant Writing/Arts Fundraising**  
*3 Credits*  
Course explores fundraising techniques, prospect identification, gifts, capital campaigns and other sources of funding for arts organizations. An in-depth study of grant writing is also a major component.
Offered alternate spring semesters. Prerequisite(s): TAAD 2111 Minimum Grade of C or COMM 380 Minimum Grade of C.

**TAAD 2611 - Arts Administration Practicum**
*1 Credit*
Audience development, educational outreach and marketing within the Freed Center for the Performing Arts. Offered fall and spring semesters. This course may be repeated 2 times. This course is repeatable for a total of 3 hours.

**TAAD 3351 - Arts Administration Internship**
*2 Credits*
External work experience in an arts organization. Offered fall and spring semesters. Unlimited repeats permitted.

**Subject - Dance (TADN)**

**TADN 1101 - Introduction to Dance**
*2 Credits*
Ballet, jazz and tap presented to develop the ability to learn basic components and vocabulary of each of these forms. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics

**TADN 1201 - Ballet I**
*2 Credits*
Designed for the student with little experience in ballet technique. Offered fall and spring semesters. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 1221 - International Folk Dance**
*1 Credit*
Dances from cultures around the world: step and rhythmic patterns, position, and formations of traditional and ethnic group dances. Offered alternate spring semesters.
Course Attributes:
Diversity-Human Interaction

**TADN 1301 - Modern Dance I**
*2 Credits*
Designed for the student with little experience in modern dance technique. Offered spring semester. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 1401 - Jazz Dance I**  
*2 Credits*  
Designed for the student with little experience in jazz dancing. Offered spring semester. Prerequisite(s): TADN 1201 Minimum Grade of C or COMM 117 Minimum Grade of C. This course may be repeated 1 time.  
Course Attributes:  
AS-FINRT Fine Arts  
Informed Responses-Aesthetics

**TADN 1501 - Tap Dance I**  
*2 Credits*  
Designed for the student with little experience in tap dancing. Offered fall semester. This course may be repeated 1 time.  
Course Attributes:  
AS-FINRT Fine Arts  
Informed Responses-Aesthetics

**TADN 1611 - Musical Theatre Dance Styles I**  
*2 Credits*  
The study and recreation of historical musical theatre dance and related social dances influencing Broadway stage choreography. Offered alternate spring semesters. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Dance, Theatre Arts/Dance, Theatre Arts/Musical Theatre.  
Course Attributes:  
AS-FINRT Fine Arts

**TADN 2111 - Social Dance**  
*1 Credit*  
Social dance course to include waltz, foxtrot, swing, polka, rhumba, tango, and cha-cha. Emphasis will be placed on rhythm, style and skill development. Offered alternate fall semesters.  
Course Attributes:  
Integration Across Disciplines

**TADN 2121 - Dance and Culture**  
*3 Credits*  
An investigation of movement and dance as a vehicle for understanding culture through movement and an understanding of the rich diversity of movement via readings, films and discussion. Offered alternate spring semesters.  
Course Attributes:  
AS-FINRT Fine Arts  
Diversity-Human Interaction  
Informed Responses-Aesthetics  
Non Western Cultural

**TADN 2201 - Ballet II**  
*2 Credits*
For intermediate students with experience in ballet technique. Offered spring semester. Prerequisite(s): TADN 1201 Minimum Grade of C or COMM 117 Minimum Grade of C. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics

TADN 2301 - Modern Dance II
2 Credits
For intermediate students with experience in modern technique. Offered fall semester. Prerequisite(s): TADN 1301 Minimum Grade of C or COMM 118 Minimum Grade of C. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

TADN 2401 - Jazz Dance II
2 Credits
For intermediate students with experience in jazz dance. Offered fall semester. Prerequisite(s): TADN 1401 Minimum Grade of C or COMM 116 Minimum Grade of C. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

TADN 2501 - Tap Dance II
2 Credits
Designed for intermediate students with experience in tap dancing. Offered fall semester. Prerequisite(s): TADN 1501 Minimum Grade of C or COMM 115 Minimum Grade of C. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

TADN 2601 - Dance Practicum
1 to 3 Credits
Participation in a collaborative experience with guest artists and choreographers. Open only to students who have auditioned and have been awarded roles in dance productions. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

TADN 2611 - Musical Theatre Dance Styles II
2 Credits
A continuation of Musical Theatre Dance Styles I. The study and recreation of historical musical theatre dance and related social dances influencing Broadway stage choreography. Offered alternate spring
semesters. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Dance, Theatre Arts/Dance, Theatre Arts/Musical Theatre. May not be enrolled in one of the following Classifications: Freshman.

Course Attributes:
AS - Math\Natural Sciences

**TADN 3201 - Ballet III**

2 Credits

For students with advanced experience in ballet technique. May include pointe work for students with strong technique. Offered alternate fall semesters. Prerequisite(s): TADN 2201 Minimum Grade of C or COMM 217 Minimum Grade of C. This course may be repeated 1 time.

Course Attributes:
AS - Math\Natural Sciences
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 3301 - Modern Dance III**

2 Credits

For students with advanced experience in modern technique. Prerequisite(s): TADN 2301 Minimum Grade of C or COMM 218 Minimum Grade of C. This course may be repeated 1 time.

Course Attributes:
AS - Math\Natural Sciences
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 3401 - Jazz Dance III**

2 Credits

For students with advanced experience in jazz dance. Offered spring semester. Prerequisite(s): TADN 2401 Minimum Grade of C or COMM 216 Minimum Grade of C. This course may be repeated 1 time.

Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 3501 - Tap Dance III**

2 Credits

For students with advanced experience in tap dance. Offered spring semester. Prerequisite(s): TADN 2501 Minimum Grade of C or COMM 215 Minimum Grade of C. This course may be repeated 1 time.

Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 3601 - Dance History**

3 Credits

From the Middle Ages through present times, an historical survey of the origins, growth, and development of theatrical dance. Focus on the forces, processes, and personalities that influenced dance. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 4201 - Ballet IV Pointe**

*2 Credits*

Techniques of pointe work at the barre and center work. Offered alternate fall semesters.
Prerequisite(s): TADN 3201 Minimum Grade of C. This course may be repeated 1 time.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics
Integration Across Disciplines

**TADN 4601 - Dance Composition**

*3 Credits*

Principles general to choreographic compositional styles and their application via compositional projects and in-class explorations. Offered alternate spring semesters. Prerequisite(s): TADN 2201 Minimum Grade of C or COMM 217 Minimum Grade of C or TADN 2301 Minimum Grade of C or COMM 218 Minimum Grade of C or TADN 2401 Minimum Grade of C or COMM 216 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts
Effective Comm Non-Writing
Informed Responses-Aesthetics

**Subject – International Theatre Production (TAIP)**

**TAIP 2001 - Portfolio Review I**

*0 Credits*

International Theatre Production students are required to present an updated portfolio and résumé of production and course work at a formal portfolio review session at the end of each year enrolled. The faculty will advise the student to continue in their ITP degree or select another degree program in the University. Must be enrolled in one of the following Fields of Study: Communication Arts, International Theatre Product, Theatre Arts/International Production. Must be enrolled in one of the following Classifications: Sophomore, Freshman. This course may be repeated 1 time.

**TAIP 2111 - Fundamentals of Stagecraft**

*3 Credits*

Theoretical and practical work in the fundamentals of technical theatre production. Content includes scenic construction, property construction, theatrical rigging, basic drafting, and basic design theory. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2121 - Fundamentals of Lighting and Sound**

*3 Credits*

Theoretical and practical work in the fundamentals of lighting and sound production. Content includes
stage lighting, sound theory for live reinforcement and recorded sound effects. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2131 - Fundamentals of Costuming**
*3 Credits*
Theoretical and practical work in the hand sewing, draping and drafting of patterns for basic garments, various problems of layout and cutting, and specialized sewing techniques for costumes. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2151 - Make-Up**
*2 Credits*
Methods and practice in the creation and application of stage makeup. Students may comprise makeup crews for University Theatre and Studio Theatre productions. Offered spring semester.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2551 - Technical Direction**
*3 Credits*
Technology, organization, and operation of the theatrical scene shop centered around the proper and safe use of tools, the choosing of materials, and methods of construction. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2571 - Shop Practicum**
*1 to 3 Credits*
Participation in a collaborative laboratory experience working in the scene or costume shop for University productions. More than six hours may apply towards graduation only for Theatre, Musical Theatre and International Theatre Production majors. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**TAIP 2601 - Stage Management**
*3 Credits*
Principles and practices of stage management and logistical organization of commercial and non-commercial theatre. Content includes scheduling, pre-production planning, auditions, rehearsals, performance procedures, budgeting, company organization and structure. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2651 - Stage Management Practicum**
*1 to 3 Credits*
Participation in a collaborative laboratory experience working as a stage manager, assistant stage manager or company manager for University productions. More than six hours may apply toward graduation only for Theatre, Musical Theatre and International Theatre Production majors. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**TAIP 2751 - Introduction to Design**
*3 Credits*
Introduction to theory and practice of theatrical design, text analysis and the ways a production concept and visual metaphor can be communicated in the design of scenery, costumes and lighting. Offered alternate fall semesters.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 2761 - Production Practicum**
*1 to 3 Credits*
Participation in a collaborative laboratory experience which involves serving on a crew for University productions. More than six hours may apply toward graduation only for Theatre, Musical Theatre and International Theatre Production majors. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**TAIP 3351 - Internship in International Theatre Production**
*1 to 12 Credits*
A skills course blending classroom theory with practical experience through working in an outside organization. Offered fall and spring semesters. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Department Approval

**TAIP 3501 - Advanced Stagecraft**
*3 Credits*
Advanced construction principles and techniques applied to stage scenery and design. Advanced woodworking, rigging and welding are possible topics covered. Offered alternate spring semesters.
Prerequisite(s): TAIP 2111 Minimum Grade of C or COMM 275 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts

**TAIP 3551 - Topics in Theatre Technology**
*3 Credits*
The principle technical elements of theatre including technical problem solving, scene painting, welding, and graphic solutions to technical theatre. Offered alternate spring semesters. Prerequisite(s): (TAIP 2111 Minimum Grade of C or COMM 275 Minimum Grade of C) and (TAIP 2121 Minimum Grade of C or COMM 274 Minimum Grade of C) and (TAIP 3501 Minimum Grade of C). This course may be repeated 2 times. This course is repeatable for a total of 9 hours.
Course Attributes:
AS-FINRT Fine Arts
TAIP 3751 - Topics in Theatre Design
3 Credits
The principle design elements of theatre including but not limited to scenic, costume, lighting and sound. Offered annually. Prerequisite(s): TAIP 2751 Minimum Grade of C. This course may be repeated 2 times. This course is repeatable for a total of 9 hours.
Course Attributes:
AS-FINRT Fine Arts
Requires Instructor Approval

TAIP 3761 - Advanced Production Practicum
1 to 3 Credits
Participation in a collaborative laboratory experience which focuses on the supervision and execution of lights, sound, scenic, costumes or props for University productions. More than six hours may apply toward graduation only for Theatre, Musical Theatre and International Theatre Production majors. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

TAIP 3781 - Design Practicum
1 to 3 Credits
Participation in a collaborative laboratory experience which focuses on the design of lights, sound, scenic, or costumes for University productions. More than six hours may apply toward graduation only for Theatre, Musical Theatre and International Theatre Production majors. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

TAIP 4001 - Portfolio Review II
0 Credits
International Theatre Production students are required to present an updated portfolio and résumé of production and course work at a formal portfolio review session at the end of each year enrolled. Upon completion of the final semester, students shall present their work at an exit portfolio presentation: all accumulated design and/or production work completed while enrolled in the B.F.A. program shall be presented. Offered spring semester. Prerequisite(s): TAIP 2001. Must be enrolled in one of the following Fields of Study: Communication Arts, International Theatre Production, Theatre Arts/International Production. Must be enrolled in one of the following Classifications: Senior, Junior. This course may be repeated 2 times.

TAIP 4951 - International Theatre Production Capstone
2 Credits
An advanced production project which integrates skills and experiences acquired during the completion of the major. Permission of advisor and completion of project abstract. A graduating senior survey must be completed to receive credit for this course. Must be enrolled in one of the following Fields of Study: Communication Arts, International Theatre Production, Theatre Arts/International Production. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
AS-FINRT Fine Arts
Requires Instructor Approval
Subject - Musical Theatre (TAMT)

TAMT 2101 - Musical Theatre History & Literature
3 Credits
The history of American Musical Theatre, its origins, and development through the 20th century, covering Broadway and film musicals, as well as the famous and historical figures of Broadway. Offered alternate spring semesters.

TAMT 2601 - Musical Theatre Performance Practicum
1 Credit
Participation in a collaborative rehearsal experience. Open only to students who have auditioned for and been awarded roles in University mainstage or studio theatre productions. A repeatable course but only 4 hours apply toward the major. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

TAMT 2611 - Musical Theatre Pit Orchestra Practicum
1 Credit
Participation in a collaborative rehearsal experience. Open only to students who have been invited to perform in the pit orchestra of a University mainstage or studio theatre production. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

TAMT 2951 - Musical Theatre Sophomore Hearing
0 Credits
An assessment procedure typically performed at the end of the second year spring semester. Students prepare monologues and song material for presentation and evaluation including dance assessment. Offered spring semester. Prerequisite(s): (TATH 3601 Minimum Grade of C or COMM 360 Minimum Grade of C) and (MUSC 1051 Minimum Grade of C or MUSC 121 Minimum Grade of C and MUSC 131 Minimum Grade of C) and (MUSL 2121A Minimum Grade of C or APMU 225 Minimum Grade of C) and (TADN 2501 Minimum Grade of C or COMM 215 Minimum Grade of C or TADN 2401 Minimum Grade of C or COMM 216 Minimum Grade of C or TADN 2201 Minimum Grade of C or COMM 217 Minimum Grade of C or TADN 2301 Minimum Grade of C or COMM 218 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Theatre Arts/Musical Theatre. Must be enrolled in one of the following Classifications: Sophomore.
Course Attributes:
Requires Instructor Approval

TAMT 3351 - Internship in Musical Theatre
1 to 12 Credits
Working in an external organization having the opportunity to blend classroom theory and practical experience. Offered fall and spring semesters. Prerequisite(s): TAMT 2951. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Theatre Arts/Musical Theatre. Must be enrolled in one of the following Classifications: Senior, Junior. This course may be repeated 11 times. This course is repeatable for a total of 12 hours.
TAMT 3501 - Musical Theatre Audition Techniques
3 Credits
Prepares students for the musical theatre profession by exploring the skills and knowledge required for casting. This course focuses on audition techniques, selecting and interpreting audition material, and researching the resources available to actors seeking work in the professional theatre. Offered alternate spring semesters. Prerequisite(s): TAMT 2951. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Theatre Arts/Musical Theatre. Must be enrolled in one of the following Classifications: Senior, Junior.

TAMT 4501 - Acting Styles for Musical Theatre
3 Credits
A scene study class geared toward an understanding of the range of acting techniques used specifically in musical theatre from vaudeville to contemporary and modern musicals. Offered alternate spring semesters. Prerequisite(s): TAMT 2951. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Theatre Arts/Musical Theatre. Must be enrolled in one of the following Classifications: Senior, Junior.

TAMT 4951 - Musical Theatre Senior Showcase
2 Credits
Musical Theatre research, preparation, planning, and rehearsal, culminating in a presentation for agents and casting directors. Offered spring semester. Prerequisite(s): TAMT 2951. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Theatre Arts/Musical Theatre. Must be enrolled in one of the following Classifications: Senior.

Subject - Theater (TATH)

TATH 1051 - Introduction to the Performing Arts
3 Credits
An introduction to theatre through the study of its origin and development, and its contemporary theory and practice. For the nonmajor. Includes lecture, play attendance and production experience. Offered fall and spring semesters.

Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics

TATH 2401 - Voice and Speech
2 Credits
An exploration of the voice as an organ and as a means of expression. Vocal technique is developed through exercises which expand breath, range and resonance while speech is enhanced through the exploration and expression of dramatic text. Offered fall semester.

Course Attributes:
AS-FINRT Fine Arts

TATH 2501 - Movement for the Actor
1 Credit
Enhances the actor's instrument through development of physical expression and character work. Techniques include but are not limited to: Alexander, Laban, Feldenkrais, Chekhov, and physical training such as yoga, pilates and tai chi. Offered spring semester.

**TATH 2591 - Acting for Non-Majors**  
*2 Credits*  
The fundamentals of stage acting through exercises, readings, discussions and scene study, for the student not majoring in performance. Offered fall semester. May not be enrolled in one of the following Fields of Study: Communication Arts/Musical Theatre, Theatre, Theatre Arts/Musical Theatre, Theatre Arts/Theatre.  
Course Attributes:  
AS-FINRT Fine Arts

**TATH 2601 - Introduction to Acting**  
*2 Credits*  
The fundamentals of stage acting through exercises, readings, discussion and scene study. The beginning actor learns to analyze action, activity, objectives and obstacles and to incorporate them into performance. Offered fall semester. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, Theatre, Theatre Arts/Musical Theatre, Theatre Arts/Theatre.  
Course Attributes:  
AS-FINRT Fine Arts  
Informed Responses-Aesthetics

**TATH 2611 - Theatre Performance Practicum**  
*1 to 3 Credits*  
Participation in a collaborative performance experience. Open only to students who have auditioned for and have been awarded roles in University mainstage or studio theatre productions. Offered fall and spring semesters. Unlimited repeats permitted.

**TATH 2751 - Play Analysis**  
*3 Credits*  
A study of the play from page to stage with an emphasis on critical analysis of structure, style, theme, character, language, dramatic event, and the perspectives of the actor, director, critic, and audience. Offered fall semester.  
Course Attributes:  
AS-FINRT Fine Arts  
Informed Responses-Aesthetics

**TATH 2911 - World Theatre History I**  
*3 Credits*  
A survey of the history and social impact of the theatre in Western and non-Western cultures from ancient times to the Renaissance. Offered fall semester. Prerequisite(s): TATH 2751 Minimum Grade of C.  
Course Attributes:  
AS-FINRT Fine Arts  
Effective Comm Writing  
Informed Responses-Aesthetics
TATH 2921 - World Theatre History II
3 Credits
A survey of the history and social impact of the theatre in Western and non-Western cultures from the Renaissance to the 19th Century. Offered spring semester. Prerequisite(s): TATH 2751 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts
Effective Comm Writing
Informed Responses-Aesthetics

TATH 3001 - Symposium
0 Credits
Workshop with visiting theatre professionals which may include stage directors, designers, choreographers, and professional performers. Repeatable with different topics. Student may complete 1 course per academic year. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Arts Administration, Communication Arts, Communication Arts/Arts Administration, Communication Arts/Musical Theatre, International Theatre Production, Musical Theatre, Theatre, Theatre Arts/International Production, Theatre Arts/Musical Theatre, Theatre Arts/Theatre This course may be repeated 2 times.

TATH 3351 - Internship in Theatre
1 to 12 Credits
Blends classroom theory with practical experience through working in an external organization. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical Theatre, International Theatre Production, Theatre, Theatre Arts/International Production, Theatre Arts/Musical Theatre, Theatre Arts/Theatre. May not be enrolled in one of the following Classifications: Freshman. This course may be repeated 11 times. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Instructor Approval

TATH 3501 - Stage Combat
2 Credits
An introduction to the fundamentals of stage combat including but not limited to: unarmed and rapier/dagger. Offered alternate spring semesters. Prerequisite(s): TAMT 2951 Minimum Grade of C or COMM 260 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts

TATH 3601 - Acting II: Scene Study Intensive
3 Credits
A scene study intensive that expounds upon the techniques acquired in Intro. to Acting, TATH 2601. The actor now learns to apply acting skills to the development of a role in a scripted play with greater emphasis on the character and its throughline. Theatre and Musical Theatre Majors only, or permission of instructor. Prerequisite(s): TATH 2601 Minimum Grade of C or COMM 260 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Musical
Theatre, Theatre, Theatre Arts/Musical Theatre, Theatre Arts/Theatre. This course may be repeated 1 time.

Course Attributes:
AS-FINRT Fine Arts

**TATH 3621 - Directing Practicum**
*1 to 3 Credits*
Participation in a collaborative directorial experience that focuses on directing a University mainstage or studio theatre production with faculty advising. Prerequisite(s): TATH 3861 Minimum Grade of C or COMM 386 Minimum Grade of C. Unlimited repeats permitted.

Course Attributes:
Requires Instructor Approval

**TATH 3651 - Acting III: Shakespeare**
*3 Credits*
An exploration of the works of the world's most celebrated playwright, this course develops an understanding of Shakespeare's language, rhetoric and performance techniques through sonnets, monologues, scene study and demonstration. Prerequisite(s): (TATH 3601 Minimum Grade of C or COMM 360 Minimum Grade of C) and (TATH 2401 Minimum Grade of C or COMM 340 Minimum Grade of C). This course may be repeated 1 time. This course is repeatable for a total of 3 hours.

Course Attributes:
AS-FINRT Fine Arts
Integration Across Disciplines

**TATH 3801 - Topics in Theatre History/Dramatic Literature**
*3 Credits*
Major topics in theatre history and/or dramatic literature including but not limited to: 20th-century theatre, issues in contemporary theatre, Irish theatre, contemporary women playwrights. May be repeated with different topic. Prerequisite(s): TATH 2751 Minimum Grade of C. This course may be repeated 2 times. This course is repeatable for a total of 9 hours.

Course Attributes:
AS-FINRT Fine Arts

**TATH 3821 - Playwriting**
*3 Credits*
A writing workshop designed to introduce students to the basic building blocks of writing for the stage, including: plot, character, dialogue, setting and dramatic action. Offered alternate fall semesters.

Course Attributes:
AS-FINRT Fine Arts

**TATH 3861 - Directing**
*3 Credits*
Methods, theories, exercises, and practices in directing and presenting dramatic scenes. Offered fall semester. Prerequisite(s): TATH 2601 Minimum Grade of C or COMM 260 Minimum Grade of C. May not be enrolled in one of the following Classifications: Freshman.

Course Attributes:
AS-FINRT Fine Arts
TATH 3911 - American Theatre History
3 Credits
A historical survey of American theatre and popular entertainment forms from the colonial period through the rise of realism and contemporary theatre. Offered alternate spring semesters.
Prerequisite(s): TATH 2751 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts

TATH 4451 - Business of Theatre
1 Credit
Prepares students for a career in the professional theatre by teaching the skills and knowledge needed for gaining employment and for good career management. Topics include audition/portfolio materials, audition techniques and resources for various professional markets. Offered alternate spring semesters. Must be enrolled in one of the following Fields of Study: Communication Arts, Communication Arts/Arts Administration, Communication Arts/Musical Theatre, International Theatre Production, Theatre, Theatre Arts/International Production, Theatre Arts/Theatre. Must be enrolled in one of the following Classifications: Senior.

TATH 4601 - Acting IV: Styles of Acting
3 Credits
A scene study course focusing on specific performance techniques of genres beyond American realism. The material practiced includes playwrights such as Chekhov, Beckett, Wilde, Moliere, Pinter and Ionesco. Offered alternate spring semesters. Prerequisite(s): (TATH 3601 Minimum Grade of C or COMM 360 Minimum Grade of C) and (TATH 2401 Minimum Grade of C or COMM 340 Minimum Grade of C).
Course Attributes:
AS-FINRT Fine Arts
Diversity-Human Interaction
Informed Responses-Aesthetics

TATH 4851 - Dramatic Criticism and Production Analysis
3 Credits
The director and dramaturg's analysis of a play in preparation for production. Theories/approaches considered include: action structures, character-based analysis, epic theatre, feminism, and semiotics. Offered alternate spring semesters. Prerequisite(s): TATH 2751 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts

TATH 4951 - Senior Capstone
1 to 3 Credits
A production/performance based project that serves as the senior capstone for the Theatre major. Must be enrolled in one of the following Fields of Study: Communication Arts, Theatre, Theatre Arts/Theatre. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Requires Instructor Approval
Center for Teacher Education

Subject - Early Childhood Education (ECED)

ECED 2051 - Children's Literature in the Early Childhood Classroom
3 Credits
Selecting and evaluating quality children's literature. Examination of works of notable authors and illustrators, concepts of diversity, strategies for integrating various genre into the curriculum, storytelling, and helping children respond to literature. Offered spring semester.
Course Attributes:
Diversity-Human Interaction

ECED 2301 - Early Childhood Mathematics Methods
2 Credits
Content, strategies, materials, technology and assessment from a constructivist perspective in the early childhood mathematics classroom. Offered fall semester. Prerequisite(s): (MATH 1661 or MATH 172) and (MATH 1671 or MATH 173).

ECED 2401 - Introduction to Early Childhood Education
3 Credits
Introduction to the profession with emphasis on issues, ethics, developmentally appropriate practices in early childhood education including creating effective family and community partnerships. 2.50 GPA and Praxis I required. Offered spring semester. Prerequisite(s): EDUC 1151 or EDUC 115.

ECED 2421 - Early Childhood Curriculum and Policies
3 Credits
Early childhood curriculum, curriculum delivery models, unit planning, guidance approach to classroom and behavior management appropriate to the early childhood classroom. Offered fall semester.
Prerequisite(s): ECED 2401 or ECED 240.
Course Attributes:
Requires CTE admission

ECED 2671 - Educational Psychology
3 Credits
Psychological theories, concepts, and principles applied to teaching and learning. Learning processes, motivation, development, social processes, individual differences, and instruction practices. Case study applications. Offered fall semester.
Course Attributes:
Requires CTE admission

ECED 3051 - Social Studies in Early Childhood Education
2 Credits
An integrated approach to the planning, processes and content of the social studies based on developmental characteristics of the preschool/primary child. Offered spring semester.
Course Attributes:
Requires CTE admission
ECED 3151 - Teaching Science as Inquiry  
3 Credits  
Constructivist approach to science education methods and materials in the early childhood classroom. Focus on standards, inquiry, safety, assessment, and incorporation of technology with content of a general science curriculum. Offered spring semester.  
Course Attributes:  
Requires CTE admission

ECED 3181 - Education Assessment for Early Childhood  
3 Credits  
Concepts in developmentally appropriate assessment with emphasis on crafting assessments to inform teaching and learning aligned with state and national standards. Development and appropriate use of traditional and alternative assessments, evaluating student progress, applying technologies, interpreting and using standardized tests and federal and state assessment requirements/reporting. Offered fall semester. Prerequisite(s): EDUC 1151 or EDUC 115.

ECED 3351 - Visual Arts in Early Childhood Education  
2 Credits  
An integrated, constructivist approach to curriculum and pedagogy for teaching the visual arts based on developmental characteristics of the preschool-primary child. Offered spring semester.  
Course Attributes:  
Requires CTE admission

ECED 3551 - Music and Movement in Early Childhood Education  
2 Credits  
An integrated, constructivist approach to incorporating music into the PreK and K-3 primary curricula. Elements of music and movement applied to developmentally appropriate practice. Offered spring semester.  
Course Attributes:  
Requires CTE admission

ECED 3901 - Special Topics in Early Childhood Education  
3 Credits  
Selected special topics in early childhood education. Can be repeated as the topic varies. Unlimited repeats permitted.

Subject - Education (EDUC)

EDUC 1151 - Culture and Schooling  
3 Credits  
The philosophical, historical, and sociological aspects of the American public school experience. Included is the impact that cultural factors have on students, teachers, and on the development and enactment of the school curriculum. Offered fall and spring semesters.  
Course Attributes:  
Diversity-Human Interaction

EDUC 1501 - Five-Day Field Experience I  
1 Credit
Observation and participation with students and teachers in a racially or ethnically diverse school setting for five consecutive school days and a minimum of 35 hours. A paper, pre-conference and post-conference are required. Offered fall and spring semesters. Prerequisite(s): EDUC 1151 or EDUC 115.

Course Attributes:
Requires CTE admission

**EDUC 1521 - Five-Day Field Experience II**

*1 Credit*

Observation and participation with students and teachers in a school setting for five consecutive school days and a minimum of 35 hours. Experience will focus on teaching and the reflective practice. A paper, pre-conference and post-conference are required. Offered fall and spring semesters. Prerequisite(s): EDUC 1501 or EDUC 150.

Course Attributes:
Requires CTE admission

**EDUC 2101 - Exceptional Learners**

*3 Credits*

Understanding the varying characteristics and needs of exceptional individuals; legal requirements, bilingual/multicultural considerations, least restrictive environment and programming alternatives developed to meet student needs. Offered fall and spring semesters. Prerequisite(s): EDUC 1151 or EDUC 115.

**EDUC 2111 - Teaching English to Speakers of Other Languages: Theories and Issues**

*3 Credits*

An introduction to theories and concepts that inform English teaching when students are not native English speakers. Students will understand the similarities and differences between first and second language acquisition, within the context of the United States. They will become familiar with the terminology and definitions, historical and legal precedents of programs for students learning a second language and educational minority students, including how a student's culture may impact learning and performance in and out of the classroom. This course is repeatable for a total of 3 hours.

**EDUC 2211 - Child and Adolescent Development and Diversity**

*2 Credits*

This course is designed as a study of the characteristics, problems, promises and issues of adolescence and will focus on aspects of adolescent development and the possible special needs of adolescents that are particularly relevant to persons who will be professionally involved with both adolescents and their families. The course includes a survey of the physical, intellectual, social and emotional development of the typical adolescent and also provides a study of the unique needs and characteristics of adolescents who are at risk or who have disabilities. Students will have the opportunity to observe and interact with adolescents within middle and high school settings. Topics to be covered in the course: physical, intellectual, emotional and social development; becoming a change agent in the secondary classroom; collaboration and consultation; holistic programs; regular and special education programs in middle schools and high schools; diverse populations in middle/secondary schools; family-school partnerships; and sociocultural awareness. 4 field hours. Prerequisite(s): (EDUC 1501 and EDUC 1151). This course is repeatable for a total of 2 hours.

**EDUC 2221 - Teaching English to Speakers of Other Languages: Instructional Methods - Assessments**

*3 Credits*
Students will develop skills in the development of lessons for teaching new language learners that reflect Ohio's grade-level outcomes. They will research findings as they select, adapt and create a wide variety of resources that are appropriate for the second language learners with whom they work. TESOL students will also develop knowledge of and skills in the assessment of second language learners. They will use age-appropriate assessment procedures, interpret data to make instructional decisions, communicate assessment results to students and their caregivers, and develop strategies to help their students use assessment information to make decisions about their learning. This course is repeatable for a total of 3 hours.

EDUC 2311 - Diagnosis and Educational Planning for Special Needs Children
3 Credits
This course focuses on information and practical experiences relating to assessment and remediation of children with mild/moderate educational needs. Topics to be covered include formal and informal criterion-referenced assessment, individualized educational plans, multidisciplinary approaches, parental roles, report writing, collaboration. 20 clinical hours. Prerequisite(s): EDUC 2101. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 3 hours.

EDUC 2351 - Language Development for Diverse Learners
3 Credits
This course introduces speech and language acquisition of the typically and atypically developing child. It also presents a survey of various disorders and their effects on receptive (listening and reading) and expressive (oral and written) language functions and learning. Students become familiar with the diagnostic tools and the professional vocabulary in order to communicate effectively with other professionals. Emphasis is placed on methods that the regular classroom or intervention specialist can use to communicate with and teach children with diverse learning styles in reading, writing, listening and speaking. Students become sensitive to the concerns of speech and language differences related to culture and environmental issues. 10 field hours/20 clinical hours. Prerequisite(s): EDUC 2101. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 3 hours.

EDUC 2521 - Introduction to Linguistics
3 Credits
An introductory course emphasizing the phonology, morphology, syntax and semantics of the English language with examples from other languages as well. This course is repeatable for a total of 3 hours.

EDUC 2681 - Curriculum and Assessment
3 Credits
General and specific topics related to curriculum development and general teaching methods, lesson and unit development, constructivist teaching, and effective classroom practices including formal and informal assessment for adolescent and multiage classrooms. 2.50 GPA and Praxis I required. Offered fall and spring semesters. Prerequisite(s): EDUC 1151 or EDUC 115.

EDUC 2711 - English Grammar
3 Credits
A systematic study of the grammar of standard English based upon insights from several linguistic traditions, including that of transformational grammar. This course is repeatable for a total of 3 hours.
EDUC 3001 - Foundations of Literacy
3 Credits
Theoretical orientations of the reading processes, brief history of the U.S. literacy trends, and evaluation of literacy materials in accordance with literacy theories. Offered fall and spring semesters. Prerequisite(s): EDUC 1151 or EDUC 115.

EDUC 3041 - Strategies for Technology Education
3 Credits
Technology and technological activity to assist the synthesis of learning. The use of materials, tools and processes to enhance learning and to assist in developing interests and talents. Emphasis on STEM integration through the development of hands-on, manipulative, problem based learning strategies to be used in the classroom. Typical problems and the planning and organizing of the learning environment. Offered alternate spring semesters. Course Attributes: Requires CTE admission

EDUC 3121 - Teaching Phonics
3 Credits
Emphasis on stages of orthographic development, phonics generalizations, how to teach phonics, and word recognition skills within a structured word study methodology. Offered fall and spring semesters. Prerequisite(s): EDUC 3001 or EDUC 300.

EDUC 3131 - Language Variation
3 Credits
This course introduces students to the dialects of American English and to international forms of English known as world Englishes. The nature and evolution of Pidgin and Creole forms of English are explored, as are such linguistic phenomena as code switching and diglossia. The meanings of language and dialect are examined and relevant material from selected non-English languages is introduced to illustrate course concepts and to show contrasts between English and other languages. Offered alternate years. This course is repeatable for a total of 3 hours.

EDUC 3201 - Instructional Media and Educational Technologies
3 Credits
The role that technologies play in our schools of today as well as in American society. Emphasis on technology integration in instruction including planning, selection, utilization, operation, and evaluation of hardware (computers, digital cameras, digital camcorders, digital document cameras, smart board, etc.) and software applications; culminating in the production of a multimedia project for a classroom teacher and his/her students. Offered fall and spring semesters. Course Attributes: Requires CTE admission

EDUC 3221 - Integrated Language Arts
3 Credits
Strategies for integrating the language arts within a literacy program with an emphasis on the writing process, applications and conventions. Offered fall and spring semesters. Prerequisite(s): EDUC 3001 or EDUC 300. Course Attributes: Requires CTE admission
EDUC 3421 - Literacy Across the Content Areas
3 Credits
Literacy connections across the curriculum including instruction methods in prereading, vocabulary, comprehension strategies, and study skills. Appropriate for licensure requirements in ECED and MCED. Offered fall and spring semesters. Prerequisite(s): EDUC 3001 or EDUC 300.
Course Attributes:
Requires CTE admission

EDUC 3441 - Intervention Specialist Classroom Organization
2 Credits
This course is designed to assist prospective intervention specialists in understanding teacher and student behaviors, discipline in the educational process and communication techniques as they apply to good classroom management. In addition, students will explore techniques for maximizing learning in a variety of classroom settings, building students' self-concepts and understanding the use and abuse of power. 45 field hours. Prerequisites: all major requirements as listed in the professional preparation outline for early childhood. Course is taken during the semester of Clinical Practice (EDUC 4631). Prerequisite(s): (EDUC 2211 and EDUC 2311 and EDUC 2351 and EDUC 3841 and EDUC 3891). Corequisite(s): EDUC 4631. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 2 hours.

EDUC 3451 - Literacy Across the Content Areas/AYA/MA
3 Credits
Literacy connections across the curriculum including instruction methods in prereading, vocabulary, comprehension strategies, and study skills. Appropriate for licensure requirements in AYA and MA. Offered fall and spring semesters.
Course Attributes:
Requires CTE admission

EDUC 3501 - Departmental Field Experience
0 Credits
Individually planned field experience based on an area of licensure purposes and objectives and/or student teaching objectives. Specific objectives and experience proposed by student and must be approved by major department and education advisors. Required for adolescent or multiage licensure if 160 hours of field experience is not complete in other professional education courses. Must be enrolled in one of the following Colleges: Arts and Sciences. Must be enrolled in one of the following Departments: Education.
Course Attributes:
Requires CTE admission

EDUC 3841 - Methods and Materials for Diverse Learners
3 Credits
This course is designed to develop teacher competency, to analyze learners and to plan the "least restrictive environment" for the student with mild to moderate educational needs. Candidates will develop skills in designing, implementing and evaluating appropriate educational interventions in the areas of language, math, reading, behavior and social skills. Attention will also be given to occupational orientation and transition planning. Candidates will develop knowledge and skills in designing lessons,
classroom environments, community-based instruction and transition planning. Prerequisite(s): (EDUC 2101 and EDUC 1501 and EDUC 1151 and PSYC 1001). This course is repeatable for a total of 3 hours.

EDUC 3851 - TESOL Practicum
2 Credits
A 30 hour practicum in a school based setting (K-12) with a cooperating teacher who is TESOL credentialed by the Ohio Department of Education. Bluffton University supervision is provided by a supervisor with TESOL credentials and experience in a TESOL classroom. Prerequisite(s): (EDUC 2111 and EDUC 2221 and EDUC 2521 and EDUC 2711). This course is repeatable for a total of 2 hours.

EDUC 3891 - Current Issues in Special Education
1 Credit
This course is designed to present current issues affecting the education of exceptional children. Students will examine such topics as contemporary research findings, community and governmental resources, current federal and state regulations, special education service delivery models and counseling/supporting parents of exceptional children. Prerequisite(s): (EDUC 1151 or EDUC 115) and (EDUC 1501 or EDUC 150).

EDUC 3901 - Special Topics in Education
3 Credits
Selected special topics in education. Can be repeated as the topic varies. Unlimited repeats permitted.

EDUC 4001 - Assessment of Reading Instruction
3 Credits
Use of student assessment information to inform planning, teaching and learning for struggling readers and writers. Offered fall and spring semesters. Prerequisite(s): EDUC 3121 or EDUC 312.
Course Attributes:
Requires CTE admission

EDUC 4401 - Educational Psychology and Instructional Practices
3 Credits
Teaching behavior, instructional techniques and classroom management from a constructivist perspective essential for effective instruction in adolescent and multiage classrooms. Offered fall and spring semesters.
Course Attributes:
Requires CTE admission

EDUC 4451 - Leadership Seminar in Education
3 Credits
An emphasis on professional growth and development and an overview of legal and financial aspects of education, organizational structure at the local and state level, influence and requirements from the state and federal government, and information related to teaching position search. Offered fall and spring semesters. Prerequisite(s): EDUC 4701 or EDUC 4721.
Course Attributes:
Requires CTE admission

EDUC 4511 - Integrated Science Methods
3 Credits

Constructivist approach to science education methods and materials in the AYA classroom. Focus on standards, inquiry, safety, assessment, and incorporation of technology with content of a general science curriculum. Offered fall semester.

Course Attributes:
Requires CTE admission

**EDUC 4521 - Integrated Language Arts Methods**

*3 Credits*
Effective methods in teaching language, writing, and literature. Preparation for Praxis II English content exam and PLT. Offered alternate fall semesters.

Course Attributes:
Requires CTE admission

**EDUC 4531 - Integrated Social Studies Methods**

*3 Credits*
A theoretical basis for social studies education with a strong emphasis on the teaching methods and practices that enliven the social studies classroom for adolescent students. Offered fall semester.

Course Attributes:
Requires CTE admission

**EDUC 4541 - Integrated Mathematics Methods**

*3 Credits*
Methods and current issues in adolescent/young adult mathematics teaching including concept construction, differentiation, assessment, technology, and teaching strategies. Offered fall semester.

Course Attributes:
Requires CTE admission

**EDUC 4561 - Integrated Modern Language Methods**

*3 Credits*
Practical approaches to meeting standards for foreign language teaching. Strategies for developing communication skills, addressing diverse learner needs, and assessing outcomes. Offered alternate fall semesters.

Course Attributes:
Requires CTE admission

**EDUC 4571 - Integrated Art Methods**

*3 Credits*
Effective strategies and methods of instruction in teaching visual art. Lesson planning, resource materials, media, curriculum, issues, and assessment of a comprehensive program. Offered alternate fall semesters.

Course Attributes:
Requires CTE admission

**EDUC 4581 - Organization and Methods of Technology Education**

*3 Credits*
Philosophical constructs, organizing courses, program and course objectives, preparing lesson plans and industrial materials, laboratory procedures, administrative practices, and project management. Offered alternate spring semesters.
Course Attributes:
Requires CTE admission

EDUC 4591 - Integrated Music Methods
3 Credits
Philosophy, techniques, materials, curriculum planning for the music teacher. Offered alternate fall semesters.
Course Attributes:
Requires CTE admission

EDUC 4601 - Integrated Health Methods
3 Credits
Innovative strategies for the teaching of health education are applied. Attention is given to conceptualizing instruction, specifying instructional objectives, planning units and lessons, utilizing various instructional methods, selecting and using instructional materials, and evaluating teaching effectiveness. Offered alternate spring semesters.
Course Attributes:
Requires CTE admission

EDUC 4611 - Integrated Physical Education Methods
3 Credits
Methods and techniques most effective in teaching of the discipline in the public schools. Includes analysis of successful teaching behaviors during the planning and implementation of quality learning experiences. Offered fall semester. Corequisite(s): PHED 3001.
Course Attributes:
Requires CTE admission

EDUC 4631 - Clinical Practice - Intervention Specialist
10 Credits
Clinical practice provides supervised experiences in applying the principles and techniques learned in the professional courses to classroom situations under the guidance and direction of a cooperating teacher. Clinical Practitioners spend full days in their assigned public school setting for 10 weeks during the senior year. Prerequisite(s): (EDUC 2211 and EDUC 2311 and EDUC 2351 and EDUC 3841 and EDUC 3891). Corequisite(s): EDUC 3441. Must be enrolled in one of the following Classifications: Senior.

EDUC 4651 - Science Education Portfolio
0 Credits
Self-directed exploration of topics important to secondary education, including the history of science, its relationship to other disciplines and society, ethics and legal issues, laboratory safety, and scientific research. Offered fall semester. Corequisite(s): EDUC 4511.
Course Attributes:
Requires CTE admission

EDUC 4701 - Student Teaching - EC/MC
6 or 12 Credits
Capstone practicum of supervised teaching in the major licensure field of the candidate. Offered fall and spring semesters. Corequisite(s): EDUC 4451. Unlimited repeats permitted.
Course Attributes:
Requires CTE admission

**EDUC 4721 - Student Teaching-Adolescent**

*6 or 12 Credits*

Capstone practicum of supervised teaching in the major licensure field of the candidate. Offered fall and spring semesters. Corequisite(s): EDUC 4451. Unlimited repeats permitted.

Course Attributes:
Requires CTE admission

**EDUC 4761 - Education Studies Capstone**

*3 Credits*

Exploration of a topic in education with faculty supervision including preparation of a paper on the topic. Offered fall and spring semesters. This capstone does not lead to teacher licensure.

Course Attributes:
Requires CTE admission

**Subject - Middle Childhood Education (MCED)**

**MCED 2601 - Introduction to Middle Childhood Education**

*3 Credits*

The history, philosophy, and organization of middle school education. Planning, instructional strategies, and evaluation responsive to the needs of young adolescents. Utilization of multi-media materials, creative exploration, and enrichment activities to build an effective middle school curriculum. 2.50 GPA and Praxis I required. Offered fall semester. Prerequisite(s): EDUC 1151 or EDUC 115.

**MCED 2621 - Middle Childhood Methods, Curriculum, and Policies**

*3 Credits*

The understanding of theory, organization, and decision making in middle school curriculum from an integrated, interdisciplinary focus. Includes the development of integrated planning, teaching, and assessing at the middle school level. Offered spring semester. Prerequisite(s): MCED 2601 or MCED 260.

**MCED 2671 - Educational Psychology and Middle Childhood Assessment**

*3 Credits*

Connecting learning with formal and informal assessments and from a cognitive, linguistic, and social development perspective in a middle childhood classroom. Offered spring semester. Prerequisite(s): EDUC 1151 or EDUC 115.

**MCED 3021 - Classroom Guidance, Family, School, and Community Partnerships**

*3 Credits*

A guidance approach to classroom and behavior management appropriate to the middle school classroom. Understanding students and families through sensitivity to diversity and effective communication strategies. Research and development of family/school/community plans. Offered fall semester.

Course Attributes:
Requires CTE admission
MCED 3051 - Young Adult Literature for the Middle Childhood Classroom
3 Credits
Literature for individual, group, and whole-class reading in middle childhood education (grades 4-9). Offered fall semester.

MCED 3081 - Middle School Mathematics Methods
3 Credits
Methods and current issues in middle school mathematics teaching, including content, strategies, materials, technology and assessment. Offered spring semester.
Course Attributes:
Requires CTE admission

MCED 3091 - Middle School Science Methods
3 Credits
Constructivist approach to science education methods and materials in the middle school classroom. Focus on standards, inquiry, safety, assessment, and incorporation of technology with content of a general science curriculum. Offered fall semester.
Course Attributes:
Requires CTE admission

MCED 3111 - Middle School Social Studies Methods
3 Credits
A theoretical basis for social studies education with a strong emphasis on the teaching methods and practices that enliven the social studies classroom for middle childhood students. The student will also be prepared to effectively teach Ohio history, including coverage of the necessary content. Offered fall semester.
Course Attributes:
Requires CTE admission

MCED 3901 - Special Topics in Middle Childhood Education
3 Credits
Selected special topics in middle childhood education. Can be repeated as the topic varies. Unlimited repeats permitted.

Department of English

Subject - English (ENGL)

ENGL 0011 - Enrichment
0 Credits
Enrichment of the curriculum for English department majors through required attendance at designated cultural and academic extracurricular events. Must be completed twice each academic year by all English department majors. Offered fall and spring semesters. Must be enrolled in one of the following Departments: English. This course may be repeated 8 times.

ENGL 1001 - Introduction to Literature
3 Credits
Approaches to analyzing, interpreting, and writing about literature. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore, Freshman.

Course Attributes:
- Effective Comm Writing
- Informed Responses-Aesthetics

**ENGL 1221 - Writing Seminar**

*3 Credits*

Introduction to college-level writing skills, including critical reading, the formulation of arguments, researching and incorporating outside sources, and writing essays. Required of all students. Meets university first-year writing requirement. Offered fall and spring semesters.

Course Attributes:
- Effective Comm Writing

**ENGL 1411 - Intensive College Composition 1**

*3 Credits*

Academic English skills for students whose native language is not English, with a focus on grammar and sentence-level structures leading to fully-developed paragraphs and short essays. This intensive course meets five hours per week. Enrollment determined by ONU Writing Placement Exam administered during International Student Orientation. ENGL 1411 and ENGL 1421 together satisfy the general education first-year writing requirement. Students must earn a C or better to advance to ENGL 1421. Offered fall semester.

**ENGL 1421 - Intensive College Composition 2**

*3 Credits*

Continuation of ENGL 1411 with additional emphasis on academic writing including documentation of sources and research writing. This intensive course meets five hours per week. ENGL 1411 and ENGL 1421 together satisfy the general education first-year writing requirement. Students must earn a C or better in ENGL 1411 to enroll in this course. Offered spring semester. Prerequisite(s): ENGL 1411 Minimum Grade of C.

Course Attributes:
- Effective Comm Writing

**ENGL 1511 - College Composition 1**

*3 Credits*

Academic English skills for students whose native language is not English, with emphasis on reading and writing. Enrollment determined by ONU Writing Placement Exam administered during International Student Orientation. ENGL 1511 and ENGL 1521 together satisfy the general education first-year writing requirement. Students must earn a C or better to advance to ENGL 1521. A score of 3.5 or higher on the ONU Writing Placement Exam is required to enroll in this course. Offered fall semester.

**ENGL 1521 - College Composition 2**

*3 Credits*

Continuation of ENGL 1511 with additional emphasis on academic writing including documentation of sources and research writing. ENGL 1511 and ENGL 1521 together satisfy the general education first-year writing requirement. Students must earn a C or better to satisfy the general education first-year writing requirement. Students must earn a C or better in ENGL 1511 to enroll in this course. Offered spring semester. Prerequisite(s): ENGL 1511 Minimum Grade of C.
ENGL 1611 - News Writing
3 Credits
Introduction to the basics of news reporting, including interviewing techniques and other methods of news gathering, organizing information, and copy editing. (Taken in conjunction with ENGL 2501 - Newspaper Practicum.) Offered fall semester.
Course Attributes:
Effective Comm Writing

ENGL 2001 - Grammar in Context
3 Credits
English grammatical structures and their rhetorical effects. Offered alternate fall semesters. Must be enrolled in one of the following Departments: English.

ENGL 2011 - Introduction to Creative Writing
3 Credits
Introduction to creative writing techniques and texts in multiple genres.
Course Attributes:
Critical and Creative Thinking
Informed Responses-Aesthetics

ENGL 2041 - Great Works
3 Credits
Major literary texts covering a range of historical periods and genres. A general education course with an emphasis on writing. Offered fall and spring semesters. Prerequisite(s): ENGL 1221 Minimum Grade of C or ENGL 1231 Minimum Grade of C or ENGL 111 Minimum Grade of C or HONR 1231 Minimum Grade of C or ENGL 1421 Minimum Grade of C or ENGL 1521 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Diversity-Human Interaction
Informed Ethical Responses

ENGL 2051 - Writing in the Professions
3 Credits
The functions, uses, history, and practice of writing in professional situations, with a focus on practical understanding of fundamental rhetorical concepts. Assignments include print and online writing, research, and documentation projects in various professional situations with emphasis on grammatical correctness, concision and clarity, and the revision process. Offered alternate fall semesters.
Prerequisite(s): ENGL 1221 Minimum Grade of C or ENGL 1231 Minimum Grade of C or ENGL 111 Minimum Grade of C or HONR 1231 Minimum Grade of C or ENGL 1421 Minimum Grade of C or ENGL 1521 Minimum Grade of C.
ENGL 2071 - Topics in Fiction
3 Credits
Exploration of thematic and stylistic elements in fiction from a variety of cultures and periods.
Course Attributes:
AS-HUM - Humanities

ENGL 2081 - Topics in Drama
3 Credits
Exploration of thematic and stylistic elements in dramatic literature from a variety of cultures and periods.
Course Attributes:
AS-HUM - Humanities
Effective Comm Writing
Informed Responses-Aesthetics

ENGL 2091 - Topics in Poetry
3 Credits
Exploration of thematic and stylistic elements in poetry from a variety of cultures and periods.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Informed Responses-Aesthetics

ENGL 2101 - Proseminar: English Studies
3 Credits
Overview of theoretical and practical approaches to interpreting and writing about texts. Offered fall semester. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521. Must be enrolled in one of the following Departments: English.

ENGL 2111 - American Literature 1
3 Credits
The early period of American literature (1492-1870s), including such genres as exploration and spiritual narratives, revolutionary political writing, fiction, and poetry, taking into account social and historical context. Offered alternate fall semesters. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Effective Comm Writing

ENGL 2121 - American Literature 2
3 Credits
The early modern, modern, and contemporary periods of American literature (1870s to the present), including such movements as regionalism, realism, naturalism, modernism, and postmodernism in a variety of genres - mainly poetry, fiction, and drama - in a rapidly changing social milieu. Offered alternate spring semesters. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521.
Course Attributes:
ENGL 2131 - British Literature 1  
3 Credits  
A survey of British literature from the Anglo-Saxon period through Neo-classicism in the eighteenth century, focusing on major and minor authors as reflective of both continuity and radical change in literary forms and cultural contexts. Offered alternate fall semesters. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521.  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Informed Responses-Aesthetics

ENGL 2141 - British Literature 2  
3 Credits  
A survey of British literature from late eighteenth-century Romanticism to the end of the twentieth century, with continuing emphasis on literary themes and forms within changing cultural contexts. Offered alternate spring semesters. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521.  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Informed Responses-Aesthetics

ENGL 2191 - Topics in World Literature  
3 Credits  
Approaches to reading world literatures in a variety of cultural and literary contexts.  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Informed Responses-Aesthetics  
Non Western Cultural

ENGL 2201 - Layout and Design  
3 Credits  
Design principles used in the printing industry and on the web, as well as coverage of basic headline and cutline writing skills. Practical application of software publication tools in a computer classroom setting. Issues specific to English Department programs. Open to English Department majors. Others by permission of the department. Offered spring semester.  
Course Attributes:  
Effective Comm Non-Writing

ENGL 2251 - Children's and Young Adult Literature  
3 Credits  
Literature specifically suited for children and adolescents. The readings selected from various genres will be studied using the same critical approaches that are traditionally used to analyze literature for adults. Offered fall semester. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Informed Responses-Aesthetics

ENGL 2501 - Newspaper Practicum
1 to 3 Credits
Journalism activities on the Northern Review. One to six credits, depending on role, to be determined by department. Course may be repeated, but only six hours will count toward graduation. Offered fall and spring semesters. This course may be repeated 8 times. This course is repeatable for a total of 6 hours.

ENGL 2511 - Magazine Publishing Practicum
1 to 3 Credits
Publication activities on the ONU creative writing journal Polaris. One to six credits, depending on role, to be determined by the department. Course may be repeated, but only six hours will count toward graduation. Offered fall and spring semesters. This course may be repeated 8 times. This course is repeatable for a total of 6 hours.

ENGL 2521 - Journal Publishing Practicum
1 to 3 Credits
Workshop experience for English majors in technical and management skills related to the publication of professional journals. One to three credits, depending on role, to be determined by department. Course may be repeated, but only six hours will count toward graduation. Offered fall and spring semesters. This course may be repeated 8 times. This course is repeatable for a total of 6 hours.

ENGL 2531 - Web Publishing Practicum
1 to 3 Credits
Publication activities on the ONU electronic magazine eMedia. One to six credits, depending on role, to be determined by department. Course may be repeated, but only six hours will count toward graduation. Offered fall and spring semesters. This course may be repeated 8 times. This course is repeatable for a total of 6 hours.

ENGL 2541 - Screenwriting Workshop
1 to 3 Credits
Weekly workshop for the exploration of all aspects of screenwriting. Suitable for all levels of experience. Variable credit of one to three hours (at the instructor’s discretion). May be repeated, but only six hours count toward graduation. Offered fall and spring semesters. This course may be repeated 8 times. This course is repeatable for a total of 6 hours.

ENGL 2551 - Creative Writing Workshop
1 to 3 Credits
Weekly workshop. An introduction to multiple creative writing genres and techniques with an emphasis on practice through prompts and other activities. Suitable for all levels of experience. Variable credit of one to three hours (at the instructor’s discretion). May be repeated, but only six hours count toward graduation. Offered fall and spring semesters. This course may be repeated 8 times. This course is repeatable for a total of 6 hours.
ENGL 2561 - English Department Newsletter
1 to 3 Credits
Creation of the annual department newsletter; involves interviews, writing articles, layout and design. Offered spring semester. Must be enrolled in one of the following Departments: English. This course may be repeated 2 times. This course is repeatable for a total of 6 hours.
Course Attributes:
Requires Instructor Approval

ENGL 2571 - Research Practicum
1 to 3 Credits
Practical experience in using such research skills as documentation, editing, and preparing manuscripts. Student will work with faculty member as research assistant. One to three credits, depending on role, to be determined by department. May be repeated, but only six hours will count toward graduation. Offered fall and spring semesters. This course is repeatable for a total of 6 hours.

ENGL 2601 - Introduction to Shakespeare
3 Credits
Representative plays and poetry from the entire span of Shakespeare's career and from each of the genres. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521. This course is repeatable for a total of 6 hours.
Course Attributes:
AS-HUM - Humanities
Informed Responses-Aesthetics
Integration Across Disciplines

ENGL 2631 - Women's Literature
3 Credits
Selected works by or about women in English or in translation, drawn from a variety of genres in all historical eras, viewed from various critical perspectives, including feminist and historical/cultural theories.
Course Attributes:
AS-HUM - Humanities

ENGL 2741 - American Multicultural Literature
3 Credits
American multicultural literature with emphasis on aesthetic value and cultural context. Offered alternate fall semesters.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Effective Comm Writing

ENGL 2901 - Special Topics
3 Credits
May be repeated as the topic varies. Offered alternate spring semesters. This course is repeatable for a total of 9 hours.
ENGL 2921 - Photojournalism
3 Credits
Focuses on the art of news photography, and covers basic instruction in photography and lighting, as well as the types of photography found in the news, specifically sports coverage, feature shots, straight news. Camera provided.
Course Attributes:
Effective Comm Non-Writing
Informed Responses-Aesthetics

ENGL 3191 - Renaissance and Jacobean Literature
3 Credits
Major writers, themes, movements, or genres from 1485 to 1660, including such authors as Marlowe, Jonson, Spenser, Donne, and Milton. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities

ENGL 3201 - European Literature
3 Credits
The Western tradition in literature, including representative continental literature in translation from the Classical Greek era to the present. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities

ENGL 3261 - Post-World War I British Literature
3 Credits
British literature from the 1900s to the present, with concentration on a few selected writers. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities

ENGL 3301 - Postcolonial Literature
3 Credits
Major works in world literatures written in English from such regions as India, Anglophone Africa, Australia, and the Caribbean, with attention to cultural context. This course satisfies the Arts and Sciences non-Western requirement. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities
Non Western Cultural

ENGL 3341 - American Literature pre-1865
3 Credits
American literature from 1492 to the 1870s, with concentration on a few selected writers or themes in the context of literary and social influences. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
ENGL 3351 - American Literature post-1865  
3 Credits  
American literature from the 1870s to the present, with a concentration on a few selected writers or themes in the context of literary and social influences. Prerequisite(s): Prerequisite information is available in the online course catalog.  
Course Attributes:

ENGL 3401 - Intermediate Poetry Writing  
3 Credits  
The discipline and techniques of poetry writing and analysis. Workshop and discussion setting. Offered alternate fall semesters. Prerequisite(s): ENGL 1221 Minimum Grade of C or ENGL 1231 Minimum Grade of C or ENGL 111 Minimum Grade of C or HONR 1231 Minimum Grade of C or ENGL 1421 Minimum Grade of C or ENGL 1521 Minimum Grade of C. May not be enrolled in one of the following Classifications: Freshman.  

ENGL 3411 - Intermediate Fiction Writing  
3 Credits  
The discipline and technique of fiction writing and analysis. Workshop and discussion setting. Offered alternate fall semesters. Prerequisite(s): ENGL 1221 Minimum Grade of C or ENGL 1231 Minimum Grade of C or ENGL 111 Minimum Grade of C or HONR 1231 Minimum Grade of C or ENGL 1421 Minimum Grade of C or ENGL 1521 Minimum Grade of C. May not be enrolled in one of the following Classifications: Freshman.  

ENGL 3421 - Screenwriting  
3 Credits  
The theory and practice of screenwriting in a workshop setting. Offered alternate spring semesters. Prerequisite(s): ENGL 1221 or ENGL 1231 or ENGL 111 or HONR 1231 or ENGL 1421 or ENGL 1521.  

ENGL 3441 - Introduction to Convergent Publishing  
3 Credits  
This course is a hands-on introduction to cutting-edge journalism. Students will work in a multi-media newsroom where they will develop a news package for a variety of venues, including web, print, and television. Offered alternate spring semesters. Prerequisite(s): ENGL 2201 Minimum Grade of C or ENGL 244 Minimum Grade of C.  

ENGL 3511 - English Language  
3 Credits  
The history of the English language, developments in American and world English, and changes in vocabulary, grammar, phonology, and dialects. Must be enrolled in the English Department; others by permission of instructor. Offered alternate fall semesters. Prerequisite(s): Prerequisite information is available in the online course catalog. Must be enrolled in one of the following Departments: English.  

ENGL 3551 - Feature Writing  
3 Credits  
Understanding and practice in writing soft news. Class assignments may profile people who make the
ENGL 3641 - British Novel
3 Credits
Representative novels, from the early development of the genre in the eighteenth century to romantic and social novels of the nineteenth and experimental novels of the twentieth centuries. Offered alternate spring semesters. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities

ENGL 3651 - American Novel
3 Credits
Selected novels from the eighteenth century to the present in the context of diverse literary and social influences. Offered alternate spring semesters. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities

ENGL 3721 - Advanced Reporting (Capstone)
3 Credits
Advanced journalism reporting techniques, research tools, and formats used by newspapers in covering public policy issues. Offered alternate fall semesters. Prerequisite(s): ENGL 1611 or ENGL 241.

ENGL 3781 - Journal Publishing
3 Credits
Hands-on opportunity to learn about scholarly journal publication. Issues of budgeting, layout, and design, creation of style manuals, copy editing and other responsibilities of an editor. Offered alternate spring semesters. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
Integration Across Disciplines

ENGL 3801 - Literary Journalism (Capstone)
3 Credits
The journalist as a creator of literature: the transformation of significant literary figures from working journalists to award-winning fiction writers and the writing techniques they employ. Includes such authors as Hemingway, Hersey, Wolfe, Breslin and Thompson. Offered alternate fall semesters. Prerequisite(s): ENGL 1611 or ENGL 241.

ENGL 3811 - Modernist and Contemporary Poetry
3 Credits
Exploration and contextualization of major writers, poems, and movements in 20th-century American and European poetry. Offered alternate fall semesters. Prerequisite(s): Prerequisite information is available in the online course catalog.
Course Attributes:
AS-HUM - Humanities

ENGL 3901 - Special Topics in English
3 Credits
May be repeated as the topic varies. Offered alternate spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

ENGL 4051 - Studies in Literary and Cultural Theory
3 Credits
The academic and professional interpretation of literary and multimedia texts in their social, cultural, and historical contexts. Offered alternate spring semesters. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

ENGL 4101 - Chaucer
3 Credits
The poetry of Chaucer, with special emphasis on the Canterbury Tales, Troilus and Criseyde, and reading and understanding Middle English. Offered alternate fall semesters. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

ENGL 4111 - Topics in Medieval Literature
3 Credits
Exploration of themes in and cultural contexts of medieval literature, with emphasis on development of skills in literary research and the production of a substantive paper. May be used as a capstone. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

ENGL 4121 - Shakespeare Studies
3 Credits
Close reading and analysis of Shakespeare's plays with their historical context, using a variety of critical approaches. May be repeated as content varies. Offered alternate fall semesters. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

ENGL 4231 - 18th Century British Romanticism
3 Credits
Major works of English prose and drama between 1660 and 1832, with concentration on a few writers such as Swift, Behn, Wollstonecraft, and the poets of the Romantic period. Offered alternate fall semesters.

ENGL 4241 - Victorian Period
3 Credits
British literature between 1832 and 1901, with an emphasis on cultural and historical contexts. Offered alternate fall semesters. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

ENGL 4311 - Studies in American Literature
3 Credits
A major writer, genre, or theme in American literature, with attention to cultural context. Offered
alternate spring semesters. Prerequisite(s): Prerequisite information is available in the online course catalog.

**ENGL 4321 - Studies in Comparative Literature**

*3 Credits*

Issues of special interest to English majors about literary texts from ancient times to the present that highlight differences between Western and non-Western literatures. Offered alternate spring semesters. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

**ENGL 4401 - Advanced Poetry Writing**

*3 Credits*

The discipline and technique of advanced poetry writing and analysis, with an introduction to publication possibilities. Workshop and discussion setting. May be continued as ENGL 4961 - Independent Study in Writing. Offered alternate spring semesters. Prerequisite(s): ENGL 3401 Minimum Grade of C or ENGL 341 Minimum Grade of C.

**ENGL 4411 - Advanced Fiction Writing**

*3 Credits*

The discipline and technique of writing fiction, with an introduction to publication possibilities. Workshop and discussion setting. May be continued as ENGL 4961 - Independent Study in Writing. Offered alternate spring semesters. Prerequisite(s): ENGL 3411 Minimum Grade of C or ENGL 342 Minimum Grade of C.

**ENGL 4421 - Nonfiction Writing**

*3 Credits*

A literary approach to the reading and writing of non-fiction essays. Offered alternate spring semesters. Prerequisite(s): ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C.

**ENGL 4461 - Capstone Presentation**

*1 Credit*

Oral presentation of the project completed in a designated 3000-4000 level course as a capstone project. Offered fall and spring semesters. Must be enrolled in one of the following Departments: English. Course Attributes: Requires Instructor Approval

**ENGL 4501 - Communications Law and Ethics**

*3 Credits*

A survey of contemporary ethical, legal, and diversity issues confronting the media; the press as a cultural force in society. Offered alternate spring semesters.

**ENGL 4521 - Rhetorical Theory**

*3 Credits*

The history and theory of rhetoric and its practice in contemporary public discourse and media. Offered alternate spring semesters. Prerequisite(s): Prerequisite information is available in the online course catalog.
ENGL 4701 - Editing
3 Credits
Editing techniques and concerns critical to producing polished writing on a variety of levels, from corporate communications to book publishing. Offered fall semester. Prerequisite(s): (ENGL 2001 Minimum Grade of C or ENGL 200 Minimum Grade of C) and (ENGL 2101 Minimum Grade of C or ENGL 210 Minimum Grade of C).

ENGL 4711 - History of Journalism
3 Credits
Survey of American journalism history and principles. Concentration on the development of a free press from colonial period to present day with special emphasis on the various heroes and villains of the media including Day, Pulitzer, Hearst, Murrow, and Murdoch. Offered alternate spring semesters. Prerequisite(s): ENGL 1611 or ENGL 241.

ENGL 4811 - Journalism Internship
1 to 3 Credits
Provides practical experience outside the classroom and enhances the students professional interests. Courses appropriate for the internship required. Offered fall and spring semesters. This course is repeatable for a total of 15 hours.

ENGL 4821 - Professional Writing Internship
1 to 3 Credits
Provides practical experience outside the classroom and enhances the students professional interests. Courses appropriate for the internship required. Offered fall and spring semesters. This course is repeatable for a total of 15 hours.

ENGL 4901 - Special Topics
3 Credits
May be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted. Course Attributes:
Requires Department Approval

ENGL 4961 - Independent Study in Creative Writing
1 to 3 Credits
May be repeated as the topic varies. Unlimited repeats permitted. Course Attributes:
Requires Department Approval

ENGL 4971 - Independent Study in Literature
1 to 3 Credits
May be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted. Course Attributes:
Requires Department Approval

ENGL 4981 - Independent Study in Professional Writing
1 to 3 Credits
May be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted. Course Attributes:
Requires Department Approval

ENGL 4991 - Independent Study in Journalism
1 to 3 Credits
May be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

Department of History, Politics, and Justice

Subject - Geography (GEOG)

GEOG 1001 - Introduction To Geography: Methods And Materials
3 Credits
Methods and tools that geographers use to study the complex relationship between place and space. The major academic subdisciplines of geography, including physical geography, political geography, cartography, population geography, historical geography, and GIS.
Course Attributes:
AS-SOCSCI - Social Science
Scientific and Quantitative Literacy

GEOG 1901 - Special Topics In Geography
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

GEOG 2261 - World Regional Geography
3 Credits
Regional survey of the non-Western world. Examination of the leading cultural, economic, historical, political, and environmental features of the non-Western world. Confers International Politics elective credit.
Course Attributes:
AS-SOCSCI - Social Science
Informed Ethical Responses
Non Western Cultural

GEOG 2371 - Physical Geography
3 Credits
Basic concepts in physical geography. The atmosphere, the biosphere, the lithosphere, and the hydrosphere. Processes driving physical systems on the earth, interactions among physical systems, human interaction with the physical environment. Basic physical geographic processes and the global geographic patterns.
Course Attributes:
AS-SOCSCI - Social Science

GEOG 2401 - Political Geography
3 Credits

Course Attributes:
- AS-SOCSCI - Social Science
- Non Western Cultural

**GEOG 2421 - Population Geography**
*3 Credits*
Spatial variations in the distribution, composition, migration, and growth of populations in relation to the nature of places. Demography from a geographical perspective.

Course Attributes:
- AS-SOCSCI - Social Science

**GEOG 2481 - Introduction To Geographic Information Systems**
*3 Credits*
Fundamentals of geographic information systems (GIS). Basic cartographic principles, general geography concepts and spatial analysis, and hardware and software elements of GIS. Lab exercises in various applications of GIS technology to engineering, political science, health, environmental science, business, government, and criminal justice. GIS terminology, raster and vector data structures, data sources and accuracy, methods of data acquisition, conversion, input, and working with spatial databases. Working knowledge of Windows operating system required. Exercises require work in the computer lab outside class hours.

Course Attributes:
- Integration Across Disciplines
- Scientific and Quantitative Literacy

**GEOG 2551 - Spatial Methods 1**
*3 Credits*
Introduction to the application of quantitative and qualitative methods in geography. Quantitative methods, including descriptive statistics; descriptive spatial statistics; normal, Poisson, and binomial probabilities. Introduction to qualitative methods, including interviewing, observation, document analysis, and visual analysis.

Course Attributes:
- AS-SOCSCI - Social Science
- Scientific and Quantitative Literacy

**GEOG 2561 - Spatial Methods 2**
*3 Credits*
Intermediate application of quantitative and qualitative methods in geography. Quantitative methods used by geographers, including multivariate analysis, factor analysis, and spatial modeling. Continues discussion on qualitative methods used by geographers. Prerequisite(s): GEOG 2551 Minimum Grade of C.

Course Attributes:
- AS-SOCSCI - Social Science
- Scientific and Quantitative Literacy
**GEOG 2681 - Cartography**  
*3 Credits*  
The art and science of making maps. The history of map-making, elements of map construction, and properties of map projections. How to construct different kinds of thematic maps and manipulate geographic data to illustrate characteristics of distribution, concentration, or other geographic patterns that promote interpretation of the earth's features. Exercises require work in the computer lab outside class hours. Offered alternate years.

Course Attributes:  
AS-SOCSCI - Social Science  
Informed Responses-Aesthetics  
Scientific and Quantitative Literacy

**GEOG 2901 - Special Topics In Geography**  
*1 to 3 Credits*  
May be repeated as topic varies. Unlimited repeats permitted.

**GEOG 3021 - Nature Center Seminar In Geography**  
*1 Credit*  
Weekend seminar at the Metzger Nature Center on a wide range of topics in geography. May be repeated as topic varies. A Nature Center use fee is charged. Unlimited repeats permitted.

**GEOG 3481 - Applied Geographic Information Systems**  
*3 Credits*  
Advanced discussion of spatial interpolations, error, and uncertainty, Global Positioning Systems (GPS), and spatial model-building. Advanced knowledge of GIS theory and science. Computer lab projects geared toward the relevant major. Exercises require work in the computer lab outside class hours. Offered alternate years. Prerequisite(s): GEOG 2481 Minimum Grade of C or GEOG 248 Minimum Grade of C.

**GEOG 3901 - Special Topics In Geography**  
*1 to 3 Credits*  
May be repeated as topic varies. Formerly GEOG 393. Unlimited repeats permitted.

**GEOG 4001 - Introduction To Remote Sensing**  
*3 Credits*  
Principles and application of remote sensing. The fundamental characteristics of electromagnetic radiation, and energy-atmosphere interactions. The design of remote sensing instruments. Techniques to extract problem-solving information from remote sensing data. Emphasis on digital image-processing techniques and the algorithms involved in measurement, analysis, and interpretation of electromagnetic energy collected by remote sensing instruments. Prerequisite(s): GEOG 2481 Minimum Grade of C or GEOG 248 Minimum Grade of C.

Course Attributes:  
AS-SOCSCI - Social Science

**GEOG 4711 - Public Service Internship Program**  
*1 to 15 Credits*  
Field experience in the area of public service. Student works in a close relationship with public offices and officials or approved private agencies and firms. Student must enroll in at least 1 credit hour of
Public Service Internship per internship experience. A full time Public Service Internship requires 600 hours of on-site work. Student may apply up to 15 credit hours of departmental internship to the BA degree. Consultation with the department internship committee and completion of the application process; 2.75 GPA. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 15 hours.

**GEOG 4721 - Seminar - The Washington Center Seminar**
3 Credits
Course Attributes:
AS-SOCSCI - Social Science
Requires Department Approval

**GEOG 4901 - Special Topics In Geography**
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

**GEOG 4941 - Seminar In Geography**
3 Credits
May be repeated as topic varies. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

**GEOG 4961 - Independent Study In Geography**
1 to 3 Credits
Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

**Subject - Geography and Criminal Justice (GGCJ)**

**GGCJ 3521 - Spatial Analysis In Criminal Justice**
3 Credits
Spatial aspects of criminal justice. Geographies of crime, policing, and related topics.
Course Attributes:
AS-SOCSCI - Social Science

**GGCJ 3921 - Special Topics In Geography And Criminal Justice**
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

**Subject - Geography and History (GGHS)**

**GGHS 3531 - Historical Geography**
3 Credits
Spatial aspects of history. Geographies of historical events and trends and spatial analysis of the past.
May be repeated once as topic varies. This course may be repeated 1 time.
GGHS 3931 - Special Topics In Geography And History
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

Subject - Geography for Marketing (GGMK)

GGMK 3541 - Geography For Marketing
3 Credits
Geographies of markets, analysis of the location of markets, spatial and temporal trends, mapping markets, and GIS.
Course Attributes:
Scientific and Quantitative Literacy

GGMK 3941 - Special Topics In Geography And Marketing
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

Subject - Geography and Political Science (GGPS)

GGPS 3951 - Special Topics In Geography And Politics
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

Subject - History (HIST)

HIST 0041 - Teacher Licensure Orientation
0 Credits
Introduction to the National Council for the Social Studies Ten Themes for Teaching and requirements for teacher licensure. The Ohio State Board of Education requires this course for Social Studies licensure. A Nature Center use fee is charged. Must be enrolled in one of the following Fields of Study: Social Studies.

HIST 1101 - Western Civilization 1
3 Credits
Ideas, attitudes, and institutions basic to civilization as it developed in the West from ancient times to the sixteenth century.
Course Attributes:
AS-HUM - Humanities
Integration Across Disciplines

HIST 1111 - Western Civilization 2
3 Credits
Ideas, attitudes, and institutions basic to civilization as it developed in the West from the seventeenth century to the present.
Course Attributes:
HIST 1151 - World Civilizations 1
3 Credits
The emergence, development, and interactions of civilizations in Africa, Asia, Europe, and the Americas, from the Neolithic Revolution to 1400 CE.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Integration Across Disciplines
Non Western Cultural

HIST 1161 - World Civilizations 2
3 Credits
The development and interactions of Western and non-Western civilizations from 1400-present.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Integration Across Disciplines
Non Western Cultural

HIST 1201 - Public History
3 Credits
Fundamentals of public history. Investigation, examination, and study of museums and historical societies, historic preservation, material culture, popular culture, and family and ethnic group history. Readings, discussions, demonstrations, and fieldwork. Student who completes HIST 1201 may not enroll in HIST 3201.
Course Attributes:
AS-HUM - Humanities

HIST 1301 - Local History
3 Credits
Significant aspects of local history for reference and teaching purposes. Investigation, examination, and study of topics and trends in local history theory and practice. Readings, discussions, demonstrations, and fieldwork. Student who completes HIST 1301 may not enroll in HIST 3301.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Informed Ethical Responses

HIST 1401 - America Rising
3 Credits
America rose from isolated colonies to an economic juggernaut between 1600 and the 1890s. The course will consider the effect of European colonization, interaction with Native Americans, colonial struggles leading to independence, the creation of a new republic, the Antebellum Period, the Civil War, and the rise of industrial America. Special consideration given to the struggle over definition of the new republic and its conflict over slavery.
HIST 1411 - The American Century
3 Credits
Already an economic power at the end of the 19th century, the United States achieved the status of superpower in the wake of the second World War. This course will consider what Time publisher, Henry Luce famously called the 'American Century.' Special consideration given to the debate over the meaning of 'America' and over the nation's role in the world. Covers the period from the Spanish American War in 1898 to Francis Fukuyama's declaration of the triumph of American-style liberal democracy and free market capitalism in the 1990s.

HIST 1901 - Special Topics In History
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

HIST 2041 - Historiography
3 Credits
Methods for researching and writing history from textual sources. Examination of major theories and schools of historical writing. Requires a fully documented research paper written predominantly from primary sources. Fulfills the research methods requirement for History and Social Studies majors.

HIST 2141 - United States History To 1877
3 Credits
American colonies and United States from 1492 to 1877. Emphasis on the formation of American political, economic, and social attitudes, their application in the early Republic, the Civil War, and Reconstruction.

HIST 2151 - United States History Since 1877
3 Credits
The United States since the end of Reconstruction. Major topics include the role played by the US in global affairs and US domestic policy.

HIST 2301 - Introduction To Museums And Archives
3 Credits
Theoretical, administrative, and curatorial aspects of museum and archival management and practice. Topics include the growth of museums and archives, the development of private and public institutions, and the manner in which museum and archival collections are gathered, catalogued, utilized, stored, and made available for research, educational and exhibition purposes. Students gain proficiency in PastPerfect.

Course Attributes:
AS-HUM - Humanities

HIST 2901 - Special Topics In History
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

HIST 3001 - Myth In History
3 Credits
Analysis of the nature and function of myth in historical societies. Case studies in the mythologies of the ancient Near East, Greece, Rome, northern Europe, the Americas, Australia, and the Pacific.
Course Attributes:
AS-HUM - Humanities

HIST 3021 - Nature Center Seminar In History
1 Credit
Weekend seminar at the Metzger Nature Center on a wide range of topics in history. May be repeated as topic varies. A Nature Center use fee is charged. Unlimited repeats permitted.

HIST 3071 - Introduction To Family History And Genealogy
3 Credits
Genealogical research and practice for understanding family history and social development. Exploration of family records; local, state, and federal records; church records; census records; land and probate records and documents; school records; immigration lists and naturalization records; and miscellaneous records to document specific ethnic origins. Offered alternate years.
Course Attributes:
AS-HUM - Humanities

HIST 3081 - Material Culture
3 Credits
Material culture as a means of understanding history and the built environment. Interdisciplinary trends in theory and methodology. The importance of material culture analysis to understand issues such as consumption, fashion, gender, technology, built form, and popular contemporary culture. Offered alternate years.
Course Attributes:
AS-HUM - Humanities

HIST 3131 - East Asia To 1800
3 Credits
Historical evolution of imperial authority in China and Japan. Cultural institutions in China, Japan, Korea and southeast Asia. Cultural interactions between those nations. The beginnings of European penetration into the East. Offered alternate years.
Course Attributes:
HIST 3141 - East Asia Since 1800  
3 Credits  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Effective Comm Writing  
Informed Ethical Responses  
Non Western Cultural

HIST 3201 - Public History  
3 Credits  
Fundamentals of public history. Investigation, examination, and study of museums and historical societies, historic preservation, material culture, popular culture, and family and ethnic group history. Readings, discussions, demonstrations, and fieldwork. Requires extensive readings and a research project. Intended for History majors and minors and Social Studies majors. Student who completes HIST 1201 may not enroll in HIST 3201.  
Course Attributes:  
AS-HUM - Humanities

HIST 3301 - Local History  
3 Credits  
Significant aspects of local history for reference and teaching purposes. Investigation, examination, and study of topics and trends in local history theory and practice. Readings, discussions, demonstrations, and fieldwork. Requires extensive readings and a research project. Intended for History majors and minors and Social Studies majors. Student who completes HIST 1301 may not enroll in HIST 3301.  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Informed Ethical Responses

HIST 3401 - Colonial North America  
3 Credits  
Colonial North American colonies c. 1550-1763. The land, English and French institutions and interactions, relations with Amerindians, slavery, religious diversity, economic enterprise, and politics.  
Course Attributes:  
AS-HUM - Humanities

HIST 3411 - Western Expansion  
3 Credits

**Course Attributes:**
AS-HUM - Humanities

**HIST 3421 - The Constitutional Era In United States History**
3 Credits

**Course Attributes:**
AS-HUM - Humanities

**HIST 3451 - African American History**
3 Credits
The history of the African-American experience from the African beginnings to the present-day.

**Course Attributes:**
AS-HUM - Humanities

**HIST 3611 - 20th Century United States Political History**
3 Credits
Evolution of U.S. government during the 20th century. Delineation of political eras. How the roles of the three branches of the federal government have changed and how domestic and foreign crises have shaped political and institutional responses and changes.

**Course Attributes:**
AS-HUM - Humanities
Effective Comm Writing
Informed Responses-Aesthetics

**HIST 3621 - 20th Century United States Cultural History**
3 Credits
Changes in U.S. culture through World War I, the 1920s, the Great Depression, World War II, and the Cold War. Emphasis on how these events affected cultural creation and evolution.

**Course Attributes:**
AS-HUM - Humanities

**HIST 3701 - The Ancient World**
3 Credits
The political, social, economic, and cultural development of the Near Eastern, Greek, and Roman civilizations of antiquity.

**Course Attributes:**
AS-HUM - Humanities
Diversity-Human Interaction
Integration Across Disciplines
HIST 3711 - Medieval Europe
3 Credits
The political, social, economic, and cultural development of Europe from the decline of the Roman Empire to the beginning of the Renaissance, with special attention to the emergence of institutions that shaped the modern world.
Course Attributes:
AS-HUM - Humanities

HIST 3731 - The Age Of Revolutions
3 Credits
The American and French Revolutions, Latin American revolutions, the Revolutions of 1830, 1848, and 1870, and the Industrial Revolution. Uncovers parallel patterns and divergences in the organized political violence of the modern Western world. Revolutions in culture, customs, agriculture, industry, science, society, religion, and philosophy as well as political revolutions and revolutionary conflicts.
Course Attributes:
AS-HUM - Humanities

HIST 3741 - Russia To 1905
3 Credits
Russia from its origins to 1905. The Kievan Rus, the Mongols, Muscovy, and imperial Russia under the Romanovs. Examines geography, the conflict of cultures, the development of social, political and religious institutions, and serfdom.
Course Attributes:
AS-HUM - Humanities

HIST 3791 - Topics In Modern Europe
3 Credits
Various topics that provide added depth in various areas of modern European history and allow professors to utilize their areas of expertise more fully. May be repeated as topic varies. Unlimited repeats permitted.
Course Attributes:
AS-HUM - Humanities

HIST 3901 - Special Topics In History
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

HIST 4121 - Field School In Archaeology
3 Credits
Basic archaeology and archaeological field work. Curriculum includes survey and excavation; basic geophysical survey methods; preparation of field notes and documentation; and instruction in other fundamental field skills; preparation and identification of recovered artifacts. A Nature Center use fee is charged.
Course Attributes:
AS-HUM - Humanities

HIST 4211 - Fascism
3 Credits
Origins and nature of fascism. Contrasts the regimes in Italy and Germany with those in Spain, France, and elsewhere. Utilizes biographical, descriptive, analytical, and theoretical approaches. Examines fascist leaders, including Mussolini, Hitler, and Franco, as well as fascist activists, journalists, and intellectuals.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Effective Comm Non-Writing
Integration Across Disciplines

HIST 4221 - Hitler And Nazism
3 Credits
Personal, intellectual, and political biography of Adolf Hitler in the context of his times. Uses original photo documentation to examine Hitler’s early life and the pre- and post-WWI historical and intellectual milieu out of which Nazism emerged. Considers the Nazi regime before and during WWII not as a military account of that war.
Course Attributes:
AS-HUM - Humanities
Effective Comm Non-Writing
Informed Responses-Aesthetics
Integration Across Disciplines

HIST 4231 - The Holocaust
3 Credits
Origins, nature, and implications of the Holocaust. Consideration of the general problem of modern anti-Semitism. Current representations of the Holocaust as keys to understanding the generation of historical meaning in the modern world. Employs documentaries, docudramas, and original photo documentation from Germany, Austria, and important sites in Eastern Europe, including Poland, Hungary, and Ukraine.
Course Attributes:
AS-HUM - Humanities
Informed Ethical Responses
Informed Responses-Aesthetics
Integration Across Disciplines

HIST 4301 - Military And Society
3 Credits
The evolving relationship between warfare and the societies that wage wars, from the Middle Ages to the 20th century. The values, attitudes, purposes, and methods that have given direction and shape to military operations in the Western world.
Course Attributes:
AS-HUM - Humanities

HIST 4311 - The Crusades
3 Credits
The origins, operations, and effects of the crusading movements of the Middle Ages. The impact of the crusades on the relationship between Christendom and Islam.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Informed Ethical Responses
Non Western Cultural

HIST 4331 - Civil War And Reconstruction
3 Credits
Origins, operations, and effects of the American Civil War. Team taught course.
Course Attributes:
AS-HUM - Humanities

HIST 4341 - World War I
3 Credits
Origins, operations, and longer-term effects of the war. Biographies, letters, posters, poetry, novels, films, documentaries, and military history. WWI as much as a revolution as a war, from which emerged communism, fascism, Nazism, and an acceleration of modernist and post-modern currents.
Course Attributes:
AS-HUM - Humanities
Effective Comm Non-Writing
Informed Responses-Aesthetics
Integration Across Disciplines

HIST 4351 - World War II
3 Credits
Origins, operations, and effects of the war that defined the 20th century. The military, political, and social forces that the war unleashed. Presentation of World War II in the popular culture.
Course Attributes:
AS-HUM - Humanities

HIST 4361 - Cold War
3 Credits
Capitalism vs. communism in a race for global dominance from 1945 to 1990. Political and cultural trends in the events of half a century of East-West conflict. Team taught course.
Course Attributes:
AS-HUM - Humanities

HIST 4371 - Vietnam War
3 Credits
The origins, operations, and effects of the wars in Vietnam, from 1945 to the present.
Course Attributes:
AS-HUM - Humanities

HIST 4401 - Sport And Society
3 Credits
History of the rise of sport in America from Colonial Period to the present. Influence of sport on society and of society on sport. Examine influence of technology, economics, politics, race, class, and gender on sport.
Course Attributes:
HIST 4411 - Baseball in American Culture
3 Credits
Origins and history of baseball from 1840s to the present. Social, political, and economic forces that shaped the game and American culture during that period along with baseball's importance to our history and in the popular culture.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Effective Comm Non-Writing
Integration Across Disciplines

HIST 4421 - Football in America
3 Credits
Origins and history of football from 1860s to the present. Social, political, and economic forces that shaped the game and American culture. The rise of professional football from obscurity to the most followed sport in America.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Effective Comm Non-Writing
Integration Across Disciplines

HIST 4511 - History of Law
3 Credits
Evolution of law as an instrument of dispute resolution and social control. Development of the civil law tradition and the English common law tradition to the seventeenth century.
Course Attributes:
AS-HUM - Humanities

HIST 4711 - Public Service Internship Program
1 to 15 Credits
Field experience in the area of public service. Student works in a close relationship with public offices and officials or approved private agencies and firms. Student must enroll in at least 1 credit hour of Public Service Internship per internship experience. A full time Public Service Internship requires 600 hours of on-site work. Student may apply 3 credit hours of HIST 4711 to an HIST Elective major requirement. Student may apply up to 15 credit hours of departmental internship to the BA degree. Consultation with the department internship committee and completion of the application process; 2.75 GPA. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 15 hours.

HIST 4721 - Seminar - The Washington Center Seminar
3 Credits
Course Attributes:
AS-HUM - Humanities
Requires Department Approval
HIST 4901 - Special Topics In History
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

HIST 4941 - Seminar In History
3 Credits
May be repeated as topic varies. Unlimited repeats permitted.
Course Attributes:
AS-HUM - Humanities

HIST 4961 - Independent Study In History
1 to 3 Credits
Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

HIST 4981 - Senior Thesis 1
1 Credit
Topic selection and development of bibliography and outline for senior thesis under the direction of a departmental faculty member. First part of departmental Capstone course for majors in History or Social Studies. Required of all History and Social Studies majors. Enrollment at least two semesters before the semester of expected graduation. Prerequisite(s): HIST 2041 Minimum Grade of C or HIST 204 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: History, Social Studies. Must be enrolled in one of the following Classifications: Senior, Junior.

HIST 4991 - Senior Thesis 2
2 Credits
Completion of senior thesis under the direction of a departmental faculty member and a second reader. Second part of departmental Capstone course for majors in History or Social Studies. Required of all History and Social Studies majors. Enrollment at least one semester before the semester of expected graduation. Formerly HIST 489. Prerequisite(s): HIST 4981 Minimum Grade of C or HIST 488 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: History, Social Studies. Must be enrolled in one of the following Classifications: Senior, Junior.

Subject - History, Political Science and Criminal Justice (HSPS)

HSPS 1001 - Orientation - Department of History, Politics and Justice
1 Credit
Introduction to the faculty, programs, procedures, and opportunities in the Department of History, Politics and Justice. Exploration of the practical and intellectual dimensions of academic life at Ohio Northern University. Must be enrolled in one of the following Fields of Study: Criminal Justice, History, Political Science, Social Studies. Must be enrolled in one of the following Classifications: Freshman.

HSPS 1901 - Special Topics In History and Politics
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.
HSPS 2211 - Europe In Transition
3 Credits
European history, politics, and culture from the end of World War II. The Cold War, European Integration, and accelerating globalization. Post-war migrations, immigration, and the periodic challenges from the political extremes. Cultural and intellectual trends. Growing religious and ethnic tensions, especially as they pertain to terrorism. Student who completes HSPS 2211 may not enroll in HSPS 3211.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing

HSPS 2221 - Asia In Transition
3 Credits
Transformation of political systems, economic systems, societies, culture, art, religion, and the family in Asia since World War II. Student who completes HSPS 2221 may not enroll in HSPS 3221.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Non Western Cultural

HSPS 2231 - Africa In Transition
3 Credits
The transition of sub-Saharan Africa from traditional society to modernity and from colonialism to independence and state building. Political, economic, social, cultural trends since World War II. Requires integration of readings, audio-visual presentations, discussions, and lectures. Student who completes HSPS 2231 may not enroll in HSPS 3231.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Non Western Cultural

HSPS 2241 - The Middle East In Transition
3 Credits
The political, economic, social, cultural, and intellectual development of Southwest Asia and North Africa since World War II. The clash of Western and non-Western power centers in the region. The rise of political Islam. Student who completes HSPS 2241 may not enroll in HSPS 3241.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Diversity-Human Interaction
Effective Comm Non-Writing
Non Western Cultural

HSPS 2251 - Latin America In Transition
3 Credits
The oscillation of Latin America between dictatorship and democracy, the transition from rural to urban societies, and the evolving relationship between Latin America and the world. Political, social, economic, and cultural trends since World War II. Requires integration of readings, audio-visual presentations, discussions, and lectures. Student who completes HSPS 2251 may not enroll in HSPS 3251.

Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Integration Across Disciplines
Non Western Cultural

HSPS 2901 - Special Topics In History And Politics
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

HSPS 3021 - Nature Center Seminar In History And Politics
1 Credit
Weekend seminar at the Metzger Nature Center on a wide range of interdisciplinary topics in history, politics, and government. May be repeated as topic varies. A Nature Center use fee is charged. Formerly HSPS 302. Unlimited repeats permitted.

HSPS 3211 - Europe In Transition
3 Credits
European history, politics, and culture from the end of World War II. The Cold War, European Integration, and accelerating globalization. Post-war migrations, immigration, and the periodic challenges from the political extremes. Cultural and intellectual trends. Growing religious and ethnic tensions, especially as they pertain to terrorism. Requires a research project. Student who completes HSPS 3211 may not enroll in HSPS 2211. International Politics Elective.

Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing

HSPS 3221 - Asia In Transition
3 Credits
Transformation of political systems, economic systems, societies, culture, art, religion, and the family in Asia since World War II. Requires a research project. Student who completes HSPS 3221 may not enroll in HSPS 2221. International Politics Elective.

Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science

HSPS 3231 - Africa In Transition
3 Credits
The transition of sub-Saharan Africa from traditional society to modernity and from colonialism to independence and state building. Political, economic, social, cultural trends since World War II. Requires integration of readings, audio-visual presentations, discussions, and lectures. Requires a research project. Student who completes HSPS 3231 may not enroll in HSPS 2231. International Politics Elective.
HSPS 3241 - The Middle East In Transition
3 Credits
The political, economic, social, cultural, and intellectual development of Southwest Asia and North Africa since World War II. The clash of Western and non-Western power centers in the region. The rise of political Islam. Requires a research project. Student who completes HSPS 3241 may not enroll in HSPS 2241. International Politics Elective.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Diversity-Human Interaction
Effective Comm Non-Writing

HSPS 3251 - Latin America In Transition
3 Credits
The oscillation of Latin America between dictatorship and democracy, the transition from rural to urban societies, and the evolving relationship between Latin America and the world. Political, social, economic, and cultural trends since World War II. Requires integration of readings, audio-visual presentations, discussions, and lectures. Requires a research project. Student who completes HSPS 3251 may not enroll in HSPS 2251. International Politics Elective.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Integration Across Disciplines

HSPS 3901 - Special Topics In History And Politics
1 to 3 Credits
May be repeated as topic varies. Formerly HSPS 392. Unlimited repeats permitted.
Course Attributes:
Effective Comm Non-Writing
Integration Across Disciplines
Non Western Cultural

HSPS 4161 - Russia And The Near Abroad
3 Credits
Comparative study of the transition from autocratic to democratic political systems in the region formerly dominated by the Soviet Union. From Tsarist Russia and the Communist period to present-day efforts of democratization. International Politics Elective.
Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Non Western Cultural

HSPS 4521 - American Foreign Relations
3 Credits
Analytical and conceptual overview of the nature of American foreign policy decision-making. Uses case studies to uncover the variables at play in recent American foreign policy. International Politics Elective.

Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Diversity-Human Interaction
Informed Ethical Responses
Integration Across Disciplines

HSPS 4531 - Spy vs. Spy: Espionage, 1947-Present
3 Credits
A comprehensive and detailed overview of the US intelligence community from 1947 to the present. Collection and analysis of information. Counter-intelligence and covert action. An overview of foreign intelligence services. The management structure responsible for directing and supervising intelligence organizations and activities. International Politics Elective.

Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science

HSPS 4711 - Public Service Internship Program
1 to 15 Credits
Field experience in the area of public service. Student works in a close relationship with public offices and officials or approved private agencies and firms. Student must enroll in at least 1 credit hour of Public Service Internship per internship experience. A full time Public Service Internship requires 600 hours of on-site work. Student may apply 3 credit hours of HSPS 4711 to an HIST Elective major requirement. Student may apply up to 15 credit hours of departmental internship to the BA degree. Consultation with the department internship committee and completion of the application process; 2.75 GPA. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 15 hours.

Course Attributes:
Requires Department Approval

HSPS 4721 - Seminar - The Washington Center Seminar
3 Credits

Course Attributes:
AS-HUM - Humanities
AS-SOCSCI - Social Science
Requires Department Approval

HSPS 4901 - Special Topics In History And Politics
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

HSPS 4941 - Seminar In History And Politics
3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

Course Attributes:
AS-HUM - Humanities
HSPS 4961 - Independent Study In History And Politics
1 to 3 Credits
Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

HSPS 4981 - Senior Thesis 1
1 Credit
Topic selection and development of bibliography and outline for interdisciplinary senior thesis and under the direction of a departmental faculty member. First part of departmental Capstone course for double majors in History and Political Science who elect to enroll in this course to meet the Capstone requirement. Enrollment at least two semesters before the semester of expected graduation. Double major in History and Political Science required. Prerequisite(s): HIST 2041 Minimum Grade of C or (ISR 2531 Minimum Grade of C and ISR 2541 Minimum Grade of C) or HIST 204 Minimum Grade of C or (ISR 253 Minimum Grade of C and ISR 254 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: History, History and Political Science, Political Science, Social Studies. Must be enrolled in one of the following Classifications: Senior, Junior.

HSPS 4991 - Senior Thesis 2
2 Credits
Completion of interdisciplinary senior thesis under the direction of a departmental faculty member and a second reader. Second part of departmental Capstone course for double majors in History and Political Science who elect to enroll in this course to meet the Capstone requirement. Enrollment one semester before the semester of expected graduation. Double major in History and Political Science required. Prerequisite(s): HIST 4981 Minimum Grade of C or HIST 488 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: History, History and Political Science, Political Science, Social Studies. Must be enrolled in one of the following Classifications: Senior.

Subject - Leadership Studies (LEAD)

LEAD 4901 - Foundations Of Leadership
2 Credits
Leadership and how it works. Theories, definitions and models of leadership. Participants interview a contemporary leader, analyze that leader's style, and complete a personal vision statement. Must be enrolled in one of the following Fields of Study: Leadership Studies Option. Must be enrolled in one of the following Classifications: Senior, Junior.

LEAD 4911 - Techniques And Dynamics Of Leadership
2 Credits
Effective techniques and the discernable dynamics of leadership. Leading in groups, team building, problem solving and negotiation, leadership in crises, and getting a foothold in the real world. Participants will be involved in a civic engagement project or an alternate leadership project and report on the same. Must be enrolled in one of the following Fields of Study: Leadership Studies Option. Must be enrolled in one of the following Classifications: Senior, Junior.
LEAD 4921 - Issues In Contemporary Leadership
2 Credits
Effective leadership in the contemporary setting. The use of personal leadership to improve communities. Leadership in an era of social, cultural, racial and gender diversity. Balancing commitments to career, family and community. The future of leadership. Participants will link with an experienced leader for participatory mentoring and report on their experience. Must be enrolled in one of the following Fields of Study: Leadership Studies Option. Must be enrolled in one of the following Classifications: Senior, Junior.

LEAD 4991 - Leadership Practicum
1 to 2 Credits
Field experience in leadership. Significant involvement in a civic project or a major leadership role on campus. Maintenance of a journal that reflects the involvement and reactions to the experience. Additional requirements may be included in the contract. Requires approval of the Leadership Studies Committee and the instructor. May be repeated as topic varies. Must be enrolled in one of the following Fields of Study: Leadership Studies Option. Must be enrolled in one of the following Classifications: Senior, Junior. This course may be repeated 1 time. This course is repeatable for a total of 2 hours. Course Attributes: Requires Department Approval

Subject - Political Science (PLSC)

PLSC 1901 - Special Topics In Political Science
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

PLSC 2011 - Introduction To American Politics
3 Credits
Constitutional underpinnings, political behavior, processes, and institutions of American national politics.
Course Attributes:
AS-SOCSCI - Social Science

PLSC 2201 - Introduction To International Relations
3 Credits
The relations of states, governments, political movements, and international organizations in the global context. Political actors and their objectives in a world of limited resources. Global collective responses to global problems. Competition between rich and poor nations and between major and minor powers in terms of the collective good. Formerly HSPS 107.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing

PLSC 2211 - Introduction To Comparative Politics
3 Credits
Comparative study of political institutions and processes and individual and group behavior.
Interrelationships among the historical, cultural, social, and economic characteristics of national political systems. Comparative governmental structures and patterns of mass political behavior.

Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing
Non Western Cultural

**PLSC 2901 - Special Topics In Political Science**

1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

**PLSC 3021 - Nature Center Seminar In Political Science**

1 Credit
Weekend seminar at the Metzger Nature Center on a wide range of topics in politics and government. May be repeated as topic varies. A Nature Center use fee is charged. Unlimited repeats permitted.

**PLSC 3061 - Environmental Law**

3 Credits
American legal system used to preserve the nation's environment. Significant environmental laws and policies developed for implementation. American Politics Elective.

Course Attributes:
AS-SOCSCI - Social Science

**PLSC 3101 - State And Local Politics**

3 Credits
Legal underpinnings, political behavior, processes, and institutions of American states and localities. American Politics Elective.

Course Attributes:
AS-SOCSCI - Social Science

**PLSC 3201 - Topics In American Politics**

3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

Course Attributes:
AS-SOCSCI - Social Science

**PLSC 3211 - Political Parties And Interest Groups**

3 Credits
Formation, maintenance, and influence of interest groups and political parties in the United States. American Politics Elective.

Course Attributes:
AS-SOCSCI - Social Science

**PLSC 3221 - Campaigns And Elections**

3 Credits

Course Attributes:
AS-SOCSCI - Social Science

PLSC 3231 - Mass Media And Politics
3 Credits
Historical development and contemporary operation of the mass media as they relate to the American political system. American Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science

PLSC 3241 - Film And Politics
3 Credits
Historical development and contemporary role of films that relate to political processes and institutions. American Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science

PLSC 3251 - Popular Culture In American Politics
3 Credits
Historical development and contemporary role of popular culture in American politics. American Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science

PLSC 3301 - Comparative Politics Of Democracies
3 Credits
Comparison of the politics of democracies. The impact of political culture and the operations of governmental institutions, parties, and interest groups on public policy-making. International Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science
Diversity-Human Interaction
Effective Comm Non-Writing

PLSC 3311 - Comparative Politics In The Developing World
3 Credits
Comparison of contemporary politics in developing and non-Western societies. The impact of cultural fragmentation, modernization, social unrest, and rising expectations on the stability and effectiveness of governmental institutions and processes. International Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Diversity-Human Interaction
Effective Comm Non-Writing

PLSC 3411 - Human Rights
3 Credits
Philosophical, political, and legal bases of international human rights. The ongoing debate over universality, cultural relativity and human rights, humanitarian intervention and sovereignty, and
specific foreign policy choices. Strategies designed to advance human rights and accountability, including the use of military force and the development of international criminal courts, truth commissions, and other forms of transitional justice. International Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Diversity-Human Interaction

PLSC 3421 - Conflict Analysis And Resolution
3 Credits
Course Attributes:
AS-SOCSCI - Social Science
Integration Across Disciplines
Non Western Cultural

PLSC 3431 - Terrorism
3 Credits
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Diversity-Human Interaction
Effective Comm Non-Writing

PLSC 3441 - Wars In Africa
3 Credits
Causes and types of war in Africa. Processes of resolution and management of civil wars by interested stakeholders. Global responses, underlying principles for such responses, and their effectiveness. Obstacles to the resolution of civil wars in Africa. International Politics Elective.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing
Integration Across Disciplines
Non Western Cultural

PLSC 3501 - Constitutional Law And Government
3 Credits
Social and political forces that shaped constitutional political theory. The interaction of law and politics through the Reconstruction era. Relationship of the Supreme Court with respect to Congress, the executive, states, and emergency powers. American Politics Elective.
PLSC 3511 - Constitutional Law And Civil Liberties  
3 Credits  
Late nineteenth, twentieth, and twenty-first century decisions of the Supreme Court pertaining to civil liberties, civil rights, and criminal justice. American Politics Elective.

PLSC 3541 - Judicial Process, Behavior, And Impact  
3 Credits  
The roles of lawyers, judges, and juries in the judicial process. The organization and operation of federal and state trial courts. The decision-making process of federal and state appellate courts. The voting behavior of federal and state appellate judges. The impact of appellate court decisions on society and on the operations of criminal justice agencies. American Politics Elective.

PLSC 3661 - Public Administration  
3 Credits  
Bureaucrats as actors in the American political system, their sources of power, and their relationship to elected public officials. American Politics Elective.

PLSC 3671 - Policy Analysis  
3 Credits  
Basic dynamics and problems of policymaking and the widely used analytical approaches to public policy. American Politics Elective.

PLSC 3881 - International Law And Organizations  
3 Credits  
Factors and forces that determine the policies of nation-states with respect to international cooperation. The structure, operation, and legal setting of international politics. The role of IGOs and NGOs. The evolving international legal order. International Politics Elective.

PLSC 3901 - Special Topics In Political Science  
1 to 3 Credits  
May be repeated as topic varies. Unlimited repeats permitted.
PLSC 4091 - The Presidency
3 Credits
Course Attributes:
AS-SOCSCI - Social Science

PLSC 4111 - Congress
3 Credits
Course Attributes:
AS-SOCSCI - Social Science

PLSC 4581 - Western Political Thought 1
3 Credits
Western political theory from Plato, Aristotle, and the Stoics through Machiavelli, the Reformation, and the Wars of Religion. Examines the political and theoretical elements of pre-modern thought.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Informed Ethical Responses
Integration Across Disciplines

PLSC 4591 - Western Political Thought 2
3 Credits
Western political theory from the Enlightenment through John Rawls. Examines the political and theoretical implications of constitutionalism, contract theory, conservatism, idealism, romanticism, liberalism, utilitarianism, Marxism, anarchism, socialism, elite theories, social Darwinism, racism, anti-Semitism, feminism, environmentalism, and libertarianism. Confers American Politics Elective credit if not used for Major Course credit.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Informed Ethical Responses
Integration Across Disciplines

PLSC 4711 - Public Service Internship Program
1 to 15 Credits
Field experience in the area of public service. Student works in a close relationship with public offices and officials or approved private agencies and firms. Student must enroll in at least 1 credit hour of Public Service Internship per internship experience. A full time Public Service Internship requires 600 hours of on-site work. Student may apply up to 15 credit hours of departmental internship to the BA degree. Consultation with the department internship committee and completion of the application process; 2.75 GPA. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 15 hours.

PLSC 4721 - Seminar - The Washington Center Seminar
3 Credits
Course Attributes:
PLSC 4751 - Model United Nations
1 to 2 Credits
Preparation to participate in regional Model United Nations conferences and the National Model United Nations conference in New York City. An integrated simulation of key operations of the United Nations. Travel to New York City in the spring. Student may apply 3 credit hours of Model United Nations to the Political Science/International Politics major (Academic Component). Student may apply up to 9 credit hours of Model United Nations to the BA degree. Open to any major. This course may be repeated 2 times. This course is repeatable for a total of 9 hours.
Course Attributes:
Effective Comm Non-Writing
Informed Ethical Responses

PLSC 4761 - Mock Trial
1 to 2 Credits
Preparation to participate in regional and national mock trial competitions held at various sites throughout the United States. Preparation of both civil and criminal cases, including opening and closing arguments, direct and cross examination of witnesses, and objections. Student may apply 3 credit hours of Mock Trial to the Criminal Justice major or to the Political Science/American Politics major (Academic Component). Student may apply up to 9 credit hours of Mock Trial to the BA degree. Confers up to 3 hours of American Politics Elective credit. Open to any major. This course may be repeated 2 times. This course is repeatable for a total of 9 hours.

PLSC 4901 - Special Topics In Political Science
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

PLSC 4911 - Special Topics in American Politics
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

PLSC 4921 - Special Topics In International Relations
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

PLSC 4931 - Special Topics in Comparative Politics
1 to 3 Credits
May be repeated as topic varies. Unlimited repeats permitted.

PLSC 4941 - Seminar In Political Science
3 Credits
May be repeated as topic varies. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science
PLSC 4961 - Independent Study In Political Science
1 to 3 Credits
Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

PLSC 4981 - Senior Thesis 1
1 Credit
Topic selection and development of bibliography and outline for senior thesis under the direction of a departmental faculty member. First part of departmental Capstone course for majors in Political Science. Required of all Political Science majors. Enrollment at least two semesters before the semester of expected graduation. Prerequisite(s): (ISR 2531 Minimum Grade of C or ISR 253 Minimum Grade of C) and (ISR 2541 Minimum Grade of C or ISR 254 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Political Science. Must be enrolled in one of the following Classifications: Senior, Junior.

PLSC 4991 - Senior Thesis 2
2 Credits
Completion of senior thesis under the direction of a departmental faculty member and a second reader. Second part of departmental Capstone course for majors in Political Science. Required of all Political Science majors. Enrollment at least one semester before the semester of expected graduation. Prerequisite(s): PLSC 4981 Minimum Grade of C or PLSC 488 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Political Science. Must be enrolled in one of the following Classifications: Senior, Junior.

Department of Human Performance and Sport Sciences

Subject - Activities (ACTV)

ACTV 1001 - Lifetime, Fitness and Wellness
1 Credit
The course evaluates ones current health levels, fitness levels, and attitudes toward living a healthy lifestyle. This experience provides the knowledge base for health and fitness, and enables the students to implement healthy living factors and personalized fitness prescriptions into each of their lifestyles, both now and in the future. Learning experiences include some lecture and physical activity on a daily basis. Offered fall and spring semesters. May not be enrolled in one of the following Colleges: Pharmacy, Engineering.
Course Attributes:
Health and Wellness

Subject - Water Activities (AQUA)

AQUA 2101 - Lifeguarding
1 Credit
To develop knowledge and skills to aid in the prevention of aquatic accidents and an ability to give
assistance to victims. The American Red Cross Advanced lifeguarding certificate/emblem may be obtained by passing an examination. Fee required. Offered fall semester. Prerequisite(s): ATTR 1101.

**AQUA 2111 - Water Safety Instruction**  
*2 Credits*  
To develop knowledge and skills to teach swimming and water safety skills, methods and techniques. Successful completion of the course will lead to American Red Cross Water Safety Instruction certification. Offered spring semester.

**Subject - Athletic Training (ATTR)**

**ATTR 1001 - Basic Athletic Training**  
*3 Credits*  
The prevention, recognition and care of athletic injuries as well as common principles associated with the athletic training profession. Offered fall and spring semesters.

**ATTR 1011 - Basic Athletic Training Lab**  
*1 Credit*  
Lab focusing on skills associated with athletic training including but not limited to: taping, ice and heat application, referral procedures, examination and screening procedures, wound care, etc. Offered fall and spring semesters. Corequisite(s): ATTR 1001. Must be enrolled in one of the following Fields of Study: Athletic Training.

**ATTR 1101 - Professional Emergency Care**  
*2 Credits*  
To provide the citizen responder with the knowledge and practical skills necessary to help sustain life, reduce pain and minimize the consequences of injury or sudden illness until EMS arrives. Skills in first aid and advanced assessment and care of adults, children, and infants including AEDs, BVM, stabilization, transportation, and special resuscitation techniques. American Heart Association Basic Life Support (BLS) for Healthcare Providers and Heartsaver First Aid certifications may be obtained by students who pass written and skill examinations. Course can be taken only once for graduation credit. Course may be repeated once for recertification as space permits. (Fee) Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology, Health Education, Physical Education. This course may be repeated 1 time. This course is repeatable for a total of 2 hours.

**ATTR 1201 - Adv Wt. Control/Sports Nutrition**  
*2 Credits*  
The nutritional requirements for athletes and physically active population. Analyze principles of weight control, including body fat, caloric requirements, effects of exercise and fluid loss/replacement. Recognize disordered eating habits and illnesses associated with poor nutritional habits and implement proper referral procedures. Offered fall semester. Must be enrolled in one of the following Fields of Study: Athletic Training.

**ATTR 2101 - Advanced Strength & Conditioning w/ Lab**  
*3 Credits*  
Addresses physiological response to exercise, proper and safe methods and techniques of strength training, testing of strength and conditioning, interpreting testing data, and developing proper strength and conditioning programs for various individuals and groups. Proper performance and instruction of
strength and conditioning methods will be addressed. Formerly known as HPES 207. Offered spring semester. Prerequisite(s): BIOL 2311 or BIOL 231. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology.

**ATTR 2301 - Pre-Season AT Clinical**

1 Credit

On-campus clinical field experience in pre-season football, soccer or volleyball prior to the start of the academic year. Offered fall semester. Prerequisite(s): (ATTR 1001 Minimum Grade of C and ATTR 1011 Minimum Grade of C and ATTR 1101 Minimum Grade of C and ATTR 1201 Minimum Grade of C) or (HPES 160 Minimum Grade of C and HPES 112 Minimum Grade of C and HPES 117 Minimum Grade of C and HPES 120 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Athletic Training. This course may be repeated 3 times. This course is repeatable for a total of 3 hours.

Course Attributes:
Requires Instructor Approval

**ATTR 2401 - AT Clinical Level 1**

1 to 2 Credits

On-campus clinical experience rotation as assigned by the athletic training staff. Under the supervision of an approved clinical instructor, specific clinical proficiencies and skills will be completed. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): (ATTR 1001 Minimum Grade of C and ATTR 1011 Minimum Grade of C and ATTR 1101 Minimum Grade of C and ATTR 1201 Minimum Grade of C) or (HPES 160 Minimum Grade of C and HPES 112 Minimum Grade of C and HPES 117 Minimum Grade of C and HPES 120 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Athletic Training. This course is repeatable for a total of 2 hours.

Course Attributes:
Requires Instructor Approval

**ATTR 2451 - AT Clinical Level 2**

1 to 2 Credits

On-campus clinical experience rotation as assigned by the athletic training staff. Under the supervision of an approved clinical instructor, specific clinical proficiencies and skills will be completed. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): ATTR 2401 Minimum Grade of C or HPES 251 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Athletic Training. This course is repeatable for a total of 2 hours.

Course Attributes:
Requires Instructor Approval

**ATTR 2601 - Eval Tech of AT 1**

3 Credits

General overview of the injury evaluation process including medical terminology and SOAP note writing. Practical application of lower extremity anatomy, neurovascular, pathology, injury evaluation and diagnosis. Formerly known as HPES 277. Offered fall semester. Must be enrolled in one of the following Fields of Study: Athletic Training.

**ATTR 2651 - Eval Tech of AT 2**

3 Credits

Practical application of upper extremity anatomy, neurovascular, pathology, injury evaluation and diagnosis. Offered spring semester. Prerequisite(s): ATTR 2601 Minimum Grade of C or (HPES 215
Minimum Grade of C and HPES 277 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 2801 - Athletic Taping and Bracing
1 Credit
Athletic taping and bracing principles and techniques associated with specialized taping, wrapping, bracing and padding selected joints and body parts. Additional focus will be on concepts regulating design, application, construction, maintenance and reconditioning of immobilization devices. Offered fall semester. Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 3101 - Therapeutic Modalities in Athletic Training
4 Credits
A review of therapeutic modalities used in the athletic training and other rehabilitation settings. To include indications and contraindications as well as the practical application of these modalities as they relate to the healing process. Formerly known as HPES 371. Offered fall semester. Prerequisite(s): (ATTR 2651 or HPES 278) and (EXPH 2301 or HPES 221). Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 3201 - Exercise Rehab in AT
4 Credits
Basic components of a comprehensive rehabilitation program. To concentrate on techniques used in the restoration of flexibility, strength, endurance and functional activity. Selection of therapeutic exercises for injuries and corrective surgeries sustained by the athlete and others actively involved in sports activities. Formerly known as HPES 372. Offered spring semester. Prerequisite(s): ATTR 3101 or HPES 371. Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 3301 - Psychosocial Factors of AT
2 Credits
The psychological and sociocultural factors relative to an athletic population as well as the roles and functions of various health care providers responsible for professional care. Strategies for identifying problems, intervening and making appropriate referrals are presented. Offered spring semester. Prerequisite(s): ATTR 3401 or HPES 353. Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 3401 - AT Clinical Level 3
1 to 2 Credits
On-campus clinical experience rotation as assigned by the athletic training staff. Under the supervision of an approved clinical instructor, specific clinical proficiencies and skills will be completed. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): (ATTR 2451 Minimum Grade of C or HPES 252 Minimum Grade of C) and (ATTR 2651 Minimum Grade of C or HPES 278 Minimum Grade of C) and (ATTR 2101 or HPES 207) and (BIOL 2321 or BIOL 232) and (EXPH 2301 or HPES 221). Must be enrolled in one of the following Fields of Study: Athletic Training. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.
Course Attributes:
Requires Instructor Approval

ATTR 3451 - AT Clinical Level 4
1 to 2 Credits
On-campus clinical experience rotation as assigned by the athletic training staff. Under the supervision of an approved clinical instructor, specific clinical proficiencies and skills will be completed. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): ATTR 3401 Minimum Grade of C or HPES 353 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Athletic Training. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.
Course Attributes:
Requires Instructor Approval

ATTR 3501 - Off Campus AT Clinical Experience
0 Credits
Taken concurrently with ATTR 3401; ATTR 3451; ATTR 4401 or ATTR 4451 indicating involvement in an off-campus clinical experience at a local high school and/or outpatient sports medicine/rehabilitation clinic. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): (ATTR 2451 Minimum Grade of C or HPES 252 Minimum Grade of C) and (ATTR 2651 or HPES 278) and (ATTR 2101 or HPES 207) and (BIOL 2321 or BIOL 232) and (EXPH 2301 or HPES 221). Must be enrolled in one of the following Fields of Study: Athletic Training.
Course Attributes:
Requires Instructor Approval

ATTR 4101 - Medical Considerations
3 Credits
Etiology, recognition, evaluation, treatment and referral of general medical conditions and disabilities. Focus on assessment of body systems. Pharmacological applications relevant to treatment of injuries and illnesses common to athletes. Offered alternate fall semesters. Prerequisite(s): (ATTR 2451 or HPES 252) and (ATTR 2651 or HPES 278) and (EXPH 2301 or HPES 221). Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 4201 - Trends in Athletic Training
3 Credits
Current topical issues affecting Athletic Training Profession include organization and administration topics, legal issues, and selected health issues that are present in the athletic population. Offered alternate fall semesters. Prerequisite(s): ATTR 2451 or HPES 252. Must be enrolled in one of the following Fields of Study: Athletic Training.

ATTR 4401 - AT Clinical Level 5
1 to 2 Credits
On-campus clinical experience rotation as assigned by the athletic training staff. Under the supervision of an approved clinical instructor, specific clinical proficiencies and skills will be completed. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): (ATTR 3451 Minimum Grade of C or HPES 354 Minimum Grade of C) and (ATTR 3201 or HPES 373). Must be enrolled in one of the following Fields of Study: Athletic Training. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.
Course Attributes:
Requires Instructor Approval

ATTR 4451 - AT Clinical Level 6
1 to 2 Credits
On-campus clinical experience rotation as assigned by the athletic training staff. Under the supervision of an approved clinical instructor, specific clinical proficiencies and skills will be completed. Must have valid First Aid and BLS or CPR PR certifications. Offered fall and spring semesters. Prerequisite(s): ATTR 4401 Minimum Grade of C or HPES 455 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Athletic Training. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

Course Attributes:
Requires Instructor Approval

ATTR 4601 - Senior Seminar in Athletic Training
3 Credits
Professional preparation for athletic training students taking the BOC exam. Review of athletic training domains, exam simulations, mock interviews, professional presentations, and practical application of psychomotor skills will be emphasized. Offered spring semester. Prerequisite(s): (ATTR 4401 or HPES 455). Must be enrolled in one of the following Fields of Study: Athletic Training.

**Subject - Exercise Physiology (EXPH)**

EXPH 1001 - Introduction to Exercise & Health
3 Credits
Examination of basic physiological, fitness and health concepts utilized to promote a healthy, active lifestyle. Topics discussed include exercise prescriptions, health and fitness benefits of exercise, adaptations to exercise training, disease prevention and weight management. Laboratory experiences will focus on basic exercise measurements of health and fitness parameters. Offered fall semester. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology, Health Education, Physical Education.

EXPH 1301 - Anatomical Structure and Function
3 Credits
An introduction to the anatomical structures, physiological systems and functional aspects to allied health. Laboratories focus on identification of important anatomical structure. Does not satisfy any requirements for the major in Biology. Must be enrolled in one of the following Major Fields of Study: Athletic Training, Exercise Physiology.

EXPH 2101 - Sports Nutrition and Supplementation
3 Credits
Examination of the role of macro/micronutrients and nutritional supplements in exercise performance. Offered fall semester. Prerequisite(s): EXPH 1001 or HPES 110. Must be enrolled in one of the following Fields of Study: Exercise Physiology, Health Education.

EXPH 2201 - Kinesiology
3 Credits
Practical analysis of human movement patterns with emphasis on a muscle's action and appropriate strengthening and stretching techniques for the human body. Additional course concepts include Functional Movement Screening (FMS) techniques and Gait analysis via utilization of Dartfish motion analysis software. Offered spring semester. Prerequisite(s): BIOL 2311 or BIOL 231. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology, Physical Education.

Course Attributes:
EXPH 2301 - Exercise Physiology

4 Credits
The physiological basis and application of exercise physiology adaptations to exercise training, fitness and health. Laboratory experiences will expose students to common exercise physiology techniques and evaluations used to assess physical conditioning. Offered spring semester. Prerequisite(s): BIOL 2311 or BIOL 231. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology, Health Education, Physical Education.
Course Attributes:
Critical and Creative Thinking

EXPH 2401 - Practicum 1: Field Experiences in Exercise Physiology

1 Credit
Observation and participation in a selected and approved allied health setting for a minimum of thirty hours. Course can be repeated but only 1 credit hour can count toward graduation. Course must be completed prior to junior year. Minimum 2.0 GPA required. Offered summer, fall, and spring semesters. Must be enrolled in one of the following Major Fields of Study: Exercise Physiology. Must be enrolled in one of the following Classifications: Sophomore. This course may be repeated 4 times. This course is repeatable for a total of 1 hour.

EXPH 3101 - Exercise Testing and Prescription I

3 Credits
Basic and advanced exercise testing, evaluation and programming in healthy and diseased populations. Emphasis will be placed on designing exercise prescriptions using American College of Sports Medicine guidelines. Offered fall semester. Prerequisite(s): EXPH 2301 Minimum Grade of C or HPES 221 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Exercise Physiology.

EXPH 3151 - Exercise Testing and Prescription II

3 Credits
Basic and advanced exercise testing, assessment and interpretation of cardiovascular, respiratory and muscular changes associated with training, aging and disease. Formerly known as HPES 262. Offered spring semester. Prerequisite(s): EXPH 3101 Minimum Grade of C or HPES 261 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Exercise Physiology.

EXPH 3201 - Research and Design

3 Credits
The development, design and critical analysis of scientific research. Topics discussed include scientific research problem development, literature databases and search strategies, experimental design, research methodology and statistical analysis. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology.

EXPH 3301 - Exercise Management of Chronic Disease

3 Credits
Research and design of exercise programming strategies appropriate for select populations. Course topics include, but are not limited to: exercise considerations for cardiovascular, pulmonary, metabolic, immunological, neuromuscular, and orthopedic patients as well as adolescents, pregnant women, and
geriatric patients. Offered fall semester. Prerequisite(s): EXPH 2301 Minimum Grade of C or HPES 221 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Exercise Physiology.

EXPH 3501 - Practical Applications of Exercise Programming

3 Credits
Examination of current exercise programming strategies, fitness facility operations, professional competencies, and disease state management. Course requires experiences in an exercise environment. Prerequisite(s): (EXPH 2201 Minimum Grade of C or HPES 223 Minimum Grade of C) and (EXPH 2301 Minimum Grade of C or HPES 221 Minimum Grade of C). Must be enrolled in one of the following Major Fields of Study: Exercise Physiology. Must be enrolled in one of the following Classifications: Senior, Junior.

EXPH 4101 - Administration of Health Promotion Programs

3 Credits
A study of the design implementation, organization, administration and evaluation of health promotion programs; consists of competencies and strategies in administrative tasks, programming, facilities, equipment, marketing, sales, finance and liability. Offered spring semester. Must be enrolled in one of the following Fields of Study: Exercise Physiology.

EXPH 4201 - ECG Analysis and Interpretation

3 Credits
Basic electrocardiographic analysis and interpretation of ECGs in healthy and diseased populations. Offered spring semester. Prerequisite(s): (EXPH 2201 Minimum Grade of C or HPES 223 Minimum Grade of C) and (EXPH 2301 Minimum Grade of C or HPES 221 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Exercise Physiology.

EXPH 4501 - Exercise Physiology Internship

1 to 12 Credits
Participation in a broad based, off-campus experience designed for fitness development or health promotion program under the supervision of the University as well as a work site supervisor. Offered fall and spring semesters. Prerequisite(s): EXPH 3151 Minimum Grade of C. Corequisite(s): EXPH 4601. Must be enrolled in one of the following Fields of Study: Exercise Physiology. Must be enrolled in one of the following Classifications: Senior, Junior. This course may be repeated 4 times. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Instructor Approval

EXPH 4601 - Senior Seminar in Exercise Physiology

1 Credit
Discussion and analysis of the field setting, practice and organization. Includes monitoring and evaluation of the internships. To be taken concurrently with an Exercise Physiology Internship. Offered fall and spring semesters. Prerequisite(s): EXPH 3151 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Exercise Physiology. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
Requires Instructor Approval
EXPH 4701 - Personal Training I
2 Credits
This course immerses the student into a personal training experience by partnering the student with a volunteer adult participant needing assistance with exercise programming. Students will complete pre-exercise participation methods such as conducting a client interview, establishing fitness goals, determining risk-benefit ratio, and assessing anthropometric, fitness, and functional movement capability of his/her volunteer participant. All results will culminate into the creation of an exercise program that will be implemented with the volunteer participant during the semester. Finally, students will participate in course seminar sessions to examine exercise strategies and current trends in the personal training profession. Formerly known as HPES 362. Offered fall semester. Prerequisite(s): (EXPH 2201 Minimum Grade of C and EXPH 3151 Minimum Grade of C) or (HPES 223 Minimum Grade of C and HPES 262 Minimum Grade of C and HPES 381 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Exercise Physiology. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
Requires Instructor Approval

EXPH 4751 - Personal Training II
2 Credits
This course immerses the student into a personal training experience by partnering the student with a volunteer adult participant needing assistance with exercise programming. Students will complete pre-exercise participation methods such as conducting a client interview, establishing fitness goals, determining risk-benefit ratio, and assessing anthropometric, fitness, and functional movement capability of his/her volunteer participant. All results will culminate into the creation of an exercise program that will be implemented with the volunteer participant during the semester. Finally, students will participate in course seminar sessions to examine exercise strategies and current trends in the personal training profession. Formerly known as HPES 363. Offered spring semester. Prerequisite(s): (EXPH 2201 Minimum Grade of C and EXPH 3151 Minimum Grade of C) or (HPES 223 Minimum Grade of C and HPES 262 Minimum Grade of C and HPES 381 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Exercise Physiology. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
Requires Instructor Approval

EXPH 4801 - Exercise Pathophysiology
3 Credits
The etiology of health-related disease development (i.e. coronary heart and artery disease, hypertension, diabetes, and hyperlipidemia) and the pharmacological agents prescribed to manage these disease states will be discussed. Formerly known as HPES 441. Offered fall semester. Prerequisite(s): EXPH 2301 Minimum Grade of C or HPES 221 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Athletic Training, Exercise Physiology.

EXPH 4851 - Exercise Biochemistry
3 Credits
The examination of energy metabolism and ATP production at rest and during exercise. The major biochemical pathways, enzymes, intermediates and control of carbohydrate, fat and protein metabolism will be discussed. Biochemical pathways covered include glycolysis and gluconeogenesis, beta oxidation and fat biosynthesis, protein and amino acid metabolism, the urea cycle and the glucose alanine cycle,
and mitochondrial respiration and the electron transport chain. Offered fall semester. Prerequisite(s): EXPH 2301 Minimum Grade of C or HPES 221 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Exercise Physiology.

Subject - Health Education (HLED)

HLED 1101 - Personal Health Problems
3 Credits
A theoretical and practical treatment of the concepts of disease prevention and health promotion. Course content includes topics such as emotional health; aging and death; alcohol, tobacco, and drug abuse; physical fitness; nutrition and dieting; consumer health; chronic and communicable diseases; human sexuality; and stress management. Offered fall semester.

HLED 1201 - School & Community Health
2 Credits
Focus on skills and knowledge in identifying and understanding the relationship of the environment to the students habits and health concerns which directly impact school and future success. Observation and understanding of target populations with an emphasis on protecting and improving the health of identified target groups through needs assessment, program planning, program implementation, and program evaluation through affective community action plans. Understanding and implementation of strategies for health professionals that can be used in working with populations regarding successful health change, attitudes, and behaviors. Offered fall semester. Must be enrolled in one of the following Fields of Study: Health Education.

HLED 2101 - AIDS & Other STDs
3 Credits
An introductory, non-technical examination of the biological/medical, social, psychological, and other ethical aspects of AIDS and other sexually transmitted diseases. Topics include: history of AIDS; treatment and prevention of HIV/AIDS and STDs; medical aspects of HIV/AIDS; HIV testing; counseling of HIV/AIDS positive individuals; AIDS education within school systems; women and HIV/AIDS; legal and ethical aspects of HIV/AIDS; and living with HIV/AIDS. Offered spring semester.

Subject - Physical Education (PHED)

PHED 1001 - HPE Foundations
3 Credits
The course is an introductory course into the major of Physical Education. It deals with the foundation areas of history, philosophy, psychology, physiology, and sociology of human movement and sport. The course will identify professional opportunities within physical education and sport, look at current issues, and the future direction of physical education and related fields. HPSS or related field majors only. Offered fall semester. Must be enrolled in one of the following Fields of Study: Health Education, Physical Education.

PHED 2101 - Ind. Skill Development in Sports
3 Credits
The fundamental skills, methods and techniques in teaching the following individual and dual sports:
tennis, golf, weight lifting, badminton, track and field. Offered fall semester. Must be enrolled in one of the following Fields of Study: Physical Education.

**PHED 2201 - Team Concepts in Physical Education**  
3 Credits  
The fundamental skills, methods, and techniques in teaching team sports including but not limited to: basketball, volleyball, soccer, baseball/softball, hockey, team handball and touch football. Offered spring semester. Must be enrolled in one of the following Fields of Study: Physical Education.

**PHED 3001 - Practicum in Teaching Physical Education**  
1 Credit  
Required of all Physical Education majors, preferably in their junior year. Involves assisting in service classes. Offered fall semester. Must be enrolled in one of the following Fields of Study: Physical Education. Must be enrolled in one of the following Classifications: Senior, Junior.  
Course Attributes: Requires Instructor Approval

**PHED 3101 - Adapted Physical Education**  
3 Credits  
For the professionals who are concerned with physical activities for people with disabilities; to develop an understanding of the various disabling conditions and to explore methods of adapting physical activities to meet the needs of the atypical student in the physical education classroom or in the clinical setting. Offered spring semester. Prerequisite(s): BIOL 1341 or BIOL 124. Must be enrolled in one of the following Fields of Study: Physical Education.

**PHED 3201 - Elementary School Physical Education**  
3 Credits  
The objectives, methods, and techniques of teaching physical education in the elementary school are emphasized in this course. The need for physical activity and practical application of theories are emphasized. Offered fall semester. Must be enrolled in one of the following Fields of Study: Physical Education.

**PHED 3301 - Test & Measurements of HPE**  
3 Credits  
The fundamental considerations of measurement and evaluation in the areas of health and physical education will be studied in this class. Students will learn to administer and design both written and skills tests. Students will study the validity, reliability, and objectivity of normative and criterion related tests. Special emphasis will be placed on application to health and physical education. Offered spring semester. Must be enrolled in one of the following Fields of Study: Health Education, Physical Education.

**PHED 3401 - Motor Learning**  
3 Credits  
Motor Learning - studies the factors affecting the learning of motor skills. You will be presented with practical knowledge of the processes and variables that influence the rate, level, and retention of skill acquisition. The student will ultimately be able to develop a sound theoretical basis for instruction, coaching and performance enhancement. Formerly known as HPES 271. Offered spring semester. Must be enrolled in one of the following Fields of Study: Exercise Physiology, Physical Education.


Subject - Sport Management (SPMG)

SPMG 1001 - Introduction to Sport Management
3 Credits
Initial introduction to basic concepts, career preparation, professional opportunities, and professional skills necessary to be successful in a career in sport management are explored. Offered fall semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 2101 - Social/Psychological Issues in Sport
3 Credits
Analysis of the social significance and interrelationship that social history, values, and power structures in and outside of sports influence individual and societal beliefs, attitudes, and practices in sports. Specific focus on the topics of youth, deviance and violence, gender/orientation, race and ethnicity, religion, social class, and future of sports in society are also explored. Offered spring semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 2201 - Promotions/Marketing in Sport
3 Credits
The practice of marketing, promotions and sales in the sport marketplace. Introduction to event management, print and broadcast media advertising, marketing strategies, and a class project. Open to Sport Management majors and others with approval of the department chair. Offered fall semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 2301 - Facility/Event Management in Sport
3 Credits
Explore issues related to facility and event management unique to the sport environment while developing an understanding of successful practices and procedures for managing sport and event enterprises. Focus on the skills necessary for sport and event managers needed for successful human and capital resource management, as well as the financial viability and sustainability of sport facilities. Offered spring semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 3001 - Sport Facilities Management Practicum
1 Credit
Designed to give Sport Management majors the opportunity to experience facilities management through involvement with the sports facilities at the University. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Sport Management. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
Requires Instructor Approval

SPMG 3051 - Team Promotions Practicum
1 Credit
Designed to give Sport Management majors the opportunity to acquire promotional experience through involvement with a sport team at the University. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Sport Management. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
SPMG 3101 - Organization/Administration in Sport
3 Credits
Examination of the philosophy, principles, problems, policies and procedures essential in the organization and administration of meaningful programs in health education, physical education, and sports studies. Offered fall semester. Must be enrolled in one of the following Fields of Study: Health Education, Physical Education, Sport Management.

SPMG 3201 - Finance/Economics in Sport
3 Credits
The application of economic and financial theories applied to the sports industry in both the professional and the amateur sports markets. The critical and objective evaluation of economic and financial issues that arise in the sports industry. Increase knowledge of various sports markets, while emphasizing the role economics plays in determining outcomes in these markets. Offered spring semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 4101 - Ethics in Sport
3 Credits
Develops an awareness of the complexities concerning sports litigation, primarily in the focus of educational institutions. To use this new knowledge to assist their professional growth in the field. To have a clear understanding of the law and its fundamental elements. Offered spring semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 4201 - Legal Issues in Sport
3 Credits
Develops an awareness of the complexities concerning sports litigation, primarily in the focus of educational institutions. To use this new knowledge to assist their professional growth in the field. To have a clear understanding of the law and its fundamental elements. Offered fall semester. Must be enrolled in one of the following Fields of Study: Sport Management.

SPMG 4501 - Internship in Sport Management
12 Credits
Specially planned sport management work throughout the semester to provide direct employment experience. Emphasis is on the practical application of theory and knowledge in developing professional skills. May be repeated but only 12 credit hours will count toward graduation. To be taken with the Sport Management Senior Seminar to assist the students with the integration of field work and classroom learning. Offered summer, fall, and spring semesters. Corequisite(s): SPMG 4601. Must be enrolled in one of the following Fields of Study: Sport Management. Must be enrolled in one of the following Classifications: Senior, Junior. This course may be repeated 4 times. This course is repeatable for a total of 12 hours.
Course Attributes:
Requires Instructor Approval

SPMG 4601 - Senior Seminar in Sport Management
1 Credit
Discussion and analysis of the field setting, practice and organization. Includes monitoring and evaluation of the internships. To be taken concurrently with Sport Management Internship. Offered
summer, fall, and spring semesters. Must be enrolled in one of the following Fields of Study: Sport Management. Must be enrolled in one of the following Classifications: Senior, Junior.

Course Attributes:
Requires Instructor Approval

Subject - Varsity Sports (VARS)

VARS 1001 - Cross Country (Men) - Varsity
0 or 1 Credits
Offered fall semester. This course may be repeated 4 times.

VARS 1011 - Cross Country (Women) - Varsity
0 or 1 Credits
Offered fall semester. This course may be repeated 4 times.

VARS 1021 - Football - Varsity
0 or 1 Credits
Offered fall semester. This course may be repeated 4 times.

VARS 1031 - Soccer (Men) - Varsity
0 or 1 Credits
Offered fall semester. This course may be repeated 4 times.

VARS 1041 - Soccer (Women) - Varsity
0 or 1 Credits
Offered fall semester. This course may be repeated 4 times.

VARS 1051 - Volleyball - Varsity
0 or 1 Credits
Offered fall semester. This course may be repeated 4 times.

VARS 2001 - Basketball (Men) - Varsity
0 or 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.

VARS 2011 - Basketball (Women) - Varsity
0 to 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.

VARS 2021 - Indoor Track (Men) - Varsity
0 to 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.

VARS 2031 - Indoor Track (Women) - Varsity
0 or 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.
VARS 2041 - Swimming & Diving (Men) - Varsity
0 or 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.

VARS 2051 - Swimming & Diving (Women) - Varsity
0 or 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.

VARS 2061 - Wrestling - Varsity
0 or 1 Credits
Offered fall and spring semesters. This course may be repeated 8 times.

VARS 3001 - Baseball - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3011 - Golf (Men) - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3021 - Golf (Women) - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3031 - Outdoor Track (Men) - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3041 - Outdoor Track (Women) - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3051 - Softball - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3061 - Tennis (Men) - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.

VARS 3071 - Tennis (Women) - Varsity
0 or 1 Credits
Offered spring semester. This course may be repeated 4 times.
Department of Mathematics and Statistics

Subject - Mathematics (MATH)

MATH 1201 - Mathematics for Liberal Arts
3 Credits
This is a mathematics course for non-math, non-science majors. It provides an opportunity for students to see mathematics used in ways not emphasized in traditional courses. It covers a variety of topics which may include, but is not limited to, problem solving, set theory, logic, graph theory, numeration systems, number theory, modeling, consumer mathematics, apportionment, voting methods, and counting techniques. Offered fall and spring semesters.
Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1251 - College Algebra
3 Credits
The real number system, exponents, polynomials, factoring, rational expressions, equations and inequalities, functions and their graphs, polynomial and rational functions. Two years high school algebra required. Not open for credit to students who have received a grade of C or better in any higher numbered course. Offered fall and spring semesters.
Course Attributes:
Mathematics & Statistics

MATH 1401 - Functions for Science and Technology
3 Credits
Functions and their graphs, exponential and logarithmic functions, trigonometric functions, analytic trigonometry, analytic geometry. Not open to any student who has received a grade of C or higher in any calculus course. Offered fall and spring semesters. Prerequisite(s): MATH 1251 or MATH 120 or ACT Math 21 or SAT Mathematics 540.
Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1431 - Calculus for Science and Technology
3 Credits
Applying mathematical techniques to problems in science and technology, including analysis, formulation, and problem solutions. Techniques of differentiation, max/min problems, and elementary techniques of integration. Not open to students who have received a grade of C or higher in any other calculus course. Offered fall and spring semesters. Prerequisite(s): (MATH 1401 or ACT Math 23 or SAT Mathematics 570) or (MATH 120 and MATH 122).
Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1461 - Calculus for Life Sciences
3 Credits
Concepts of differentiation and integration applied to algebraic, exponential, and logarithmic functions. Not open to students who have received a grade of C or higher in any other calculus course. Offered fall and spring semesters. Prerequisite(s): MATH 1251 or MATH 120 or ACT Math 23 or SAT Mathematics 590.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1611 - Calculus w/Precalculus 1
4 Credits
A fast-paced review of algebraic and trigonometric functions. Limit of a function, continuity, the derivative, and the antiderivative. Introduction to definite and indefinite integrals and the Fundamental Theorem of Calculus. Two years high school algebra and one-half year high school trigonometry required. Formerly MATH 157. Offered fall semester.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1621 - Calculus w/Precalculus 2
4 Credits
Continued development of differentiation techniques, extrema, Mean Value Theorem, curve plotting, other applications of the derivative, continued development of integration techniques and their applications, and calculus of exponentials and logarithms. Formerly MATH 159. Offered spring semester. Prerequisite(s): MATH 1611 or MATH 157.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1631 - Calculus 1
4 Credits
Limit of a function, continuity, the derivative, extrema, Mean Value Theorem, curve plotting, applications of the derivative, introduction to integration and its applications. Two years high school algebra and one-half year high school trigonometry required. Formerly MATH 163. Offered fall and spring semesters.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

MATH 1641 - Calculus 2
4 Credits
Inverse functions; logarithmic, exponential, inverse trig, hyperbolic and inverse hyperbolic functions; sequences and series; Taylor series; parametric curves; polar coordinates; conic sections. Formerly MATH 165. Offered fall and spring semesters. Prerequisite(s): MATH 1621 or MATH 1631 or MATH 159 or MATH 163.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy
**MATH 1661 - Fundamental Mathematics 1**  
*3 Credits*  
Problem solving skills and techniques, elementary set theory, whole numbers, integers, theory of arithmetic, and introductory number theory. Formerly MATH 172. Offered fall semester. Must be enrolled in one of the following Fields of Study: Early Childhood Education, Middle Childhood Education.  
Course Attributes:  
Mathematics & Statistics  
Scientific and Quantitative Literacy

**MATH 1671 - Fundamental Mathematics 2**  
*3 Credits*  
Rational and real numbers, introduction to the fundamentals of counting, probability and statistics, geometric figures, measurement, congruence, symmetry, constructions, transformations, and similarity. Formerly MATH 173. Offered spring semester. Must be enrolled in one of the following Fields of Study: Early Childhood Education, Middle Childhood Education.  
Course Attributes:  
Mathematics & Statistics  
Scientific and Quantitative Literacy

**MATH 1901 - Special Topics in Mathematics**  
*1 to 3 Credits*  
Formerly MATH 190. Unlimited repeats permitted.  
Course Attributes:  
Requires Instructor Approval

**MATH 1911 - Special Topics in Mathematics**  
*1 to 3 Credits*  
Formerly MATH 190. Unlimited repeats permitted.  
Course Attributes:  
Requires Instructor Approval

**MATH 1951 - Freshman Seminar**  
*1 Credit*  
Familiarization with the Mathematics and Statistics Department, requirements for majors, planning a program of courses, university catalog, career planning, and problem-solving. Must be enrolled in one of the following Fields of Study: Applied Mathematics, Mathematical Statistics, Mathematics. This course is repeatable for a total of 1 hour.

**MATH 2011 - History of Mathematics**  
*3 Credits*  
An introduction to the history and origin of mathematics, restricted principally to mathematics through elementary calculus. A chronological study of some mathematicians and their contributions to mathematical thought. Formerly MATH 245. Offered spring semester. Prerequisite(s): MATH 1431 or MATH 1461 or MATH 1621 or MATH 1631 or MATH 154 or MATH 163 or MATH 159.  
Course Attributes:  
Mathematics & Statistics
MATH 2631 - Calculus 3
4 Credits
Vectors and vector valued functions, planes and lines in space, multivariate functions, differential and integral calculus of multivariate functions. Formerly MATH 263. Offered fall and spring semesters.
Prerequisite(s): MATH 1641 or MATH 165.
Course Attributes:
Mathematics & Statistics

MATH 2651 - Differential Equations
4 Credits
Matrices and vector spaces; bases and dimension; first and second order linear differential equations with applications, LaPlace transforms. Formerly MATH 275. Offered fall and spring semesters.
Prerequisite(s): MATH 1641 or MATH 165.
Course Attributes:
Mathematics & Statistics

MATH 2691 - Foundations of Mathematics with Problem Solving
3 Credits
A hands-on introduction to problem solving strategies and techniques of formal proof. Formerly MATH 294. Students who have not taken a MATH class for two semesters or more must have department approval to take this course. Offered spring semester. Prerequisite(s): MATH 1641 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 2901 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 290.
Course Attributes:
Requires Instructor Approval

MATH 2911 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 290.
Course Attributes:
Requires Instructor Approval

MATH 2921 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 290.
Course Attributes:
Requires Instructor Approval

MATH 2931 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 290.
Course Attributes:
Requires Instructor Approval
MATH 2971 - Independent Study
1 to 4 Credits
Formerly MATH 297. This course may be repeated 2 times.

MATH 3011 - Mathematics for Secondary Teachers
3 Credits
To include topics from problem solving, probability, number theory, number systems, trigonometry, mathematical induction, geometry, graph theory, and discrete mathematics. Formerly MATH 301. Offered alternate fall semesters. Prerequisite(s): MATH 2691 Minimum Grade of C or MATH 294 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3061 - Discrete Mathematics
3 Credits
An introduction to discrete mathematical structures: sets, logic, combinatorics, relations and digraphs, functions, integers and related algorithms, partially ordered sets, lattices and Boolean algebras, Karnaugh maps, elementary graph theory. Formerly MATH 336. Offered fall and spring semesters. Prerequisite(s): MATH 1631 Minimum Grade of C or MATH 164 Minimum Grade of C or MATH 1621 Minimum Grade of C or MATH 159 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3221 - Operations Research
3 Credits
Linear programming, simplex method, duality, sensitivity analysis, PERT/CPM. Standard O.R. applications including transportation, maximum flow, and shortest path problems, among others. Formerly MATH 332. Offered alternate spring semesters. Prerequisite(s): MATH 2651 Minimum Grade of C or MATH 3261 Minimum Grade of C or MATH 275 Minimum Grade of C or MATH 372 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3241 - Topology
3 Credits
Metrics and metric spaces, topological spaces, topological invariants. Examples in real space and more general topological spaces. Formerly MATH 324. Offered alternate spring semesters. Prerequisite(s): MATH 2691 Minimum Grade of C or MATH 294 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3261 - Linear Algebra
3 Credits
Finite and infinite dimensional vector spaces over a field, linear transformations, inner product spaces, and canonical forms. Formerly MATH 372. Offered fall semester. Prerequisite(s): MATH 2691 Minimum Grade of C or MATH 3061 Minimum Grade of C or MATH 294 Minimum Grade of C or MATH 336 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics
MATH 3411 - Abstract Algebra 1
3 Credits
An introduction to algebraic structures; groups, rings and fields. Formerly MATH 311. Offered fall semester. Prerequisite(s): MATH 2691 Minimum Grade of C or MATH 294 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3421 - Abstract Algebra 2
3 Credits
A continued study of groups, rings, and fields. Formerly MATH 312. Offered alternate spring semesters. Prerequisite(s): MATH 3411 Minimum Grade of C or MATH 311 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3601 - Mathematical Programming
3 Credits
Programming concepts and techniques. Programming applications using MATLAB, Visual Basic for Applications, or a programmable calculator. Introduction to Maple. Use of Equation Editors. Formerly MATH 360. Offered spring semester. Prerequisite(s): MATH 2651 Minimum Grade of C or MATH 3261 Minimum Grade of C or MATH 275 Minimum Grade of C or MATH 372 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3611 - Real Analysis 1
3 Credits
Real numbers, sequences, limits of functions, continuous functions. Formerly MATH 352. Offered fall semester. Prerequisite(s): MATH 2691 Minimum Grade of C or MATH 294 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3621 - Real Analysis 2
3 Credits
Continuous functions. Differentiation, derivative theorems, Taylor's formula. The Riemann integral and properties of integrals. Formerly MATH 353. Offered alternate spring semesters. Prerequisite(s): MATH 3611 Minimum Grade of C or MATH 352 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

MATH 3631 - Complex Variables
3 Credits
Complex algebra, complex calculus, analytic functions, infinite series over the complex plane, theory of residues, conformal mapping. Formerly MATH 363. Offered alternate spring semesters. Prerequisite(s): MATH 2631 Minimum Grade of C or MATH 263 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics
MATH 3651 - Partial Differential Equations  
3 Credits  
First-order equations: the method of characteristics and systems of first-order equations. Second-order equations: the Cauchy-Kowaleskaya theorem, canonical forms of second-order equations, Fourier series, Fourier integrals, boundary-value and initial-value problems. Formerly MATH 362. Offered alternate spring semesters. Prerequisite(s): (MATH 2631 Minimum Grade of C or MATH 263 Minimum Grade of C) and (MATH 2651 Minimum Grade of C or MATH 275 Minimum Grade of C).  
Course Attributes:  
Mathematics & Statistics

MATH 3901 - Special Topics in Mathematics  
1 to 3 Credits  
Formerly MATH 390.  
Course Attributes:  
Requires Instructor Approval

MATH 3911 - Special Topics in Mathematics  
1 to 3 Credits  
Formerly MATH 390.  
Course Attributes:  
Requires Instructor Approval

MATH 3921 - Special Topics in Mathematics  
1 to 3 Credits  
Formerly MATH 390.  
Course Attributes:  
Requires Instructor Approval

MATH 3931 - Special Topics in Mathematics  
1 to 3 Credits  
Formerly MATH 390.  
Course Attributes:  
Requires Instructor Approval

MATH 3951 - Junior Seminar  
1 Credit  
Career options. Graduate and professional school options. Attendance at department seminars and capstone presentations. Self-evaluation of progress in the major. Preparation for MATH 4951 - Senior Seminar including selection of senior capstone advisor and research topic. Formerly MATH 370. Offered spring semester. Must be enrolled in one of the following Fields of Study: Applied Mathematics, Mathematical Statistics, Mathematics. Must be enrolled in one of the following Classifications: Senior, Junior.

MATH 4211 - Foundations of Geometry  
3 Credits  
An axiomatic approach to geometry including the concepts of incidence, ordering, separation, and congruence in incidence, affine, Euclidean, and non-Euclidean geometries. Formerly MATH 421. Offered
alternate fall semesters. Prerequisite(s): MATH 2691 Minimum Grade of C or MATH 294 Minimum Grade of C.

Course Attributes:
Mathematics & Statistics

**MATH 4401 - Mathematics Internship**

*1 to 8 Credits*

Formerly MATH 470. Must be enrolled in one of the following Fields of Study: Applied Mathematics, Mathematical Statistics, Mathematics. Must be enrolled in one of the following Classifications: Senior, Junior.

**MATH 4411 - Number Theory w/Applications**

*3 Credits*

An introduction to number theory, modular arithmetic and finite fields, with applications to pseudo-random sequences, cryptography and coding theory. Formerly MATH 411. Offered alternate spring semesters. Prerequisite(s): MATH 1631 Minimum Grade of C or MATH 164 Minimum Grade of C or MATH 1621 Minimum Grade of C or MATH 159 Minimum Grade of C.

Course Attributes:
Mathematics & Statistics

**MATH 4611 - Numerical Analysis**

*3 Credits*

Review of programming concepts using MATLAB or other programming software. Errors that occur in representing numbers on a computer and approximating solutions; methods for locating roots of a non-linear equation; interpolation, numerical differentiation; and numerical integration. Numerical solution of differential equations and of systems of linear algebraic equations. Splines. Formerly MATH 461. Offered alternate spring semesters. Prerequisite(s): (MATH 2651 Minimum Grade of C or MATH 275 Minimum Grade of C) and (MATH 3601 Minimum Grade of C or MATH 360 Minimum Grade of C).

Course Attributes:
Mathematics & Statistics

**MATH 4651 - Probability Theory**

*3 Credits*

Axioms of probability theory; Discrete and continuous random variables; multivariate distributions; functions of random variables; Central Limit Theorem. Formerly MATH 480. Offered alternate fall semesters. Prerequisite(s): MATH 2631 Minimum Grade of C or MATH 263 Minimum Grade of C.

Course Attributes:
Mathematics & Statistics

**MATH 4661 - Mathematical Statistics**

*3 Credits*

Sampling distributions; Central Limit Theorem; point and confidence interval estimation; hypothesis testing. Formerly MATH 481. Offered alternate spring semesters. Prerequisite(s): MATH 4651 Minimum Grade of C or MATH 480 Minimum Grade of C.

Course Attributes:
Mathematics & Statistics
MATH 4901 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 490.
Course Attributes:
Requires Instructor Approval

MATH 4911 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 490.
Course Attributes:
Requires Instructor Approval

MATH 4921 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 490.
Course Attributes:
Requires Instructor Approval

MATH 4931 - Special Topics in Mathematics
1 to 3 Credits
Formerly MATH 490.
Course Attributes:
Requires Instructor Approval

MATH 4951 - Senior Seminar
1 Credit
The student prepares a paper and gives a presentation based on the work done in both MATH 3951 - Junior Seminar and this course. Formerly MATH 493. Offered fall and spring semesters. Prerequisite(s): MATH 3951 Minimum Grade of C or MATH 370 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Applied Mathematics, Mathematical Statistics, Mathematics. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing

MATH 4961 - Seminar in Mathematics
1 to 3 Credits
Formerly MATH 494.

MATH 4971 - Independent Study
1 to 3 Credits
Formerly MATH 497. This course may be repeated 2 times.

Subject - Statistics (STAT)

STAT 1311 - Introduction to Statistical Reasoning
3 Credits
Descriptive and graphical methods for univariate and bivariate data; probability concepts; binomial and
normal distributions; statistical inference; point estimation, confidence intervals, hypothesis tests. A student can only receive credit for one of the following courses: STAT 1311, STAT 1561, STAT 1761, STAT 2501 or PSYC 2401. Two years of high school algebra required. Formerly STAT 142. Offered fall and spring semesters.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

STAT 1561 - Statistics for Professionals 1
3 Credits
Describing data graphically and numerically; describing bivariate data; probability concepts; random variables and probability distributions (both discrete and continuous); sampling distributions; statistical inference (point estimation, confidence intervals, hypothesis testing) for a single mean and the difference between two means; statistical study designs. Formerly STAT 156. A student can only receive credit for one of the following courses: STAT 1311, STAT 1561, STAT 1761, STAT 2501 or PSYC 2401. Two years of high school algebra required. Offered fall and spring semesters.

Course Attributes:
Mathematics & Statistics
Scientific and Quantitative Literacy

STAT 1761 - Statistics for Pharmacy
3 Credits
Describing data graphically and numerically; describing bivariate data; probability concepts; random variables and probability distributions (both discrete and continuous); sampling distributions; statistical inference (point estimation, confidence intervals, hypothesis testing) for single means and proportions, and the difference between two means and proportions; statistical study designs. A student can only receive credit for one of the following courses: STAT 1311, STAT 1561, STAT 1761, STAT 2501 or PSYC 2401. Two years of high school algebra required. Prerequisite(s): (MATH 120 Minimum Grade of C and MATH 122 Minimum Grade of C) or ACT Math 20. Must be enrolled in one of the following Colleges: Pharmacy.

Course Attributes:
Mathematics & Statistics

STAT 1901 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 190. Prerequisite(s): STAT 1311 Minimum Grade of C or STAT 1561 Minimum Grade of C or STAT 142 Minimum Grade of C or STAT 156 Minimum Grade of C.

Course Attributes:
Requires Instructor Approval

STAT 1911 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 190. Prerequisite(s): STAT 1311 Minimum Grade of C or STAT 1561 Minimum Grade of C or STAT 142 Minimum Grade of C or STAT 156 Minimum Grade of C.

Course Attributes:
Requires Instructor Approval
STAT 1921 - Special Topics in Statistics  
1 to 3 Credits  
Formerly STAT 190.  
Course Attributes:  
Requires Instructor Approval

STAT 1931 - Special Topics in Statistics  
1 to 3 Credits  
Formerly STAT 190.  
Course Attributes:  
Requires Instructor Approval

STAT 2501 - Statistics for Scientists and Engineers  
3 Credits  
Basic statistical techniques; random variables and their distributions; statistical inference (point estimation, confidence intervals, hypothesis testing); statistical study designs; linear regression and analysis of variance methods. Formerly STAT 280. A student can only receive credit for one of the following courses: STAT 1311, STAT 1561, STAT 1761, STAT 2501 or PSYC 2401. Offered fall semester. Prerequisite(s): MATH 1631 or MATH 164.  
Course Attributes:  
Mathematics & Statistics

STAT 2561 - Statistics for Professionals 2  
3 Credits  
Review of inferential statistics; categorical data analysis (including goodness-of-fit tests and contingency table analysis); simple linear regression and correlation; multiple regression analysis; analysis of variance; analysis of covariance; statistical study designs. Formerly STAT 256. Offered fall and spring semesters. Prerequisite(s): STAT 1311 Minimum Grade of C or STAT 1561 Minimum Grade of C or STAT 1761 Minimum Grade of C or STAT 2501 Minimum Grade of C or PSYC 2401 Minimum Grade of C.  
Course Attributes:  
Mathematics & Statistics  
Scientific and Quantitative Literacy

STAT 2901 - Special Topics in Statistics  
1 to 3 Credits  
Formerly STAT 290. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.  
Course Attributes:  
Requires Instructor Approval

STAT 2911 - Special Topics in Statistics  
1 to 3 Credits  
Formerly STAT 290. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.  
Course Attributes:  
Requires Instructor Approval

STAT 2921 - Special Topics in Statistics  
1 to 3 Credits  
Formerly STAT 290.
Course Attributes:
Requires Instructor Approval

STAT 2931 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 290.
Course Attributes:
Requires Instructor Approval

STAT 2971 - Independent Study in Statistics
1 to 3 Credits
Permission of instructor required. Formerly STAT 297. This course may be repeated 2 times.

STAT 3501 - Applied Regression and Correlation Analysis
3 Credits
Simple linear regression and correlation data analysis methods; multiple regression methods; analysis of variance; analysis of covariance; statistical study designs. Formerly STAT 281. Offered fall semester.
Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

STAT 3511 - Categorical Data Analysis
3 Credits
Statistical inference with regard to categorical variables, including goodness-of-fit tests, contingency table analysis, Fisher exact test, and logistic regression models. Formerly STAT 351. Offered alternate spring semesters. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

STAT 3521 - Analysis of Variance w/ Experimental Design
3 Credits
Single factor analysis of variance, multiple comparisons, two and multiple factor analysis of variance, completely randomized designs, randomized block designs, analysis of covariance, random effects models, additional experimental designs. Formerly STAT 352. Offered alternate spring semesters.
Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

STAT 3531 - Survey Sampling Methods
3 Credits
Statistical methods pertaining to survey sampling, with an emphasis on human populations, including simple random sampling, stratified sampling, cluster sampling, systematic sampling, and the use of demographic information to reduce margins of error. Formerly STAT 353. Offered alternate spring semesters. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics
STAT 3541 - Nonparametric Statistical Methods
3 Credits
Review of parametric inferential methods; nonparametric hypothesis testing (including Wilcoxon rank-sum, Wilcoxon signed-rank, sign, Kruskal-Wallis, Friedman); nonparametric point and confidence interval estimation; rank correlation; randomization and permutation tests. Formerly STAT 354.
Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

STAT 3551 - Applied Probability
3 Credits
Combinational analysis; discrete probability distributions; exponential distribution; Poisson distribution; normal distribution; DeMoivre-LaPlace limit theorem; random variables and their properties; laws of large numbers; generating functions; random walk and ruin problems; Markov chains. Formerly STAT 355. Prerequisite(s): (STAT 1561 Minimum Grade of C or STAT 156 Minimum Grade of C or STAT 2501 Minimum Grade of C or STAT 280 Minimum Grade of C or MATH 4651 Minimum Grade of C or MATH 480 Minimum Grade of C) and (MATH 1461 Minimum Grade of C or MATH 154 Minimum Grade of C or MATH 1621 Minimum Grade of C or MATH 159 Minimum Grade of C or MATH 1631 Minimum Grade of C or MATH 163 Minimum Grade of C).
Course Attributes:
Mathematics & Statistics

STAT 3571 - Data Management and Statistical Computing
3 Credits
Use of statistical software packages such as SAS, SPSS, or Excel. Topics include data management, data analysis, graphical displays and computer simulation. Formerly STAT 350. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Mathematics & Statistics

STAT 3901 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 390. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Requires Instructor Approval

STAT 3911 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 390. Prerequisite(s): STAT 2561 Minimum Grade of C or STAT 256 Minimum Grade of C.
Course Attributes:
Requires Instructor Approval

STAT 3921 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 390.
Course Attributes:
Requires Instructor Approval
STAT 3931 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 390.
Course Attributes:
Requires Instructor Approval

STAT 4561 - Introduction to Stochastic Processes
3 Credits
Random variables and stochastic processes; Markov chains and their properties (discrete and continuous); other important stochastic processes and their properties; elementary stochastic calculus.
Formerly STAT 356. Prerequisite(s): (STAT 2501 Minimum Grade of C or STAT 280 Minimum Grade of C or MATH 4651 Minimum Grade of C or MATH 480 Minimum Grade of C) and (MATH 2651 Minimum Grade of C or MATH 275 Minimum Grade of C or MATH 3261 Minimum Grade of C or MATH 372 Minimum Grade of C).
Course Attributes:
Mathematics & Statistics

STAT 4571 - Linear Statistical Models
3 Credits
Review of linear algebra; linear statistical models, including regression and analysis of variance models, from a vector space perspective; Bivariate and multivariate normal distributions. Prerequisite(s): (STAT 1561 Minimum Grade of C or STAT 156 Minimum Grade of C or STAT 2501 Minimum Grade of C or STAT 280 Minimum Grade of C or MATH 4661 Minimum Grade of C or MATH 481 Minimum Grade of C) and (MATH 3061 Minimum Grade of C or MATH 336 Minimum Grade of C or MATH 2651 Minimum Grade of C or MATH 275 Minimum Grade of C).
Course Attributes:
Mathematics & Statistics

STAT 4901 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 490.
Course Attributes:
Requires Instructor Approval

STAT 4911 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 490.
Course Attributes:
Requires Instructor Approval

STAT 4921 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 490.
Course Attributes:
Requires Instructor Approval
STAT 4931 - Special Topics in Statistics
1 to 3 Credits
Formerly STAT 490.
Course Attributes:
Requires Instructor Approval

Department of Modern Languages

Subject - Arabic (ARAB)

ARAB 1011 - Elementary Arabic 1
3 Credits
This course assumes no previous study of Arabic. The course will introduce the alphabet and sound system of Arabic and will assist in developing some basic reading, writing, speaking and listening skills. The course will deal mainly with Modern Standard Arabic which is the formal language spoken in the Arab world. Some dialectal variations of Arabic will also be introduced when necessary.
Course Attributes:
Foreign Language
Non Western Cultural

ARAB 1021 - Elementary Arabic 2
3 Credits
This course will reinforce material learned and practiced in Elementary Arabic 1 and help promote development of Arabic language abilities. This course will devote special attention to Arabic grammar and vocabulary to assist with developing an intermediate level of language accuracy. The course will deal mainly with Modern Standard Arabic, which is the formal language spoken in the Arab world. Some direct attention will be given to the different Arab dialects. Prerequisite(s): ARAB 1011.
Course Attributes:
Foreign Language
Non Western Cultural

ARAB 2011 - Intermediate Arabic 1
3 Credits
Continued development of Arabic language skills. Prerequisite(s): ARAB 1021 Minimum Grade of C.
Course Attributes:
Foreign Language

ARAB 2021 - Intermediate Arabic 2
3 Credits
Continuation of ARAB 2011. Prerequisite(s): ARAB 2011 Minimum Grade of C.
Course Attributes:
Foreign Language

Subject - Chinese (CHIN)

CHIN 1011 - Elementary Chinese 1
3 Credits
Introduction to basic conversational Mandarin, familiarity with the foundations of the Chinese writing system.
Course Attributes:
Foreign Language
Non Western Cultural

CHIN 1021 - Elementary Chinese 2
3 Credits
Continuation of CHIN 1011. Prerequisite(s): CHIN 1011 or CHNS 101.
Course Attributes:
Foreign Language
Non Western Cultural

CHIN 2011 - Intermediate Chinese 1
3 Credits
Further building of listening and speaking skills. Continued addition of traditional and simplified characters, reading and composition practice. Prerequisite(s): CHIN 1021 or CHNS 103.
Course Attributes:
Foreign Language
Non Western Cultural

CHIN 2021 - Intermediate Chinese 2
3 Credits
Continuation of CHIN 2011. Prerequisite(s): CHIN 2011 or CHNS 201.
Course Attributes:
Foreign Language
Non Western Cultural

Subject - French (FREN)

FREN 1011 - Elementary French 1
3 Credits
Basic proficiency in understanding, speaking, reading and writing French in everyday situations. Emphasis on comprehension and oral expression. Digitized and Internet realia illustrate contemporary French and francophone cultural values.
Course Attributes:
Foreign Language

FREN 1021 - Elementary French 2
3 Credits
Continuation of FREN 1021. Prerequisite(s): FREN 1011 Minimum Grade of C or FREN 120 Minimum Grade of C or French BYU 200.
Course Attributes:
Foreign Language
Informed Ethical Responses

FREN 2011 - Intermediate French 1
3 Credits
Continued development of proficiency in understanding, speaking, reading and writing French. Emphasis on high-frequency vocabulary and grammatical structures. Increased exposure to and discussion of contemporary French and francophone cultural values. Prerequisite(s): FREN 1021 Minimum Grade of C or FREN 122 Minimum Grade of C or French BYU 250.

Course Attributes:
Diversity-Human Interaction
Foreign Language

FREN 2021 - Intermediate French 2
3 Credits
Continuation of FREN 2021. Prerequisite(s): FREN 2011 Minimum Grade of C or FREN 214 Minimum Grade of C or French BYU 350.

Course Attributes:
Informed Ethical Responses

FREN 3011 - Introduction to French Literature
3 Credits
Basic principles of analyzing and appreciating major works in French, poetry, prose and theater. Reading, discussion of, and written reflection on representative French and francophone texts. Prerequisite(s): FREN 2021 Minimum Grade of C or FREN 216 Minimum Grade of C or French BYU 400.

Course Attributes:
AS-HUM - Humanities
Informed Responses-Aesthetics

FREN 3021 - Advanced French: Speaking
3 Credits
Intensive practice of oral communication in conversations, role-playing, and oral interviews within French and francophone cultural contexts. Emphasis on developing fluidity and accurate pronunciation. Prerequisite(s): FREN 2021 Minimum Grade of C or FREN 216 Minimum Grade of C or French BYU 400.

Course Attributes:
Diversity-Human Interaction
Foreign Language

FREN 3031 - Advanced French: Writing
3 Credits
Intensive practice of writing in various contexts, such as correspondence, research, and creative narrative. Topics based on French-speaking societies and cultures. Prerequisite(s): FREN 2021 Minimum Grade of C or FREN 216 Minimum Grade of C.

Course Attributes:
Critical and Creative Thinking
Foreign Language
Integration Across Disciplines

FREN 3041 - Cultural History of France 1
3 Credits
Discussion in French of French history, art, architecture, and cultural institutions from their origins to the Fifth Republic. Prerequisite(s): (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).
Course Attributes:
Diversity-Human Interaction
Foreign Language
Informed Ethical Responses

**FREN 3051 - Cultural History of France 2**
3 Credits
Discussion in French of French culture with emphasis on the family, education, employment, politics, technology and cultural institutions from the Fifth Republic to the present. Prerequisite(s): (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).
Course Attributes:
Diversity-Human Interaction
Foreign Language
Informed Ethical Responses

**FREN 3061 - Francophone Cultures**
3 Credits
Discussion in French of francophone cultures, including Quebec, the Caribbean, the Maghreb, and sub-Saharan Africa, in terms of historical perspectives and contemporary concerns. Prerequisite(s): (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).
Course Attributes:
Diversity-Human Interaction
Foreign Language
Informed Ethical Responses
Non Western Cultural

**FREN 4001 - Special Topics**
3 Credits
May be repeated as topic varies. Prerequisite(s): (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C). Unlimited repeats permitted.
Course Attributes:
Foreign Language

**FREN 4011 - French Novel 1**
3 Credits
Reading, discussion of, and written reflection on representative French novels in their historical and cultural contexts from the 16th century to the Revolution. Prerequisite(s): (FREN 3011 Minimum Grade of C or FREN 310 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Informed Responses-Aesthetics
FREN 4021 - French Novel 2  
3 Credits  
Reading, discussion of, and written reflection on representative French and francophone novels in their historical and cultural contexts from the Revolution through the 21st century. Prerequisite(s): (FREN 3011 Minimum Grade of C or FREN 310 Minimum Grade of C) and (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Informed Responses-Aesthetics

FREN 4031 - French Theatre  
3 Credits  
Reading and discussion in French of representative works from the 17th century to the present. Prerequisite(s): (FREN 3011 Minimum Grade of C or FREN 310 Minimum Grade of C) and (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).  
Course Attributes:  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics

FREN 4101 - French Poetry and Song  
3 Credits  
Discussion and analysis in French of representative French and francophone works in their historical and cultural contexts. Rules of French versification. Interpretations of poetry into song. Classic and contemporary ‘chansonniers.’ Prerequisite(s): (FREN 3011 Minimum Grade of C or FREN 310 Minimum Grade of C) and (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).  
Course Attributes:  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics

FREN 4201 - French Film  
3 Credits  
Viewing, discussion, and analysis in French of representative French and francophone films, directors, and actors. Prerequisite(s): (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C).  
Course Attributes:  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics

FREN 4301 - Francophone Literature  
3 Credits  
Reading and discussion in French of works by contemporary writers in francophone countries including
Quebec, the Caribbean, the Maghreb, and sub-Saharan Africa. Prerequisite(s): (FREN 3011 Minimum Grade of C or FREN 310 Minimum Grade of C) and (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3031 Minimum Grade of C or FREN 312 Minimum Grade of C). Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Ethical Responses
- Non Western Cultural

**FREN 4401 - Modern French Musical**

3 Credits
Oral and written analysis of visual, auditory, and lyrical elements of musical theatre as text. Opportunities to enrich and enhance literary analytical skills in a multimedia environment while improving linguistic competencies and cultural knowledge. Prerequisite(s): (FREN 3011 Minimum Grade of C or FREN 310 Minimum Grade of C) and (FREN 3021 Minimum Grade of C or FREN 311 Minimum Grade of C) and (FREN 3021 Minimum Grade of C or FREN 312 Minimum Grade of C). Unlimited repeats permitted.
Course Attributes:
- Foreign Language
- Informed Responses-Aesthetics
- Integration Across Disciplines

**FREN 4501 - Capstone**

1 Credit
Written or other presentational record of study abroad experience. Alternative: extensive research paper in French, evaluated by department faculty.

**FREN 4901 - Independent Study in French**

1 to 3 Credits
For advanced students only. This course is repeatable for a total of 3 hours.
Course Attributes:
- Requires Department Approval

**Subject - German (GERM)**

**GERM 1011 - Elementary German 1**

3 Credits
For beginners, introduction to basic characteristics of German. Builds on a foundation of vocabulary acquisition through listening and reading comprehension. Basic elements of speaking. Use of texts, stories, audio/visual materials.
Course Attributes:
- Foreign Language

**GERM 1021 - Elementary German 2**

3 Credits
Continuation of GERM 1011. Prerequisite(s): GERM 1011 or GRMN 130 or German BYU 200.
Course Attributes:
- Foreign Language
GERM 2011 - Intermediate German 1
3 Credits
Vocabulary building through listening and reading. Greater focus on writing and speaking practice with attention paid to high-frequency grammatical elements. Use of texts, stories, video and audio materials. Prerequisite(s): GERM 1021 or GRMN 132 or German BYU 250.
Course Attributes:
Diversity-Human Interaction
Foreign Language

GERM 2021 - Intermediate German 2
3 Credits
Continuation of GERM 2011. Prerequisite(s): GERM 2011 or GRMN 224 or German BYU 350.
Course Attributes:
Diversity-Human Interaction
Foreign Language

GERM 3011 - German Language Studies
3 Credits
Intensive overview of German grammatical structures. Emphasis on reading of more complex texts; vocabulary acquisition; training in composition. Prerequisite(s): GERM 2021 Minimum Grade of C or GRMN 226 Minimum Grade of C or German BYU 400.
Course Attributes:
Foreign Language

GERM 3021 - Using German
3 Credits
Intensive practice of listening, reading and speaking skills. Some writing. Use of authentic materials. Prerequisite(s): GERM 2021 Minimum Grade of C or GRMN 226 Minimum Grade of C or German BYU 400.
Course Attributes:
Foreign Language

GERM 3111 - Culture of German-Speaking Europe
3 Credits
A look at the roles played by political, social and cultural forces in Germany, Austria and Switzerland from the Middle Ages until the present. Readings and discussion in German, written composition. Prerequisite(s): (GERM 3011 Minimum Grade of C or GRMN 313 Minimum Grade of C) and (GERM 3021 Minimum Grade of C or GRMN 311 Minimum Grade of C).
Course Attributes:
Foreign Language

GERM 3121 - Studies in German Literature
3 Credits
Readings and discussion in German of drama, poetry short stories and the Novelle from the 19th century to the present. Prerequisite(s): (GERM 3011 Minimum Grade of C or GRMN 313 Minimum Grade of C) and (GERM 3021 Minimum Grade of C or GRMN 311 Minimum Grade of C).
Course Attributes:
GERM 4501 - Capstone
1 Credit
Written or other presentational record of study abroad experience. Alternative: extensive research paper in German, evaluated by department faculty.

GERM 4901 - Independent Study in German
1 to 3 Credits
For advanced students only. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

Subject - Japanese (JAPN)

JAPN 1011 - Elementary Japanese 1
3 Credits
For beginners. Basic listening and speaking skills; introduction to the Japanese writing system.
Course Attributes:
Foreign Language
Non Western Cultural

JAPN 1021 - Elementary Japanese 2
3 Credits
Continuation of JAPN 1011. Prerequisite(s): JAPN 1011 or JAPN 161.
Course Attributes:
Foreign Language
Non Western Cultural

JAPN 2011 - Intermediate Japanese 1
3 Credits
Builds upon basic skills through listening and speaking exercises. Further work with Japanese writing system and development of reading and writing skills. Prerequisite(s): JAPN 1021 or JAPN 163.
Course Attributes:
Foreign Language
Non Western Cultural

JAPN 2021 - Intermediate Japanese 2
3 Credits
Continuation of JAPN 2011. Prerequisite(s): JAPN 2011 or JAPN 264.
Course Attributes:
Foreign Language
Non Western Cultural

Subject - Modern Languages (MLNG)
MLNG 1901 - Individualized Language Study  
1 to 3 Credits  
Study of a modern spoken language other than those regularly offered. Limited to motivated students with a particular interest or need. Offerings depend on instructor availability. Does not meet any requirements. This course is repeatable for a total of 3 hours.  
Course Attributes:  
Requires Department Approval

Subject - Russian (RUSS)

RUSS 1011 - Elementary Russian 1  
3 Credits  
For beginners, introduction to basic characteristics of Russian and the Cyrillic alphabet. Builds foundation of listening and reading comprehension. Use of texts, stories, audio/visual materials. Offered alternate fall semesters.  
Course Attributes:  
Foreign Language

RUSS 1021 - Elementary Russian 2  
3 Credits  
Continuation of RUSS 1011. Offered alternate spring semesters. Prerequisite(s): RUSS 1011 or RUSS 150.  
Course Attributes:  
Foreign Language

RUSS 2901 - Independent Study in Russian  
1 to 3 Credits  
Unlimited repeats permitted.  
Course Attributes:  
Requires Department Approval

Subject - Spanish (SPAN)

SPAN 1011 - Elementary Spanish 1  
3 Credits  
Basic proficiency in understanding, speaking, reading and writing Spanish with emphasis on listening, speaking, and pronunciation. Designed for students who have no previous exposure to the language. Verbal and written expression is limited to short, culturally appropriate communication. Students will acquire a panoramic knowledge of the regions and societies where Spanish is spoken and learn about Spanish-speaking communities in the United States.  
Course Attributes:  
Foreign Language

SPAN 1021 - Elementary Spanish 2  
3 Credits  
Continuation of SPAN 1011. Prerequisite(s): SPAN 1011 or SPAN 140 or Spanish BYU 200.  
Course Attributes:  
Foreign Language
SPAN 2011 - Intermediate Spanish 1
3 Credits
Continued development of proficiency in understanding, speaking, reading and writing Spanish with emphasis on pronunciation and speaking. Designed for students who have completed the Elementary level or have previous exposure to Spanish. Acquisition of language skills and practice identifying ideas in written texts. Written expression with more incorporation of vocabulary as well as grammar structures compared to the Elementary level. Prerequisite(s): SPAN 1021 or SPAN 142 or Spanish BYU 250.
Course Attributes:
Diversity-Human Interaction
Foreign Language

SPAN 2021 - Intermediate Spanish 2
3 Credits
Continuation of SPAN 2011. Offered spring semester. Prerequisite(s): SPAN 2011 or SPAN 244 or Spanish BYU 350.
Course Attributes:
Diversity-Human Interaction
Foreign Language

SPAN 3011 - Spanish Conversation
3 Credits
Strengthening Spanish communication skills by regular guided oral practice. Building vocabulary, written exercises, and improving comprehension by listening to live speech, videos, audio recordings, and films. Prerequisite(s): SPAN 2021 Minimum Grade of C or SPAN 246 Minimum Grade of C or Spanish BYU 400.
Course Attributes:
Effective Comm Non-Writing
Foreign Language

SPAN 3021 - Spanish Composition
3 Credits
Improvement of written communication skills. Emphasis on task-oriented writing in Spanish, including composing and editing several drafts. Topics based on Spanish speaking societies and cultures. Prerequisite(s): SPAN 2021 Minimum Grade of C or SPAN 246 Minimum Grade of C or Spanish BYU 400.
Course Attributes:
Critical and Creative Thinking
Foreign Language
Integration Across Disciplines

SPAN 3041 - Introduction to Spanish Literature
3 Credits
Discussion in Spanish of critical principles in the assessment of prose, fiction, poetry and drama as applied to selected readings in Spanish and Latin American literature. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).
Course Attributes:
AS-HUM - Humanities
Foreign Language
Informed Responses-Aesthetics

**SPAN 3101 - Spanish Film**

*3 Credits*

Discussion in Spanish of historical development of Spanish cinema through significant directors, such as Buñuel, Saura, Almodóvar. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Responses-Aesthetics

**SPAN 3111 - Spanish Civilization**

*3 Credits*

Discussion in Spanish of geographical, political, economic, social and cultural forces in Spain from prehistoric times to the present. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Ethical Responses

**SPAN 3121 - Spanish Art, Music, Dance**

*3 Credits*

Discussion in Spanish of Spanish art, architecture, music and dance from prehistoric times to the present. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Responses-Aesthetics

**SPAN 3201 - Latin American Film**

*3 Credits*

Viewing and analysis in Spanish of contemporary Latin American film, with emphasis on understanding the film industry and how films relate to social and political contexts. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Responses-Aesthetics
- Non Western Cultural

**SPAN 3211 - Latin American Civilization**

*3 Credits*

Discussion in Spanish of geography, history and culture of Latin America from Mesoamerica to the
present. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Ethical Responses
- Non Western Cultural

**SPAN 3221 - Latin American Art, Music, Dance**

*3 Credits*

Discussion in Spanish of Latin American art, architecture, music and dance from Mesoamerica to the present. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Responses-Aesthetics
- Non Western Cultural

**SPAN 3301 - Business Spanish**

*3 Credits*

Development of oral and written proficiency of Spanish within a business context. Business vocabulary, readings, business and cultural concepts, situational practice and case studies. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Diversity-Human Interaction
- Foreign Language
- Informed Ethical Responses

**SPAN 3311 - Contemporary Hispanic Culture**

*3 Credits*

Comparative study in Spanish of socio-cultural attitudes, popular/folk traditions and lifestyles within Hispanic communities. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).

Course Attributes:
- Foreign Language
- Non Western Cultural

**SPAN 4001 - Special Topics**

*3 Credits*

May be repeated as topic varies. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C). Unlimited repeats permitted.

Course Attributes:
- Foreign Language
SPAN 4111 - Medieval and Golden Age Spanish Literature  
3 Credits  
Discussion in Spanish of poetry, prose and drama from the origins of the Spanish language to 1681. Works may include selections from the epic of Mío Cid, El libro de buen amor, Don Quijote, Lope de Vega, Quevedo. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics  

SPAN 4121 - 18th and 19th Century Spanish Literature  
3 Credits  
Discussion in Spanish of principles and works of Neoclassicism, Romanticism, Realism, the Generation of 1898. Works may include Don Juan Tenorio, narrative by Benito Pérez Galdós and Emilia Pardo Bazán, poetry by Antonio Machado. Formerly SPAN 452. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics  

SPAN 4131 - 20th and 21st Century Spanish Literature  
3 Credits  
Discussion in Spanish of modern poetry from the Generation of 1927, tremendismo, the post-Franco reaction, contemporary trends. Works may include selections from Federico García Lorca, Nobel Prize winner Camilo José Cela, Antonio Muñoz Molina. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics  

SPAN 4211 - Colonial and 19th Century Latin American Literature  
3 Credits  
Reading, discussion, and analysis in Spanish of Romanticism, Realism, and Modernism in representative works by Latin American authors. Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).  
Course Attributes:  
AS-HUM - Humanities  
Diversity-Human Interaction  
Foreign Language  
Informed Responses-Aesthetics
Non Western Cultural

**SPAN 4221 - 20th and 21st Century Latin American Literature**  
*3 Credits*  
Reading and discussion in Spanish of works by contemporary writers in Latin American countries.  
Prerequisite(s): (SPAN 3011 Minimum Grade of C or SPAN 370 Minimum Grade of C) and (SPAN 3021 Minimum Grade of C or SPAN 372 Minimum Grade of C).  
Course Attributes:  
- AS-HUM - Humanities  
- Diversity-Human Interaction  
- Foreign Language  
- Informed Responses-Aesthetics  
- Non Western Cultural

**SPAN 4501 - Capstone**  
*1 Credit*  
Written or other presentational record of study abroad experience. Alternative: extensive research paper in Spanish, evaluated by department faculty.

**SPAN 4901 - Independent Study in Spanish**  
*1 to 3 Credits*  
For advanced students only. This course is repeatable for a total of 3 hours.  
Course Attributes:  
- Requires Department Approval

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**Department of Music**

**Subject - Music (MUSC)**

**MUSC 0011 - Concert and Recital Observation**  
*0 Credits*  
Required number of concerts and recitals to be attended each semester, including some events with mandatory attendance. Student must receive credit in six semesters to graduate. Limited to music majors. Offered fall and spring semesters. Unlimited repeats permitted.

**MUSC 1001 - Music Appreciation**  
*3 Credits*  
Music and its basic elements, including culture, forms, styles and media associated with a variety of music. Emphasis on listening and understanding historical periods and respective stylistic characteristics. Includes concert attendance, knowledge of music fundamentals, instruments, composers and representative literature. Not available to music majors. Offered fall and spring semesters.  
Course Attributes:  
- AS-FINRT Fine Arts  
- Informed Responses-Aesthetics
MUSC 1011 - Introduction to Study of Music
2 Credits
All aspects of the music major, including the development of a four-year plan for graduation that fulfills NASM competencies and ONU catalog requirements for each degree program. Includes survey of western art music with emphasis on musical terms, styles, composers and representative literature. Limited to music majors and/or minors. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics

MUSC 1021 - Technology for Musicians
1 Credit
The use of technology in the music professions. Emphasis on MIDI sequencing, music notation, and digital audio recording. Limited to music majors and minors. Offered fall and spring semesters.

MUSC 1031 - Fundamentals of Music
3 Credits
Note names, clefs, scales, triads, inversions, intervals, key signatures. Offered summers.
Course Attributes:
AS-FINRT Fine Arts

MUSC 1041 - Fundamentals of Music for Musical Theatre Majors
3 Credits
Reading and writing musical notation including rhythms, note names, scales, chords, intervals, and interpretation. Offered fall semester.
Course Attributes:
AS-FINRT Fine Arts

MUSC 1051 - Musicianship for the Musical Theatre
3 Credits
Functional harmony and form analysis applied to musical theatre repertoire. Includes advanced sight-singing and techniques for notating melody and harmony. Offered spring semester. Prerequisite(s): MUSC 1041 Minimum Grade of C.
Course Attributes:
AS-FINRT Fine Arts

MUSC 1111 - Music Theory I
3 Credits
Foundational music theory and harmony including analysis, part-writing, and creative projects in composition and arranging. Limited to music majors and/or minors. Formerly part of the first-year music theory sequence MUSC 121, 122 and 123. Offered fall semester. Corequisite(s): MUSC 1131.
Course Attributes:
AS-FINRT Fine Arts

MUSC 1121 - Music Theory II
3 Credits
Continuation of MUSC 1111. Formerly part of the first-year music theory sequence MUSC 121, 122 and
123. Offered spring semester. Prerequisite(s): MUSC 1111 Minimum Grade of C. Corequisite(s): MUSC 1141.
Course Attributes:
AS-FINRT Fine Arts
Informed Responses-Aesthetics

MUSC 1131 - Aural Skills I
1 Credit
Introduction to sight-singing; melodic, rhythmic, and harmonic dictation; and keyboard skills. Includes basic counting exercises, conducting patterns, and coordination exercises to train basic musicianship skills in a skills/performance-based environment. Formerly part of the first-year sight-singing sequence MUSC 131, 132 and 133. Offered fall semester. Corequisite(s): MUSC 1111.

MUSC 1141 - Aural Skills II
1 Credit
Continuation of MUSC 1211. Formerly part of the first-year sight-singing sequence MUSC 131, 132 and 133. Offered spring semester. Prerequisite(s): MUSC 1131 Minimum Grade of C. Corequisite(s): MUSC 1121.

MUSC 1331 - Singers Diction I
1 Credit
The proper pronunciation of vocal and choral texts in Italian and Latin. Introduction of the International Phonetic Alphabet as it applies to all languages. Offered fall semester.

MUSC 1901 - Special Topics
1 to 3 Credits
Topics include, but are not limited to special areas in music theory, music history, and/or music education. May be repeated as topics vary. Offered on demand.
Course Attributes:
Requires Department Approval

MUSC 2111 - Music Theory III
3 Credits
Continuation of MUSC 1121. The study of 18th, 19th and 20th century compositional techniques, orchestration and counterpoint. Includes development of analytical skills. Formerly part of the second-year music theory sequence MUSC 221, 222 and 223. Offered fall semester. Prerequisite(s): MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C. Corequisite(s): MUSC 2131.
Course Attributes:
AS-FINRT Fine Arts

MUSC 2121 - Music Theory IV
3 Credits
Continuation of MUSC 2111. Formerly part of the second-year music theory sequence MUSC 221, 222 and 223. Offered spring semester. Prerequisite(s): MUSC 2111 Minimum Grade of C. Corequisite(s): MUSC 2141.
Course Attributes:
AS-FINRT Fine Arts
Scientific and Quantitative Literacy
MUSC 2131 - Aural Skills III
1 Credit
Continuation of MUSC 1141. Advanced sight-singing; melodic, rhythmic, and harmonic dictation; and keyboard basic skills. Includes advanced counting exercises, conducting patterns, and coordination exercises to train advanced musicianship skills in a skills/performance based environment. Formerly part of the second-year sight-singing sequence MUSC 131, 132 and 133. Offered fall semester. Prerequisite(s): MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C. Corequisite(s): MUSC 2111.

MUSC 2141 - Aural Skills IV
1 Credit
Continuation for MUSC 2131. Formerly part of the second-year sight-singing sequence MUSC 131, 132 and 133. Offered spring semester. Prerequisite(s): MUSC 2131 Minimum Grade of C. Corequisite(s): MUSC 2121.

MUSC 2201 - Non-Western Music
3 Credits
The fundamental concepts of music in any culture with an in-depth exploration of the music of a limited number of non-Western groups. Emphasis on listening and understanding. Offered spring semester. Prerequisite(s): MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C. Course Attributes:
AS-FINRT Fine Arts
Diversity-Human Interaction
Non Western Cultural

MUSC 2311 - Basic Conducting
2 Credits
Basic baton technique applied to choral and instrumental conducting practices. Includes score reading and rehearsal techniques for various ensembles. Offered spring semester. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C).

MUSC 2331 - Singers Diction II
1 Credit
Continuation of MUSC 1331, with specialized work in German. Offered alternate spring semesters. Prerequisite(s): MUSC 1331 Minimum Grade of C or MUSC 261 Minimum Grade of C.

MUSC 2341 - Survey of Piano Literature
2 Credits
Major keyboard composers, including overviews of styles, keyboard music as it relates to music history, and how various styles influenced future composers and keyboard music. Performance practices and recording artists emphasized. Formerly MUSC 371 and 372. Permission of instructor required. Offered alternate fall semesters. Course Attributes:
Requires Instructor Approval
MUSC 2351 - Piano Pedagogy
2 Credits
The role of the teacher in the learning process including observation and laboratory teaching; literature relevant to piano pedagogy and its practical application; presentation of a professional teaching demeanor; basic methods of teaching individual and group piano; technology applicable to the above. Formerly MUSC 373. Permission of instructor. Offered alternate spring semesters.
Course Attributes:
Requires Instructor Approval

MUSC 2401 - Foundations of Music Education
1 Credit
Orientation to the profession of music education, including current issues; psychological, sociological, aesthetic, and historical foundations; current philosophies and learning theories; assessment; and an overview of instructional skills, knowledge, and dispositions, including national and state standards for music education. Limited to music education majors. Offered spring semester. Prerequisite(s): MUSC 1011 Minimum Grade of C or MUSC 101 Minimum Grade of C.

MUSC 2411 - Woodwind Methods
1 Credit
Elementary performance skills and pedagogy of woodwind instruments including literature and materials for school-aged performers. Limited to music education majors. Offered alternate spring semesters. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C).

MUSC 2421 - Brass Methods
1 Credit
Elementary performance skills and pedagogy of brass instruments including literature and materials for school-aged performers. Limited to music education majors. Offered alternate fall semesters. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C).

MUSC 2431 - String Methods
1 Credit
Elementary performance skills and pedagogy of string instruments including literature and materials for school-aged performers. Limited to music education majors. Offered alternate spring semesters. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C).

MUSC 2441 - Percussion Methods
1 Credit
Elementary performance skills and pedagogy of percussion instruments including literature and materials for school-aged performers. Limited to music education majors. Offered alternate fall semesters. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C).

MUSC 2901 - Special Topics
1 to 3 Credits
Topics include, but are not limited to special areas in music theory, music history, and/or music
education. Permission of department and instructor. May be repeated as topics vary. Offered on demand. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

**MUSC 3151 - Composition**  
2 Credits  
Principles and practices general to all compositional styles applied to weekly composition projects. Includes score study of great works. Limited to music majors. Offered fall and spring semesters. Prerequisite(s): (MUSC 2121 Minimum Grade of C or MUSC 223 Minimum Grade of C) and (MUSC 2141 Minimum Grade of C or MUSC 233 Minimum Grade of C). Unlimited repeats permitted.

**MUSC 3211 - Music History and Literature I**  
3 Credits  
Survey of the history of Western music from the medieval, renaissance, and baroque eras. Study of the development of musical styles, genres and compositional devices. Includes score reading and musical analysis. Students will become familiar with the masterworks of Western music history. Limited to music majors and minors. Formerly part of the music history sequence MUSC 321, 322 and 323. Offered fall semester. Prerequisite(s): MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C.
Course Attributes:  
AS-FINRT Fine Arts  
Effective Comm Non-Writing  
Integration Across Disciplines

**MUSC 3221 - Music History and Literature II**  
3 Credits  
A survey of the history of Western music from the Classical, Romantic, and Modern eras of music. Study of the development of musical styles, genres and compositional devices. Course includes score reading and musical analysis. Students will become familiar with the masterworks of Western music history. Limited to music majors and minors. Formerly part of the music history sequence MUSC 321, 322 and 323. Offered spring semester. Prerequisite(s): MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C.
Course Attributes:  
AS-FINRT Fine Arts  
Effective Comm Non-Writing  
Integration Across Disciplines

**MUSC 3231 - Jazz History and Literature**  
3 Credits  
Jazz from African influences through present developments; personalities involved in stylistic change. Listening-based; experiential component.
Course Attributes:  
AS-FINRT Fine Arts

**MUSC 3241 - American Music**  
3 Credits  
Music from colonial America to present day. Listening and recognition of styles and instruments, major composers and performers. Includes sacred music, pop, rock, band, jazz and music from the stage.
Course Attributes:
AS-FINRT Fine Arts

**MUSC 3251 - African Music**
*3 Credits*
Traditional and modern music from Africa. Includes music from western African and southern African countries as well as the African Diaspora. Listening, recognition of styles and musical instruments, dance, religious ceremonies.

Course Attributes:
AS-FINRT Fine Arts
Diversity-Human Interaction
Informed Responses-Aesthetics

**MUSC 3271 - Survey of Vocal Literature I**
*1 Credit*
Study of recital vocal literature, focusing on the Lied, French melody, and British and American art song. Some Russian and Czech literature included. Formerly part of Vocal Literature sequence MUSC 371, 372 and 373. Offered alternate fall semesters. Prerequisite(s): MUSL 2391 or APMU 200.

**MUSC 3281 - Survey of Vocal Literature II**
*1 Credit*
Continuation of MUSC 3271. Formerly part of Vocal Literature sequence MUSC 371, 372 and 373. Offered alternate spring semesters.

**MUSC 3311 - Choral Conducting**
*2 Credits*
Adaptation of basic conducting techniques to the choral ensemble including leadership, error detection, tonal development, historical and stylistic accuracy and analysis. Includes survey choral literature and programming for ensembles of every level. Offered fall semester. Prerequisite(s): MUSC 2311 Minimum Grade of C or MUSC 241 Minimum Grade of C.

**MUSC 3321 - Instrumental Conducting**
*2 Credits*
Adaptation of basic conducting techniques to the instrumental ensemble including formal analysis, score-marking, transpositions, rehearsal technique, error detection, program creation, historical and stylistic accuracy and analysis. Includes survey literature for concert bands, wind ensembles, string orchestras and symphony orchestras in the schools at every level. Offered spring semester. Prerequisite(s): MUSC 2311 Minimum Grade of C or MUSC 241 Minimum Grade of C.

**MUSC 3331 - Singers Diction III**
*1 Credit*
Continued development of the skills acquired in Diction I, with specialized work in French. Offered alternate spring semesters. Prerequisite(s): MUSC 1331 Minimum Grade of C or MUSC 261 Minimum Grade of C.

**MUSC 3461 - Methods of Marching and Jazz Bands**
*2 Credits*
Methods, materials, and techniques in the development and direction of marching and jazz bands.
Marching band topics include show planning, drill writing, precision drill, rehearsal techniques, and selection and rehearsal of music. Membership in Marching Band required in conjunction with the course. Jazz ensemble methods include seating, standard and alternative instrumentation, literature selection and preparation, style, and the development of a personal philosophy of jazz education. This course is not for developing Jazz musicians. Offered fall semester. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C). Corequisite(s): MUSE 1051.

MUSC 3471 - Technology for Music Educators
2 Credits
Integration of technology into the music curriculum, effective use of technology in teaching and learning music, preparation of teaching and administrative materials, leading class activities, and student projects. Includes experiences with music notation software, audio amplification, recording and editing, video recording and editing, and website creation and management. Offered spring semester. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C).

MUSC 3901 - Special Topics
1 to 3 Credits
Topics include, but are not limited to special areas in music theory, music history, and/or music education. Permission of department and instructor. May be repeated as topics vary. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSC 4111 - Analytical Techniques
2 Credits
Elements of form and analysis, and counterpoint. Musical forms and styles from the Baroque to the present. Theoretical and stylistic analysis of representative music with creative projects in contrapuntal writing. Offered fall semester. Prerequisite(s): (MUSC 2121 Minimum Grade of C or MUSC 223 Minimum Grade of C) and (MUSC 2141 Minimum Grade of C or MUSC 233 Minimum Grade of C).

MUSC 4161 - Electronic Music
2 Credits
History, development, materials, and techniques of electronic music. Emphasis on composition in the medium. Offered alternate fall semesters. Prerequisite(s): (MUSC 1121 Minimum Grade of C or MUSC 123 Minimum Grade of C) and (MUSC 1141 Minimum Grade of C or MUSC 133 Minimum Grade of C). Unlimited repeats permitted.

MUSC 4171 - Instrumentation and Arranging
2 Credits
Basic characteristics of each orchestral instrument and instrument family, including range, transposition, timbre and technique. Students produce scores of arrangements for choir, band, and orchestra. Offered fall semester. Prerequisite(s): (MUSC 2121 Minimum Grade of C or MUSC 223 Minimum Grade of C) and (MUSC 2141 Minimum Grade of C or MUSC 233 Minimum Grade of C).

MUSC 4291 - Applied Field Literature and Pedagogy for Instrumentalists
2 Credits
Study of the professional and pedagogical literature for each instrument. Offered on demand. Formerly MUSC 371, 372 and 373.

**MUSC 4481 - Instrumental Music Methods**  
*3 Credits*  
Procedures and materials in the successful administration, development and direction of instrumental music programs at the elementary, middle and high school level. Includes the beginning instrumentalist, curriculum planning, repertoire, adjudicated events, behavior management, recruiting, and public relations. Requires laboratory experience in teaching beginning instrumental students individually, in small groups and larger classes during 20 hours of field experience. Admission to the Teacher Education Program or approval of the Director of Teacher Education required. Limited to music education majors. Offered spring semester.  
Course Attributes:  
AS-FINRT Fine Arts

**MUSC 4491 - Choral Music Methods**  
*3 Credits*  
Development of the middle school and high school choral ensemble, including philosophies, technologies, classroom management, vocal production and placement, rehearsal and organizational techniques, audition procedures, production of musicals, adjudicated events and festivals, booster/parent groups, selection of repertoire, concept-based and standards-based choral music education, and curriculum. Admission to the Teacher Education Program or approval of the Director of Teacher Education required. Limited to music education majors. Offered fall semester.  
Course Attributes:  
AS-FINRT Fine Arts

**MUSC 4601 - Senior Research Project**  
*3 Credits*  
Study of a specialized area of music directed by a member of the music faculty. Serves as capstone experience for the concentrations in the Bachelor of Arts degree program: music history and literature, music theory/composition, or applied studies. Offered on demand. Prerequisite(s): MUSL 2391 or APMU 200.  
Course Attributes:  
AS-FINRT Fine Arts

**MUSC 4901 - Special Topics**  
*1 to 3 Credits*  
Topics include, but are not limited to, special areas in music theory, music history, and/or music education. Permission of department chair and instructor. Offered on demand. Unlimited repeats permitted.  
Course Attributes:  
Requires Department Approval

**MUSC 4911 - Independent Study**  
*1 to 3 Credits*  
Independent Study in areas of student interest not Offered in the catalog. Offered on demand. Permission of department chair and instructor required. Formerly MUSC 497. Unlimited repeats permitted.
Subject - Applied Music and Performance (MUSE)

**MUSE 1011 - University Singers**
1 Credit
A select group of men and women singers chosen to perform a wide variety of choral literature from various periods of music with the highest musical standards. Performances include concerts on and off campus and on tour as well as frequent appearances with various area symphony orchestras. Tours internationally every third year. Membership by audition. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

**MUSE 1021 - Symphony Orchestra**
1 Credit
The Symphony Orchestra studies and performs the great symphonic repertoire from Baroque to the 21st century. Membership is by audition only. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

**MUSE 1031 - Wind Orchestra**
1 Credit
Select ensemble performs standard professional and collegiate repertoire for winds and percussion. Tours internationally every third year. Membership is by audition. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

**MUSE 1041 - Symphonic Band**
1 Credit
A fully-instrumented performance based concert ensemble studying and performing the finest wind band literature with the highest musical standards. Open to all students with prior high school instrumental experience. Placement audition required. Offered spring semester. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

**MUSE 1051 - Marching Band**
1 Credit
The preparation and performance of music and field shows for home and selected away football games and tours internationally every third year. Open to all university students who play band instruments or are accepted for auxiliary groups. Requires successful completion of band camp prior to the start of fall semester. Placement audition required. Offered fall semester. Unlimited repeats permitted.
Course Attributes:
MUSE 1111 - Opera Workshop
1 Credit
Instruction and experience in preparation for opera performances on and off campus. Singers will study operatic literature and be coached for specific roles in public performance of opera scenes and/or fully staged operas. Membership by audition. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:

MUSE 1131 - Chamber Singers
1 Credit
A highly select choral ensemble of 12-16 members performing appropriate literature both a cappella and accompanied from Renaissance to Contemporary. Performances include concerts on and off campus. Membership by audition. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:

MUSE 1141 - A Capella Ensembles
1 Credit
A highly select men's quartet performing varied a cappella Barbershop literature. Performances include concerts on and off campus. Members are selected from the Men's Chorus. Offered on demand. Unlimited repeats permitted.
Course Attributes:

MUSE 1151 - Women's Chorus
1 Credit
Choral ensemble performing outstanding sacred and secular literature written and arranged for female voices. Open to all qualified women: students, faculty, staff and community members. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:

MUSE 1161 - Men's Chorus
1 Credit
A choral ensemble performing outstanding sacred and secular choral literature written and arranged for men's voices. On occasion the chorus may combine with other university choruses to perform major choral works. Performances include concerts on and off campus and on tour. Open to all qualified students. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:

MUSE 1171 - Jazz Ensemble
1 Credit
The study and performance of characteristic jazz literature. Membership is by audition. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
MUSE 1181 - Steel Drum Band
1 Credit
Studies and performs music specific to the steel drum idiom. Includes music of the Caribbean, especially the island nations Guyana and Trinidad and Tobago. Performances are scheduled throughout the year, both on and off campus. Open to all qualified students. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

MUSE 1191 - Brass Ensemble
1 Credit
Studies and performs characteristic brass literature. Open to all qualified students. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

MUSE 1201 - Percussion Ensemble
1 Credit
Studies and performs music specific to the varied world of percussion. Includes chamber music performance opportunities for percussion majors. Performances are scheduled throughout the year, on and off campus. Open to all qualified students. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

MUSE 1211 - String Ensemble
1 Credit
Ensembles of string instrumentalists for the study and performance of characteristic strings literature. Open to all qualified students. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

MUSE 1221 - Woodwind Ensemble
1 Credit
A non-auditioned ensemble for all woodwinds. Open to all students and staff. Performs concerts on-campus. Open to all qualified students. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

MUSE 1231 - Pep Band
1 Credit
Athletic band provides spirited music for sports contests (men's and women's basketball games). Open to all students with prior high school instrumental experience. No formal audition required. Offered spring semester. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts
MUSE 1241 - Composer's Workshop Ensemble
1 Credit
Rehearses and performs literature for smaller ensembles from the 20th and 21st centuries. Also, significant experimental music from previous centuries. Emphasis on landmark works by major composers of these eras. Open to all qualified students. Offered spring semester. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

MUSE 1251 - Chamber Music
1 Credit
Ensembles which perform without conductor. Includes standard trios, quartets and quintets for woodwinds, brass and strings as well as mixed ensembles with piano. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
AS-FINRT Fine Arts

Subject - Applied Music (MUSL)

MUSL 0011A - Applied Lessons for Non-Majors/Voice
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011B - Applied Lessons for Non-Majors/Piano
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011C - Applied Lessons for Non-Majors/Harpsichord
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval
MUSL 0011D - Applied Lessons for Non-Majors/Organ
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011E - Applied Lessons for Non-Majors/Guitar
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011F - Applied Lessons for Non-Majors/Harp
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011G - Applied Lessons for Non-Majors/Violin
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011H - Applied Lessons for Non-Majors/Viola
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011I - Applied Lessons for Non-Majors/Cello
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student
participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001.
Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011J - Applied Lessons for Non-Majors/Double Bass
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001.
Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011K - Applied Lessons for Non-Majors/Flute
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001.
Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011L - Applied Lessons for Non-Majors/Oboe
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001.
Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011M - Applied Lessons for Non-Majors/Clarinet
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001.
Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011N - Applied Lessons for Non-Majors/Bassoon
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001.
Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011O - Applied Lessons for Non-Majors/Saxophone
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval

MUSL 0011P - Applied Lessons for Non-Majors/French Horn
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval

MUSL 0011Q - Applied Lessons for Non-Majors/Trumpet
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval

MUSL 0011R - Applied Lessons for Non-Majors/Trombone
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval

MUSL 0011S - Applied Lessons for Non-Majors/Euphonium
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval
MUSL 0011T - Applied Lessons for Non-Majors/Tuba
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011U - Applied Lessons for Non-Majors/Percussion
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011V - Applied Lessons for Non-Majors/Recorder
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0011W - Applied Lessons for Non-Majors/Jazz Improv
1 Credit
Development of musical skills at all ability levels. Preference for placement in lessons is given to student participating in ONU ensembles. Skills include but are not limited to: repertoire; improvisation; sight-reading; technique; and other skills pertinent to students profession and interest. Formerly APMU 001. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MUSL 0401 - Voice Class for Non-Voice Majors
1 Credit
Introduction to a variety of technical exercises, improvisation and the basic concepts of vocal technique and song interpretation. Offered fall and spring semesters. Unlimited repeats permitted.

MUSL 0421 - Piano Class for Non-Music Majors
1 Credit
Applied piano study for non-music majors with various levels of experience. Basic concepts for beginners and advanced concepts for experienced performers, according to individual skill level. One semester required for Musical Theatre majors. Formerly APMU 004. Offered fall and spring semesters. Unlimited repeats permitted.
MUSL 1011 - Piano Skills for Music Majors I  
1 Credit  
Continuing course to develop functional keyboard skills and a working knowledge of piano in the music profession. Skills include: repertoire; pedaling; harmonizing; sight-reading; vocal/ instrumental open score reading; construction and maintenance of the piano; scales; arpeggios; choral warm ups; transpositions including alto and tenor clef; hymns; and improvising using appropriate accompaniment patterns. Limited to Music majors. Offered fall and spring semesters.  
Course Attributes:  
Requires Department Approval

MUSL 1021 - Piano Skills for Music Majors II  
1 Credit  
Continuation of MUSL 1011. Offered fall and spring semesters. Prerequisite(s): MUSL 1011 Minimum Grade of C or APMU 105 Minimum Grade of C. This course may be repeated 3 times.  
Course Attributes:  
Requires Department Approval

MUSL 1111A - Applied Lessons for Musical Theatre Majors/Voice  
1 Credit  
First-year study in applied voice for Musical Theatre majors. Offered fall and spring semesters.

MUSL 1121A - Applied Lessons for Musical Theatre Majors/Voice  
1 Credit  
Continuation of MUSL 1111A. Offered fall and spring semesters. Prerequisite(s): MUSL 1111A Minimum Grade of C or APMU 125 Minimum Grade of C.

MUSL 1211A - Applied Lessons for Music Majors/Voice  
2 Credits  
Applied lessons in voice to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211B - Applied Lessons for Music Majors/Piano  
2 Credits  
Applied lessons in piano to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211C - Applied Lessons for Music Majors/Harpsichord  
2 Credits  
Applied lessons in harpsichord to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211D - Applied Lessons for Music Majors/Organ  
2 Credits  
Applied lessons in organ to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211E - Applied Lessons for Music Majors/Guitar  
2 Credits
Applied lessons in guitar to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211F - Applied Lessons for Music Majors/Harp**
2 Credits
Applied lessons in harp to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211G - Applied Lessons for Music Majors/Violin**
2 Credits
Applied lessons in violin to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211H - Applied Lessons for Music Majors/Viola**
2 Credits
Applied lessons in viola to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211I - Applied Lessons for Music Majors/Cello**
2 Credits
Applied lessons in cello to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211J - Applied Lessons for Music Majors/Double Bass**
2 Credits
Applied lessons in double bass to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semester.

**MUSL 1211K - Applied Lessons for Music Majors/Flute**
2 Credits
Applied lessons in flute to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211L - Applied Lessons for Music Majors/Oboe**
2 Credits
Applied lessons in oboe to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211M - Applied Lessons for Music Majors/Clarinet**
2 Credits
Applied lessons in clarinet to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

**MUSL 1211N - Applied Lessons for Music Majors/Bassoon**
2 Credits
Applied lessons in bassoon to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.
MUSL 1211O - Applied Lessons for Music Majors/Saxophone
2 Credits
Applied lessons in saxophone to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211P - Applied Lessons for Music Majors/French Horn
2 Credits
Applied lessons in French horn to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211Q - Applied Lessons for Music Majors/Trumpet
2 Credits
Applied lessons in trumpet to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211R - Applied Lessons for Music Majors/Trombone
2 Credits
Applied lessons in trombone to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211S - Applied Lessons for Music Majors/Euphonium
2 Credits
Applied lessons in euphonium to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1211T - Applied Lessons for Music Majors/Tuba
2 Credits
Applied lessons in tuba to prepare for the respective proficiency exams and recitals required in the Bachelor of Arts and Bachelor of Music degree programs. Offered fall and spring semesters.

MUSL 1221A - Applied Lessons for Music Majors/Voice
2 Credits
Continuation of MUSL 1211A. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211A Minimum Grade of C or APMU 121 Minimum Grade of C.

MUSL 1221B - Applied Lessons for Music Majors/Piano
2 Credits
Continuation of MUSL 1211B. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211B Minimum Grade of C or APMU 105 Minimum Grade of C or APMU 109 Minimum Grade of C.

MUSL 1221C - Applied Lessons for Music Majors/Harpsichord
2 Credits
Continuation of MUSL 1211C. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211C Minimum Grade of C.

**MUSL 1221D - Applied Lessons for Music Majors/Organ**  
*2 Credits*  
Continuation of MUSL 1211D. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211D Minimum Grade of C or APMU 113 Minimum Grade of C.

**MUSL 1221E - Applied Lessons for Music Majors/Guitar**  
*2 Credits*  
Continuation of MUSL 1211E. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211E Minimum Grade of C or APMU 145 Minimum Grade of C.

**MUSL 1221F - Applied Lessons for Music Majors/Harp**  
*2 Credits*  
Continuation of MUSL 1211F. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211F Minimum Grade of C.

**MUSL 1221G - Applied Lessons for Music Majors/Violin**  
*2 Credits*  
Continuation of MUSL 1211G. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211G Minimum Grade of C or APMU 129 Minimum Grade of C.

**MUSL 1221H - Applied Lessons for Music Majors/Viola**  
*2 Credits*  
Continuation of MUSL 1211H. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211H Minimum Grade of C or APMU 133 Minimum Grade of C.

**MUSL 1221I - Applied Lessons for Music Majors/Cello**  
*2 Credits*  
Continuation of MUSL 1211I. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211I Minimum Grade of C or APMU 137 Minimum Grade of C.

**MUSL 1221J - Applied Lessons for Music Majors/Double Bass**  
*2 Credits*  
Continuation of MUSL 1211J. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211J Minimum Grade of C or APMU 141 Minimum Grade of C.

**MUSL 1221K - Applied Lessons for Music Majors/Flute**  
*2 Credits*  
Continuation of MUSL 1211K. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211K Minimum Grade of C or APMU 149 Minimum Grade of C.

**MUSL 1221L - Applied Lessons for Music Majors/Oboe**  
*2 Credits*  
Continuation of MUSL 1211L. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211L Minimum Grade of C or MUSL 153 Minimum Grade of C.
MUSL 1221M - Applied Lessons for Music Majors/Clarinet
2 Credits
Continuation of MUSL 1211M. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211M Minimum Grade of C or APMU 157 Minimum Grade of C.

MUSL 1221N - Applied Lessons for Music Majors/Bassoon
2 Credits
Continuation of MUSL 1211N. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211N Minimum Grade of C or APMU 165 Minimum Grade of C.

MUSL 1221O - Applied Lessons for Music Majors/Saxophone
2 Credits
Continuation of MUSL 1211O. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211O Minimum Grade of C or APMU 161 Minimum Grade of C.

MUSL 1221P - Applied Lessons for Music Majors/French Horn
2 Credits
Continuation of MUSL 1211P. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211P Minimum Grade of C or APMU 173 Minimum Grade of C.

MUSL 1221Q - Applied Lessons for Music Majors/Trumpet
2 Credits
Continuation of MUSL 1211Q. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211Q Minimum Grade of C or APMU 169 Minimum Grade of C.

MUSL 1221R - Applied Lessons for Music Majors/Trombone
2 Credits
Continuation of MUSL 1211R. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211R Minimum Grade of C or APMU 177 Minimum Grade of C.

MUSL 1221S - Applied Lessons for Music Majors/Euphonium
2 Credits
Continuation of MUSL 1211S. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211S Minimum Grade of C or APMU 181 Minimum Grade of C.

MUSL 1221T - Applied Lessons for Music Majors/Tuba
2 Credits
Continuation of MUSL 1211T. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211T Minimum Grade of C or APMU 185 Minimum Grade of C.

MUSL 1221U - Applied Lessons for Music Majors/Percussion
2 Credits
Continuation of MUSL 1211U. Two credits. Offered fall and spring semesters. Prerequisite(s): MUSL 1211U Minimum Grade of C or APMU 189 Minimum Grade of C.

MUSL 1391 - First Year Applied Proficiency Exam
0 Credits
Comprehensive juried performance exam on the major applied instrument assessing competency in
technique, musicality, sight reading at the appropriate level of literature. Required to register for 2000 level study. Offered fall and spring semesters. This course may be repeated 1 time.

**MUSL 2011 - Piano Skills/Music Majors III**
1 Credit
Continuation of MUSL 1021. Offered fall and spring semesters. Prerequisite(s): MUSL 1021 Minimum Grade of C or APMU 105 Minimum Grade of C. This course may be repeated 4 times.
Course Attributes:
Requires Department Approval

**MUSL 2021 - Piano Skills/Music Majors IV**
1 Credit
Continuation of MUSL 2011. Offered fall and spring semesters. Prerequisite(s): MUSL 2011 Minimum Grade of C or APMU 105 Minimum Grade of C. This course may be repeated 5 times.
Course Attributes:
Requires Department Approval

**MUSL 2041 - Piano Proficiency Exam**
0 Credits
Comprehensive piano exam preparing music majors for keyboard use in music careers. Skills include but are not limited to sight reading, harmonization, improvisation, transposition, repertoire, choral warm ups. Registration occurs after passage of exam. Offered fall and spring semesters.

**MUSL 2111A - Applied Lessons for Musical Theatre Majors/Voice**
1 Credit
Continuation of MUSL 1121A. Offered fall and spring semesters. Prerequisite(s): MUSL 1121A Minimum Grade of C or APMU 125 Minimum Grade of C.

**MUSL 2121A - Applied Lessons for Musical Theatre Majors/Voice**
1 Credit
Continuation of MUSL 2111A. Offered fall and spring semesters. Prerequisite(s): MUSL 2111A Minimum Grade of C or APMU 225 Minimum Grade of C.

**MUSL 2211A - Applied Lessons for Music Majors/Voice**
2 Credits
Continuation of MUSL 1221A. Offered fall and spring semesters. Prerequisite(s): MUSL 1221A Minimum Grade of C or APMU 121 Minimum Grade of C.

**MUSL 2211B - Applied Lessons for Music Majors/Piano**
2 Credits
Continuation of MUSL 1221B. Offered fall and spring semesters. Prerequisite(s): MUSL 1221B Minimum Grade of C or APMU 105 Minimum Grade of C or APMU 109 Minimum Grade of C.

**MUSL 2211C - Applied Lessons for Music Majors/Harpsichord**
2 Credits
Continuation of MUSL 1221C. Offered fall and spring semesters. Prerequisite(s): MUSL 1221C Minimum Grade of C.
MUSL 2211D - Applied Lessons for Music Majors/Organ
2 Credits
Continuation of MUSL 1221D. Offered fall and spring semesters. Prerequisite(s): MUSL 1221D Minimum Grade of C or APMU 113 Minimum Grade of C.

MUSL 2211E - Applied Lessons for Music Majors/Guitar
2 Credits
Continuation of MUSL 1221E. Offered fall and spring semesters. Prerequisite(s): MUSL 1221E Minimum Grade of C or APMU 145 Minimum Grade of C.

MUSL 2211F - Applied Lessons for Music Majors/Harp
2 Credits
Continuation of MUSL 1221F. Offered fall and spring semesters. Prerequisite(s): MUSL 1221F Minimum Grade of C.

MUSL 2211G - Applied Lessons for Music Majors/Violin
2 Credits
Continuation of MUSL 1221G. Offered fall and spring semesters. Prerequisite(s): MUSL 1221G Minimum Grade of C or APMU 129 Minimum Grade of C.

MUSL 2211H - Applied Lessons for Music Majors/Viola
2 Credits
Continuation of MUSL 1221H. Offered fall and spring semesters. Prerequisite(s): MUSL 1221H Minimum Grade of C or APMU 133 Minimum Grade of C.

MUSL 2211I - Applied Lessons for Music Majors/Cello
2 Credits
Continuation of MUSL 1221I. Offered fall and spring semesters. Prerequisite(s): MUSL 1221I Minimum Grade of C or APMU 137 Minimum Grade of C.

MUSL 2211J - Applied Lessons for Music Majors/Double Bass
2 Credits
Continuation of MUSL 1221J. Offered fall and spring semesters. Prerequisite(s): MUSL 1221J Minimum Grade of C or MUSL 141 Minimum Grade of C.

MUSL 2211K - Applied Lessons for Music Majors/Flute
2 Credits
Continuation of MUSL 1221K. Offered fall and spring semesters. Prerequisite(s): MUSL 1221K Minimum Grade of C or APMU 149 Minimum Grade of C.

MUSL 2211L - Applied Lessons for Music Majors/Oboe
2 Credits
Continuation of MUSL 1221L. Offered fall and spring semesters. Prerequisite(s): MUSL 1221L Minimum Grade of C or APMU 153 Minimum Grade of C.

MUSL 2211M - Applied Lessons for Music Majors/Clarinet
2 Credits
Continuation of MUSL 1221M. Offered fall and spring semesters. Prerequisite(s): MUSL 1221M Minimum Grade of C or APMU 157 Minimum Grade of C.

MUSL 2211N - Applied Lessons for Music Majors/Bassoon
2 Credits
Continuation of MUSL 1221N. Offered fall and spring semesters. Prerequisite(s): MUSL 1221N Minimum Grade of C or APMU 165 Minimum Grade of C.

MUSL 2211O - Applied Lessons for Music Majors/Saxophone
2 Credits
Continuation of MUSL 1221O. Offered fall and spring semesters. Prerequisite(s): MUSL 1221O Minimum Grade of C or APMU 161 Minimum Grade of C.

MUSL 2211P - Applied Lessons for Music Majors/French Horn
2 Credits
Continuation of MUSL 1221P. Offered fall and spring semesters. Prerequisite(s): MUSL 1221P Minimum Grade of C or APMU 173 Minimum Grade of C.

MUSL 2211Q - Applied Lessons for Music Majors/Trumpet
2 Credits
Continuation of MUSL 1221Q. Offered fall and spring semesters. Prerequisite(s): MUSL 1221Q Minimum Grade of C or APMU 169 Minimum Grade of C.

MUSL 2211R - Applied Lessons for Music Majors/Trombone
2 Credits
Continuation of MUSL 1221R. Offered fall and spring semesters. Prerequisite(s): MUSL 1221R Minimum Grade of C or APMU 177 Minimum Grade of C.

MUSL 2211S - Applied Lessons for Music Majors/Euphonium
2 Credits
Continuation of MUSL 1221S. Offered fall and spring semesters. Prerequisite(s): MUSL 1221S Minimum Grade of C or APMU 181 Minimum Grade of C.

MUSL 2211T - Applied Lessons for Music Majors/Tuba
2 Credits
Continuation of MUSL 1221T. Offered fall and spring semesters. Prerequisite(s): MUSL 1221T Minimum Grade of C or APMU 185 Minimum Grade of C.

MUSL 2211U - Applied Lessons for Music Majors/Percussion
2 Credits
Continuation of MUSL 1221U. Offered fall and spring semesters. Prerequisite(s): MUSL 1221U Minimum Grade of C or APMU 189 Minimum Grade of C.

MUSL 2221A - Applied Lessons for Music Majors/Voice
2 Credits
Continuation of MUSL 2211A. Offered fall and spring semesters. Prerequisite(s): MUSL 2211A Minimum Grade of C or APMU 221 Minimum Grade of C.
MUSL 2221B - Applied Lessons for Music Majors/Piano
2 Credits
Continuation of MUSL 2211B. Offered fall and spring semesters. Prerequisite(s): MUSL 2211B Minimum Grade of C or APMU 209 Minimum Grade of C.

MUSL 2221C - Applied Lessons for Music Majors/Harpsichord
2 Credits
Continuation of MUSL 2211C. Offered fall and spring semesters. Prerequisite(s): MUSL 2211C Minimum Grade of C.

MUSL 2221D - Applied Lessons for Music Majors/Organ
2 Credits
Continuation of MUSL 2211D. Offered fall and spring semesters. Prerequisite(s): MUSL 2211D Minimum Grade of C or APMU 213 Minimum Grade of C.

MUSL 2221E - Applied Lessons for Music Majors/Guitar
2 Credits
Continuation of MUSL 2211E. Offered fall and spring semesters. Prerequisite(s): MUSL 2211E Minimum Grade of C or APMU 245 Minimum Grade of C.

MUSL 2221F - Applied Lessons for Music Majors/Harp
2 Credits
Continuation of MUSL 2211F. Offered fall and spring semesters. Prerequisite(s): MUSL 2211F Minimum Grade of C.

MUSL 2221G - Applied Lessons for Music Majors/Violin
2 Credits
Continuation of MUSL 2211G. Offered fall and spring semesters. Prerequisite(s): MUSL 2211G Minimum Grade of C or APMU 229 Minimum Grade of C.

MUSL 2221H - Applied Lessons for Music Majors/Viola
2 Credits
Continuation of MUSL 2211H. Offered fall and spring semesters. Prerequisite(s): MUSL 2211H Minimum Grade of C or APMU 233 Minimum Grade of C.

MUSL 2221I - Applied Lessons for Music Majors/Cello
2 Credits
Continuation of MUSL 2211I. Offered fall and spring semesters. Prerequisite(s): MUSL 2211I Minimum Grade of C or APMU 237 Minimum Grade of C.

MUSL 2221J - Applied Lessons for Music Majors/Double Bass
2 Credits
Continuation of MUSL 2211J. Offered fall and spring semesters. Prerequisite(s): MUSL 2211J Minimum Grade of C or APMU 241 Minimum Grade of C.

MUSL 2221K - Applied Lessons for Music Majors/Flute
2 Credits
Continuation of MUSL 2211K. Offered fall and spring semesters. Prerequisite(s): MUSL 2211K Minimum Grade of C or APMU 249 Minimum Grade of C.

**MUSL 2221L - Applied Lessons for Music Majors/Oboe**  
2 Credits  
Continuation of MUSL 2211L. Offered fall and spring semesters. Prerequisite(s): MUSL 2211L Minimum Grade of C or APMU 253 Minimum Grade of C.

**MUSL 2221M - Applied Lessons for Music Majors/Clarinet**  
2 Credits  
Continuation of MUSL 2211M. Offered fall and spring semesters. Prerequisite(s): MUSL 2211M Minimum Grade of C or APMU 257 Minimum Grade of C.

**MUSL 2221N - Applied Lessons for Music Majors/Bassoon**  
2 Credits  
Continuation of MUSL 2211N. Offered fall and spring semesters. Prerequisite(s): MUSL 2211N Minimum Grade of C or APMU 265 Minimum Grade of C.

**MUSL 2221O - Applied Lessons for Music Majors/Saxophone**  
2 Credits  
Continuation of MUSL 2211O. Offered fall and spring semesters. Prerequisite(s): MUSL 2211O Minimum Grade of C or APMU 261 Minimum Grade of C.

**MUSL 2221P - Applied Lessons for Music Majors/French Horn**  
2 Credits  
Continuation of MUSL 2211P. Offered fall and spring semesters. Prerequisite(s): MUSL 2211P Minimum Grade of C or APMU 273 Minimum Grade of C.

**MUSL 2221Q - Applied Lessons for Music Majors/Trumpet**  
2 Credits  
Continuation of MUSL 2211Q. Offered fall and spring semesters. Prerequisite(s): MUSL 2211Q Minimum Grade of C or APMU 269 Minimum Grade of C.

**MUSL 2221R - Applied Lessons for Music Majors/Trombone**  
2 Credits  
Continuation of MUSL 2211R. Offered fall and spring semesters. Prerequisite(s): MUSL 2211R Minimum Grade of C or APMU 277 Minimum Grade of C.

**MUSL 2221S - Applied Lessons for Music Majors/Euphonium**  
2 Credits  
Continuation of MUSL 2211S. Offered fall and spring semesters. Prerequisite(s): MUSL 2211S Minimum Grade of C or APMU 281 Minimum Grade of C.

**MUSL 2221T - Applied Lessons for Music Majors/Tuba**  
2 Credits  
Continuation of MUSL 2211T. Offered fall and spring semesters. Prerequisite(s): MUSL 2211T Minimum Grade of C or APMU 285 Minimum Grade of C.
MUSL 2221U - Applied Lessons for Music Majors/Percussion
2 Credits
Continuation of MUSL 2211U. Offered fall and spring semesters. Prerequisite(s): MUSL 2211U Minimum Grade of C or APMU 289 Minimum Grade of C.

MUSL 2391 - Second Year Applied Proficiency Exam
0 Credits
Comprehensive juried performance exam on the major applied instrument assessing competency in technique, musicality, sight reading at the appropriate level of literature. Required to register for 3000 level study. Offered fall and spring semesters. This course may be repeated 1 time.

MUSL 3111A - Applied Lessons for Musical Theatre Majors/Voice
1 Credit
Continuation of MUSL 2121A. Formerly APMU 225. Offered fall and spring semesters. Prerequisite(s): MUSL 2121A Minimum Grade of C or APMU 225 Minimum Grade of C.

MUSL 3121A - Applied Lessons for Musical Theatre Majors/Voice
1 Credit
Continuation of MUSL 3111A. Formerly APMU 225. Offered fall and spring semesters. Prerequisite(s): MUSL 3111A Minimum Grade of C or APMU 225 Minimum Grade of C.

MUSL 3211A - Applied Lessons for Music Majors/Voice
2 to 3 Credits
Continuation of MUSL 2221A. Offered fall and spring semesters. Prerequisite(s): MUSL 2221A Minimum Grade of C or APMU 211 Minimum Grade of C.

MUSL 3211B - Applied Lessons for Music Majors/Piano
2 to 3 Credits
Continuation of MUSL 2221B. Offered fall and spring semesters. Prerequisite(s): MUSL 2221B Minimum Grade of C or APMU 209 Minimum Grade of C.

MUSL 3211C - Applied Lessons for Music Majors/Harpsichord
2 to 3 Credits
Continuation of MUSL 2221C. Offered fall and spring semesters. Prerequisite(s): MUSL 2221C Minimum Grade of C.

MUSL 3211D - Applied Lessons for Music Majors/Organ
2 to 3 Credits
Continuation of MUSL 2221D. Offered fall and spring semesters. Prerequisite(s): MUSL 2221D Minimum Grade of C or APMU 213 Minimum Grade of C.

MUSL 3211E - Applied Lessons for Music Majors/Guitar
2 to 3 Credits
Continuation of MUSL 2221E. Offered fall and spring semesters. Prerequisite(s): MUSL 2221E Minimum Grade of C or APMU 245 Minimum Grade of C.

MUSL 3211F - Applied Lessons for Music Majors/Harp
2 to 3 Credits
Continuation of MUSL 2221F. Offered fall and spring semesters. Prerequisite(s): MUSL 2221F Minimum Grade of C.

**MUSL 3211G - Applied Lessons for Music Majors/Violin**  
2 to 3 Credits  
Continuation of MUSL 2221G. Offered fall and spring semesters. Prerequisite(s): MUSL 2221G Minimum Grade of C or APMU 229 Minimum Grade of C.

**MUSL 3211H - Applied Lessons for Music Majors/Viola**  
2 to 3 Credits  
Continuation of MUSL 2221H. Offered fall and spring semesters. Prerequisite(s): MUSL 2221H Minimum Grade of C or APMU 233 Minimum Grade of C.

**MUSL 3211I - Applied Lessons for Music Majors/Cello**  
2 to 3 Credits  
Continuation of MUSL 2221I. Offered fall and spring semesters. Prerequisite(s): MUSL 2221I Minimum Grade of C or APMU 237 Minimum Grade of C.

**MUSL 3211J - Applied Lessons for Music Majors/Double Bass**  
2 to 3 Credits  
Continuation of MUSL 2221J. Offered fall and spring semesters. Prerequisite(s): MUSL 2221J Minimum Grade of C or APMU 241 Minimum Grade of C.

**MUSL 3211K - Applied Lessons for Music Majors/Flute**  
2 to 3 Credits  
Continuation of MUSL 2221K. Offered fall and spring semesters. Prerequisite(s): MUSL 2221K Minimum Grade of C or APMU 249 Minimum Grade of C.

**MUSL 3211L - Applied Lessons for Music Majors/Oboe**  
2 to 3 Credits  
Continuation of MUSL 2221L. Offered fall and spring semesters. Prerequisite(s): MUSL 2221L Minimum Grade of C or APMU 253 Minimum Grade of C.

**MUSL 3211M - Applied Lessons for Music Majors/Clarinet**  
2 to 3 Credits  
Continuation of MUSL 2221M. Offered fall and spring semesters. Prerequisite(s): MUSL 2221M Minimum Grade of C or APMU 257 Minimum Grade of C.

**MUSL 3211N - Applied Lessons for Music Majors/Bassoon**  
2 to 3 Credits  
Continuation of MUSL 2221N. Offered fall and spring semesters. Prerequisite(s): MUSL 2221N Minimum Grade of C or APMU 265 Minimum Grade of C.

**MUSL 3211O - Applied Lessons for Music Majors/Saxophone**  
2 to 3 Credits  
Continuation of MUSL 2221O. Offered fall and spring semesters. Prerequisite(s): MUSL 2221O Minimum Grade of C or APMU 261 Minimum Grade of C.
MUSL 3211P - Applied Lessons for Music Majors/French Horn
2 to 3 Credits
Continuation of MUSL 2221P. Offered fall and spring semesters. Prerequisite(s): MUSL 2221P Minimum Grade of C or APMU 273 Minimum Grade of C.

MUSL 3211Q - Applied Lessons for Music Majors/Trumpet
2 to 3 Credits
Continuation of MUSL 2221Q. Offered fall and spring semesters. Prerequisite(s): MUSL 2221Q Minimum Grade of C or APMU 269 Minimum Grade of C.

MUSL 3211R - Applied Lessons for Music Majors/Trombone
2 to 3 Credits
Continuation of MUSL 2221R. Offered fall and spring semesters. Prerequisite(s): MUSL 2221R Minimum Grade of C or APMU 277 Minimum Grade of C.

MUSL 3211S - Applied Lessons for Music Majors/Euphonium
2 to 3 Credits
Continuation of MUSL 2221S. Offered fall and spring semesters. Prerequisite(s): MUSL 2221S Minimum Grade of C or APMU 281 Minimum Grade of C.

MUSL 3211T - Applied Lessons for Music Majors/Tuba
2 to 3 Credits
Continuation of MUSL 2221T. Offered fall and spring semesters. Prerequisite(s): MUSL 2221T Minimum Grade of C or APMU 285 Minimum Grade of C.

MUSL 3221A - Applied Lessons for Music Majors/Voice
2 to 3 Credits
Continuation of MUSL 3211A. Offered fall and spring semesters. Prerequisite(s): MUSL 3211A Minimum Grade of C or APMU 321 Minimum Grade of C.

MUSL 3221B - Applied Lessons for Music Majors/Piano
2 to 3 Credits
Continuation of MUSL 3211B. Offered fall and spring semesters. Prerequisite(s): MUSL 3211B Minimum Grade of C or APMU 309 Minimum Grade of C.

MUSL 3221C - Applied Lessons for Music Majors/Harpsichord
2 to 3 Credits
Continuation of MUSL 3211C. Offered fall and spring semesters. Prerequisite(s): MUSL 3211C Minimum Grade of C.

MUSL 3221D - Applied Lessons for Music Majors/Organ
2 to 3 Credits
Continuation of MUSL 3211D. Offered fall and spring semesters. Prerequisite(s): MUSL 3211D Minimum Grade of C or APMU 313 Minimum Grade of C.

**MUSL 3221E - Applied Lessons for Music Majors/Guitar**  
2 to 3 Credits  
Continuation of MUSL 3211E. Offered fall and spring semesters. Prerequisite(s): MUSL 3211E Minimum Grade of C or APMU 345 Minimum Grade of C.

**MUSL 3221F - Applied Lessons for Music Majors/Harp**  
2 to 3 Credits  
Continuation of MUSL 3211F. Offered fall and spring semesters. Prerequisite(s): MUSL 3211F Minimum Grade of C.

**MUSL 3221G - Applied Lessons for Music Majors/Violin**  
2 to 3 Credits  
Continuation of MUSL 3211G. Offered fall and spring semesters. Prerequisite(s): MUSL 3211G Minimum Grade of C or APMU 329 Minimum Grade of C.

**MUSL 3221H - Applied Lessons for Music Majors/Viola**  
2 to 3 Credits  
Continuation of MUSL 3211H. Offered fall and spring semesters. Prerequisite(s): MUSL 3211H Minimum Grade of C or APMU 333 Minimum Grade of C.

**MUSL 3221I - Applied Lessons for Music Majors/Cello**  
2 to 3 Credits  
Continuation of MUSL 3211I. Offered fall and spring semesters. Prerequisite(s): MUSL 3211I Minimum Grade of C or APMU 337 Minimum Grade of C.

**MUSL 3221J - Applied Lessons for Music Majors/Double Bass**  
2 to 3 Credits  
Continuation of MUSL 3211J. Offered fall and spring semesters. Prerequisite(s): MUSL 3211J Minimum Grade of C or APMU 341 Minimum Grade of C.

**MUSL 3221K - Applied Lessons for Music Majors/Flute**  
2 to 3 Credits  
Continuation of MUSL 3211K. Offered fall and spring semesters. Prerequisite(s): MUSL 3211K Minimum Grade of C or APMU 349 Minimum Grade of C.

**MUSL 3221L - Applied Lessons for Music Majors/Oboe**  
2 to 3 Credits  
Continuation of MUSL 3211L. Offered fall and spring semesters. Prerequisite(s): MUSL 3211L Minimum Grade of C or APMU 353 Minimum Grade of C.

**MUSL 3221M - Applied Lessons for Music Majors/Clarinet**  
2 to 3 Credits  
Continuation of MUSL 3211M. Offered fall and spring semesters. Prerequisite(s): MUSL 3211M Minimum Grade of C or APMU 357 Minimum Grade of C.
MUSL 3221N - Applied Lessons for Music Majors/Bassoon
2 to 3 Credits
Continuation of MUSL 3211N. Offered fall and spring semesters. Prerequisite(s): MUSL 3211N Minimum Grade of C or APMU 365 Minimum Grade of C.

MUSL 3221O - Applied Lessons for Music Majors/Saxophone
2 to 3 Credits
Continuation of MUSL 3211O. Offered fall and spring semesters. Prerequisite(s): MUSL 3211O Minimum Grade of C or APMU 361 Minimum Grade of C.

MUSL 3221P - Applied Lessons for Music Majors/French Horn
2 to 3 Credits
Continuation of MUSL 3211P. Offered fall and spring semesters. Prerequisite(s): MUSL 3211P Minimum Grade of C or APMU 373 Minimum Grade of C.

MUSL 3221Q - Applied Lessons for Music Majors/Trumpet
2 to 3 Credits
Continuation of MUSL 3211Q. Offered fall and spring semesters. Prerequisite(s): MUSL 3211Q Minimum Grade of C or APMU 369 Minimum Grade of C.

MUSL 3221R - Applied Lessons for Music Majors/Trombone
2 to 3 Credits
Continuation of MUSL 3211R. Offered fall and spring semesters. Prerequisite(s): MUSL 3211R Minimum Grade of C or APMU 377 Minimum Grade of C.

MUSL 3221S - Applied Lessons for Music Majors/Euphonium
2 to 3 Credits
Continuation of MUSL 3211S. Offered fall and spring semesters. Prerequisite(s): MUSL 3211S Minimum Grade of C or APMU 381 Minimum Grade of C.

MUSL 3221T - Applied Lessons for Music Majors/Tuba
2 to 3 Credits
Continuation of MUSL 3211T. Offered fall and spring semesters. Prerequisite(s): MUSL 3211T Minimum Grade of C or APMU 385 Minimum Grade of C.

MUSL 3221U - Applied Lessons for Music Majors/Percussion
2 to 3 Credits
Continuation of MUSL 3211U. Offered fall and spring semesters. Prerequisite(s): MUSL 3211U Minimum Grade of C or APMU 389 Minimum Grade of C.

MUSL 3301 - Half Recital
0 Credits
Recital 30 minutes in length given typically in the fourth year of study. Required for music education majors. Offered fall and spring semesters.

MUSL 3311 - Junior Recital
1 Credit
Full length (60 minutes) recital in the third year of study. Required for performance majors. Offered fall and spring semesters.

**MUSL 4211A - Applied Lessons for Music Majors/Voice**  
2 to 3 Credits  
Continuation of MUSL 3221A. Offered fall and spring semesters. Prerequisite(s): MUSL 3221A Minimum Grade of C or APMU 321 Minimum Grade of C.

**MUSL 4211B - Applied Lessons for Music Majors/Piano**  
2 to 3 Credits  
Continuation of MUSL 3221B. Offered fall and spring semesters. Prerequisite(s): MUSL 3221B Minimum Grade of C or APMU 309 Minimum Grade of C.

**MUSL 4211C - Applied Lessons for Music Majors/Harpsichord**  
2 to 3 Credits  
Continuation of MUSL 3221C. Offered fall and spring semesters. Prerequisite(s): MUSL 3221C Minimum Grade of C.

**MUSL 4211D - Applied Lessons for Music Majors/Organ**  
2 to 3 Credits  
Continuation of MUSL 3221D. Offered fall and spring semesters. Prerequisite(s): MUSL 3221D Minimum Grade of C or APMU 313 Minimum Grade of C.

**MUSL 4211E - Applied Lessons for Music Majors/Guitar**  
2 to 3 Credits  
Continuation of MUSL 3221E. Offered fall and spring semesters. Prerequisite(s): MUSL 3221E Minimum Grade of C or APMU 345 Minimum Grade of C.

**MUSL 4211F - Applied Lessons for Music Majors/Harp**  
2 to 3 Credits  
Continuation of MUSL 3221F. Offered fall and spring semesters. Prerequisite(s): MUSL 3221F Minimum Grade of C.

**MUSL 4211G - Applied Lessons for Music Majors/Violin**  
2 to 3 Credits  
Continuation of MUSL 3221G. Offered fall and spring semesters. Prerequisite(s): MUSL 3221G Minimum Grade of C or APMU 329 Minimum Grade of C.

**MUSL 4211H - Applied Lessons for Music Majors/Viola**  
2 to 3 Credits  
Continuation of MUSL 3221H. Offered fall and spring semesters. Prerequisite(s): MUSL 3221H Minimum Grade of C or APMU 333 Minimum Grade of C.

**MUSL 4211I - Applied Lessons for Music Majors/Cello**  
2 to 3 Credits  
Continuation of MUSL 3221I. Offered fall and spring semesters. Prerequisite(s): MUSL 3221I Minimum Grade of C or APMU 337 Minimum Grade of C.
MUSL 4211J - Applied Lessons for Music Majors/Double Bass  
2 to 3 Credits  
Continuation of MUSL 3221J. Offered fall and spring semesters. Prerequisite(s): MUSL 3221J Minimum Grade of C or APMU 341 Minimum Grade of C.

MUSL 4211K - Applied Lessons for Music Majors/Flute  
2 to 3 Credits  
Continuation of MUSL 3221K. Offered fall and spring semesters. Prerequisite(s): MUSL 3221K Minimum Grade of C or APMU 349 Minimum Grade of C.

MUSL 4211L - Applied Lessons for Music Majors/Oboe  
2 to 3 Credits  
Continuation of MUSL 3221L. Offered fall and spring semesters. Prerequisite(s): MUSL 3221L Minimum Grade of C or APMU 353 Minimum Grade of C.

MUSL 4211M - Applied Lessons for Music Majors/Clarinet  
2 to 3 Credits  
Continuation of MUSL 3221M. Offered fall and spring semesters. Prerequisite(s): MUSL 3221M Minimum Grade of C or APMU 357 Minimum Grade of C.

MUSL 4211N - Applied Lessons for Music Majors/Bassoon  
2 to 3 Credits  
Continuation of MUSL 3221N. Offered fall and spring semesters. Prerequisite(s): MUSL 3221N Minimum Grade of C or APMU 365 Minimum Grade of C.

MUSL 4211O - Applied Lessons for Music Majors/Saxophone  
2 to 3 Credits  
Continuation of MUSL 3221O. Offered fall and spring semesters. Prerequisite(s): MUSL 3221O Minimum Grade of C or APMU 361 Minimum Grade of C.

MUSL 4211P - Applied Lessons for Music Majors/French Horn  
2 to 3 Credits  
Continuation of MUSL 3221P. Offered fall and spring semesters. Prerequisite(s): MUSL 3221P Minimum Grade of C or APMU 373 Minimum Grade of C.

MUSL 4211Q - Applied Lessons for Music Majors/Trumpet  
2 to 3 Credits  
Continuation of MUSL 3221Q. Offered fall and spring semesters. Prerequisite(s): MUSL 3221Q Minimum Grade of C or APMU 369 Minimum Grade of C.

MUSL 4211R - Applied Lessons for Music Majors/Trombone  
2 to 3 Credits  
Continuation of MUSL 3221R. Offered fall and spring semesters. Prerequisite(s): MUSL 3221R Minimum Grade of C or APMU 377 Minimum Grade of C.

MUSL 4211S - Applied Lessons for Music Majors/Euphonium  
2 to 3 Credits
Continuation of MUSL 3221S. Offered fall and spring semesters. Prerequisite(s): MUSL 3221S Minimum Grade of C or APMU 381 Minimum Grade of C.

**MUSL 4211T - Applied Lessons for Music Majors/Tuba**
2 to 3 Credits
Continuation of MUSL 3221T. Offered fall and spring semesters. Prerequisite(s): MUSL 3221T Minimum Grade of C or APMU 388 Minimum Grade of C.

**MUSL 4211U - Applied Lessons for Music Majors/Percussion**
2 to 3 Credits
Continuation of MUSL 3221U. Offered fall and spring semesters. Prerequisite(s): MUSL 3221U Minimum Grade of C or APMU 389 Minimum Grade of C.

**MUSL 4211A - Applied Lessons for Music Majors/Voice**
2 to 3 Credits
Continuation of MUSL 4211A. Offered fall and spring semesters. Prerequisite(s): MUSL 4211A Minimum Grade of C or APMU 421 Minimum Grade of C.

**MUSL 4211B - Applied Lessons for Music Majors/Piano**
2 to 3 Credits
Continuation of MUSL 4211B. Offered fall and spring semesters. Prerequisite(s): MUSL 4211B Minimum Grade of C or APMU 409 Minimum Grade of C.

**MUSL 4211C - Applied Lessons for Music Majors/Harpsichord**
2 to 3 Credits
Continuation of MUSL 4211C. Offered fall and spring semesters. Prerequisite(s): MUSL 4211C Minimum Grade of C.

**MUSL 4211D - Applied Lessons for Music Majors/Organ**
2 to 3 Credits
Continuation of MUSL 4211D. Offered fall and spring semesters. Prerequisite(s): MUSL 4211D Minimum Grade of C or APMU 413 Minimum Grade of C.

**MUSL 4211E - Applied Lessons for Music Majors/Guitar**
2 to 3 Credits
Continuation of MUSL 4211E. Offered fall and spring semesters. Prerequisite(s): MUSL 4211E Minimum Grade of C or APMU 445 Minimum Grade of C.

**MUSL 4211F - Applied Lessons for Music Majors/Harp**
2 to 3 Credits
Continuation of MUSL 4211F. Offered fall and spring semesters. Prerequisite(s): MUSL 4211F Minimum Grade of C.

**MUSL 4211G - Applied Lessons for Music Majors/Violin**
2 to 3 Credits
Continuation of MUSL 4211G. Offered fall and spring semesters. Prerequisite(s): MUSL 4211G Minimum Grade of C or APMU 429 Minimum Grade of C.
MUSL 4221H - Applied Lessons for Music Majors/Viola
2 to 3 Credits
Continuation of MUSL 4211H. Offered fall and spring semesters. Prerequisite(s): MUSL 4211H Minimum Grade of C or APMU 433 Minimum Grade of C.

MUSL 4221I - Applied Lessons for Music Majors/Cello
2 to 3 Credits
Continuation of MUSL 4211I. Offered fall and spring semesters. Prerequisite(s): MUSL 4211I Minimum Grade of C or APMU 437 Minimum Grade of C.

MUSL 4221J - Applied Lessons for Music Majors/Double Bass
2 to 3 Credits
Continuation of MUSL 4211J. Offered fall and spring semesters. Prerequisite(s): MUSL 4211J Minimum Grade of C or APMU 441 Minimum Grade of C.

MUSL 4221K - Applied Lessons for Music Majors/Flute
2 to 3 Credits
Continuation of MUSL 4211K. Offered fall and spring semesters. Prerequisite(s): MUSL 4211K Minimum Grade of C or APMU 449 Minimum Grade of C.

MUSL 4221L - Applied Lessons for Music Majors/Oboe
2 to 3 Credits
Continuation of MUSL 4211L. Offered fall and spring semesters. Prerequisite(s): MUSL 4211L Minimum Grade of C or APMU 453 Minimum Grade of C.

MUSL 4221M - Applied Lessons for Music Majors/Clarinet
2 to 3 Credits
Continuation of MUSL 4211M. Offered fall and spring semesters. Prerequisite(s): MUSL 4211M Minimum Grade of C or APMU 457 Minimum Grade of C.

MUSL 4221N - Applied Lessons for Music Majors/Bassoon
2 to 3 Credits
Continuation of MUSL 4211N. Offered fall and spring semesters. Prerequisite(s): MUSL 4211N Minimum Grade of C or MUSL 465 Minimum Grade of C.

MUSL 4221O - Applied Lessons for Music Majors/Saxophone
2 to 3 Credits
Continuation of MUSL 4211O. Offered fall and spring semesters. Prerequisite(s): MUSL 4211O Minimum Grade of C or APMU 461 Minimum Grade of C.

MUSL 4221P - Applied Lessons for Music Majors/French Horn
2 to 3 Credits
Continuation of MUSL 4211P. Offered fall and spring semesters. Prerequisite(s): MUSL 4211P Minimum Grade of C or APMU 473 Minimum Grade of C.

MUSL 4221Q - Applied Lessons for Music Majors/Trumpet
2 to 3 Credits
Continuation of MUSL 4211Q. Offered fall and spring semesters. Prerequisite(s): MUSL 4211Q Minimum Grade of C or APMU 469 Minimum Grade of C.

**MUSL 4221R - Applied Lessons for Music Majors/Trombone**
2 to 3 Credits
Continuation of MUSL 4211R. Offered fall and spring semesters. Prerequisite(s): MUSL 4211R Minimum Grade of C or APMU 477 Minimum Grade of C.

**MUSL 4221S - Applied Lessons for Music Majors/Euphonium**
2 to 3 Credits
Continuation of MUSL 4211S. Offered fall and spring semesters. Prerequisite(s): MUSL 4211S Minimum Grade of C or APMU 481 Minimum Grade of C.

**MUSL 4221T - Applied Lessons for Music Majors/Tuba**
2 to 3 Credits
Continuation of MUSL 4211T. Offered fall and spring semesters. Prerequisite(s): MUSL 4211T Minimum Grade of C or APMU 485 Minimum Grade of C.

**MUSL 4221U - Applied Lessons for Music Majors/Percussion**
2 to 3 Credits
Continuation of MUSL 4211U. Offered fall and spring semesters. Prerequisite(s): MUSL 4211U Minimum Grade of C or APMU 489 Minimum Grade of C.

**MUSL 4311 - Senior Recital**
1 Credit
Full length (60 minutes) recital in the fourth year of study. Required for performance majors. Offered fall and spring semesters.

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**Department of Nursing**

**Subject - Nursing (NURS)**

**NURS 1101 - Professional Concepts**
1 Credit
An entry level course that introduces students to concepts, theories and issues relevant to the nursing profession. The dynamics of the evolving role of nursing professional ethics and selected historical events and figures are discussed. Introduces conceptual framework of the nursing curriculum. Offered spring semester. Must be enrolled in one of the following Fields of Study: Nursing.

**NURS 2101 - Physical Assessment (2+3+0)**
3 Credits
Aspects of routine well-adult health assessment and physical examination are presented and demonstrated. Nursing techniques of inspection, palpation, percussion and auscultation are demonstrated and practiced. Emphasis is placed on differentiating normal from abnormal findings. Therapeutic communication techniques and caring behaviors are integrated with assessment skills. A lab fee is charged. Offered fall semester. Prerequisite(s): (NURS 1101 Minimum Grade of C or NURS 141 Minimum Grade of C) and (BIOL 2311 Minimum Grade of C or BIOL 231 Minimum Grade of C) and
(CHEM 1201 Minimum Grade of C or CHEM 136 Minimum Grade of C). Corequisite(s): BIOL 2321. Must be enrolled in one of the following Fields of Study: Nursing.

Course Attributes:
Critical and Creative Thinking

**NURS 2201 - Pathophysiology**

*3 Credits*

The basis of human diseases and disorders and the interaction of environmental, biological, behavioral, and pharmacologic consequences to the disease process. Microbiological concepts applied to the understanding of normal and pathological body processes. Emphasis on the effects of degenerative, metabolic and neoplastic diseases and disorders occurring in the following body systems: immunologic, nervous, hematologic, cardiovascular, respiratory, endocrine, gastrointestinal, reproductive, skeletal, integumentary and special senses. Offered spring semester. Prerequisite(s): NURS 2101 Minimum Grade of C and (BIOL 2321 Minimum Grade of C or BIOL 232 Minimum Grade of C). Corequisite(s): NURS 2301, NURS 2501. Must be enrolled in one of the following Fields of Study: Nursing.

**NURS 2301 - Fundamentals of Nursing (3+3+8)**

*6 Credits*

Foundation of fundamental nursing skills and related concepts basic to safe clinical practice. Concepts will be applied to nursing care in selected settings. Application of the nursing process for beginning clinical practice will be emphasized. Documentation, use of concept maps, health adaptation, teaching, learning and therapeutic communication are emphasized to promote development of nursing judgment. Basic concepts of drug therapy are introduced. Evidence based practice is explored in the clinical experience. Offered spring semester. Prerequisite(s): NURS 2101 Minimum Grade of C and (BIOL 2321 Minimum Grade of C or BIOL 232 Minimum Grade of C). Corequisite(s): BIOL 2151, NURS 2201, NURS 2501. Must be enrolled in one of the following Fields of Study: Nursing.

**NURS 2501 - Pharmacology**

*3 Credits*

Principles of pharmacology including pharmacokinetics, pharmacodynamics, drug interactions, common side effects and the misuse of medications. Selected drug classifications related to the neurological, circulatory, respiratory, endocrine, immune, gastrointestinal and urinary systems and processes. Offered spring semester. Prerequisite(s): NURS 2101 Minimum Grade of C and (BIOL 2321 Minimum Grade of C or BIOL 232 Minimum Grade of C). Corequisite(s): NURS 2201, NURS 2301. Must be enrolled in one of the following Fields of Study: Nursing.

**NURS 3001 - Mental Health Nursing (2+0+4)**

*3 Credits*

The acquisition and application of new knowledge of mental health nursing. The use of the nursing process with clients experiencing mental health alterations in selected care environments. Gain skill and refine therapeutic communication techniques and work with clients and family members in promoting therapeutic interpersonal relationships. Evidence based practice is applied in this clinical experience. Offered spring semester. Prerequisite(s): (NURS 3101 Minimum Grade of C or NURS 310 Minimum Grade of C) and (NURS 3301 Minimum Grade of C or NURS 303 Minimum Grade of C) and NURS 3601 Minimum Grade of C. Corequisite(s): NURS 3351, NURS 3501. Must be enrolled in one of the following Fields of Study: Nursing.
NURS 3011 - Foundations of the Discipline for the Registered Nurse
2 Credits
Aspects of historical, philosophical, theoretical and social influences on the science and professional practice of nursing is presented and examined. The conceptual framework of the nursing curriculum is introduced. Offered in first term of program. Corequisite(s): NURS 3021, NURS 3061. Must have one of the following Student Attributes: RN/BSN Completion Program.

NURS 3021 - Physical Assessment for the Registered Nurse
3 Credits
Aspects of routine well-adult health assessment and physical examination are presented and demonstrated for the registered nurse student. Nursing techniques of inspection, palpation, percussion and auscultation are demonstrated and practiced. Emphasis is placed on differentiating normal from abnormal findings. Therapeutic communication techniques and caring behaviors are integrated with assessment skills. Offered in first term of program. Corequisite(s): NURS 3011, NURS 3061. Must have one of the following Student Attributes: RN/BSN Completion Program.

NURS 3051 - Leadership and Management in Nursing Care for the Registered Nurse
2 Credits
For the professional practice nurse and focuses on leadership and management theory/principles related to contemporary nursing trends and emphasizes practice applications. Emphasis will be placed on the coordination of nursing services and care management in relation to client/patient care, peers, superiors, or subordinates. Offered in second term of program. Prerequisite(s): NURS 3011 Minimum Grade of C and NURS 3021 Minimum Grade of C and NURS 3061 Minimum Grade of C. Corequisite(s): NURS 3221. Must have one of the following Student Attributes: RN/BSN Completion Program.

NURS 3061 - Transcultural Healthcare for the Registered Nurse
2 Credits
Course is designed to build upon the Registered Nurses understanding of health beliefs, attitudes, values and practices in relation to health, illness, and health-seeking behaviors of culturally diverse individuals/groups. Cultural assessment will focus on tools, methods, nursing care adaptations. Students apply the nursing process to clients with respect for diversity and individual differences. Critical analysis of issues and trends in international health are discussed. Offered in first term of program. Corequisite(s): NURS 3011, NURS 3021. Must have one of the following Student Attributes: RN/BSN Completion Program.
Course Attributes:
Diversity-Human Interaction
Integration Across Disciplines

NURS 3101 - Medical Surgical Nursing I (3+3+8)
6 Credits
Builds on the concepts of Fundamentals of Nursing. Acquisition and application of nursing knowledge and nursing skills with adult clients and their families who are experiencing acute and chronic health alterations in selected clinical settings. Clinical judgment, nursing process, health adaptation, teaching-learning and therapeutic communication are emphasized. Evidence based practice is integrated into this clinical experience. Offered fall semester. Prerequisite(s): (NURS 2301 Minimum Grade of C or NURS 211 Minimum Grade of C) and (NURS 2501 Minimum Grade of C or NURS 251 Minimum Grade of C) and (NURS 2201 Minimum Grade of C or NURS 221 Minimum Grade of C). Corequisite(s): NURS 3301, NURS 3601. Must be enrolled in one of the following Fields of Study: Nursing.
NURS 3221 - Pathophysiology for the Registered Nurse
3 Credits
Review and further exploration of the basis of human diseases and disorders and the interaction of environmental, biological, behavioral and pharmacological consequences to the disease process. The application of previous nursing knowledge, medical and nursing diagnoses, and interventions will be applied to current and emerging knowledge. Emphasis is placed on the effects of degenerative, metabolic and neoplastic diseases and disorder occurring in the following body systems: immunologic, nervous, hematologic, cardiovascular, respiratory, endocrine, gastrointestinal, reproductive, skeletal, integumentary and special senses. Offered in second term of program. Prerequisite(s): NURS 3011 Minimum Grade of C and NURS 3021 Minimum Grade of C and NURS 3061 Minimum Grade of C. Corequisite(s): NURS 3051. Must have one of the following Student Attributes: RN/BSN Completion Program.

NURS 3301 - Transcultural Healthcare
2 Credits
To broaden an understanding and perspective of health and illness of differing sociocultural populations. Transcultural health care will introduce cultural influences which affect an individual’s attitude toward institutional health care and the use thereof, and will identify culturally competent nursing interventions for the professional nursing student. Examines culturally based beliefs and values, preventive and therapeutic health practices and caring behaviors in diverse cultural and ethnic groups. Classroom and experimental activities address cultural assessment, awareness and competence. Offered fall semester. Prerequisite(s): NURS 1101 Minimum Grade of C or NURS 141 Minimum Grade of C. Corequisite(s): NURS 3101, NURS 3601. Must be enrolled in one of the following Fields of Study: Nursing. Course Attributes:
Diversity-Human Interaction
Integration Across Disciplines

NURS 3351 - Nursing Research and Informatics
2 Credits
Historical developments and methodologies of nursing research as it relates to nursing practice. Development of an understanding of the research process and research proposals. Interpretation of research reports and critiquing research literature. Exploration and examination of computer technology, basic information systems, and the use of cyber technology as it relates to a variety of health care environments and nursing practice. The impact of these technologies on nursing clinical practice, nursing administration, education and research are discussed. Offered spring semester. Prerequisite(s): NURS 3601 Minimum Grade of C and (NURS 3101 Minimum Grade of C or NURS 310 Minimum Grade of C) and (NURS 3301 Minimum Grade of C or NURS 303 Minimum Grade of C) and (STAT 1561 Minimum Grade of C or STAT 1311 Minimum Grade of C or STAT 156 Minimum Grade of C or STAT 142 Minimum Grade of C). Corequisite(s): NURS 3001, NURS 3501. Must be enrolled in one of the following Fields of Study: Nursing. Course Attributes:
Scientific and Quantitative Literacy

NURS 3501 - Nursing Care of the Developing Child and Family (4+0+8)
6 Credits
Application and acquisition of knowledge development in the specialty area of maternity and pediatric nursing. Emphasis will be placed on nursing process, teaching/learning and health promotion and health
maintenance in these populations. Students will care for clients in a variety of settings. Evidence based practice is applied in this clinical experience. Offered spring semester. Prerequisite(s): NURS 3601 Minimum Grade of C and (NURS 3101 Minimum Grade of C or NURS 310 Minimum Grade of C) and (NURS 3301 Minimum Grade of C or NURS 303 Minimum Grade of C). Corequisite(s): NURS 3001, NURS 3351. Must be enrolled in one of the following Fields of Study: Nursing.

NURS 3601 - Older Adult Nursing
2 Credits
This course applies knowledge and the nursing process in caring for the gerontological population in selected settings and focuses on issues related to the phenomenon of aging. Gerontological nursing models are explored. Exploration of ethical issues related to aging and concepts of research in aging. Evidence based practice is applied. Offered fall semester. Prerequisite(s): (NURS 2301 Minimum Grade of C or NURS 211 Minimum Grade of C) and (NURS 2501 Minimum Grade of C or NURS 251 Minimum Grade of C) and (NURS 2201 Minimum Grade of C or NURS 221 Minimum Grade of C). Corequisite(s): NURS 3101, NURS 3301. Must be enrolled in one of the following Fields of Study: Nursing.

NURS 3801 - Topics in Nursing
1 to 4 Credits
The practice and principles of specialized topics in non-acute nursing care. Topics include but are not limited to: oncology, nursing care, end of life nursing care and neurological nursing care. May be repeated as the topic varies. Prerequisite(s): NURS 3101 Minimum Grade of C or NURS 310 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Nursing. Unlimited repeats permitted.

NURS 4101 - Community Health Nursing (2.5+0+6)
4 Credits
Nursing care and public health principles for families and communities. Introduction of health care policy. Epidemiology, health promotion and prevention strategies and interventions are presented. Health promotion (primary, secondary, tertiary prevention) is emphasized along with emerging community health issues and nursing interventions. Clinical leadership and management roles are explored. Evidence based practice is integrated into this clinical experience. Offered fall semester. Prerequisite(s): (NURS 3351 Minimum Grade of C or NURS 335 Minimum Grade of C) and (NURS 3501 Minimum Grade of C or NURS 340 Minimum Grade of C or NURS 345 Minimum Grade of C) and (NURS 3001 Minimum Grade of C or NURS 324 Minimum Grade of C). Corequisite(s): NURS 4201, NURS 4401. Must be enrolled in one of the following Fields of Study: Nursing.

NURS 4201 - Leadership and Management in Nursing
2 Credits
Leadership and management theory/principles for professional nursing practice in key leadership and management areas. Health care policy, finance and regulatory environments are discussed. Current issues and trends (national, state, and local) in nursing and health care illustrate the practical application of leadership/management theory to practice and create a framework to identify, explore and analyze issues. Offered fall semester. Prerequisite(s): (NURS 3351 Minimum Grade of C or NURS 335 Minimum Grade of C) and (NURS 3501 Minimum Grade of C or NURS 340 Minimum Grade of C or NURS 345 Minimum Grade of C) and (NURS 3001 Minimum Grade of C or NURS 324 Minimum Grade of C). Corequisite(s): NURS 4101, NURS 4401. Must be enrolled in one of the following Fields of Study: Nursing. Course Attributes:
Informed Ethical Responses
NURS 4251 - Community Health Nursing for the Registered Nurse (2.6+0+3.5)

4 Credits
Apply previous nursing knowledge and practice to individuals, families, groups and the practice setting of the community to promote optimal health behaviors. Review nursing care and current public health theories and principles as they relate to families, groups, and communities. Nursing process in public health nursing practice and common health problems encountered in community health nursing are studied. Offered in third term of program. Prerequisite(s): NURS 3221 Minimum Grade of C and NURS 3051 Minimum Grade of C. Corequisite(s): NURS 4751. Must have one of the following Student Attributes: RN/BSN Completion Program.

Course Attributes:
Effective Comm Writing
Informed Ethical Responses

NURS 4401 - Medical Surgical Nursing II (3+3+8)

6 Credits
Builds on concepts on previous clinical courses. Emphasizes the role of the Baccalaureate nurse in the care of the adult with acute and chronic illness across the lifespan. This course will combine complex medical surgical topics specific to the adult client. Uses the nursing process, clinical judgment principles and leadership experiences to coordinate and plan care for patients in acute care settings. Evidence based practice is integrated into this clinical experience. Offered fall semester. Prerequisite(s): (NURS 3501 Minimum Grade of C or NURS 340 Minimum Grade of C or NURS 345 Minimum Grade of C) and (NURS 3001 Minimum Grade of C or NURS 324 Minimum Grade of C) and (NURS 3351 Minimum Grade of C or NURS 335 Minimum Grade of C). Corequisite(s): NURS 4101, NURS 4201. Must be enrolled in one of the following Fields of Study: Nursing.

NURS 4751 - Nursing Research and Informatics for the Registered Nurse

3 Credits
Major components of the research process are addressed with a focus on the professional nurse as a consumer of research. Critical thinking skills are emphasized in the analysis of current nursing research. Historical developments and the methodologies of nursing research; and study findings as it relates to patient evaluation and care. Emphasis on developing an understanding of the research process and research proposals. The interpretation of research reports and critiquing research literature to support evidence-based nursing practice is examined. Explore and examine computer technology, basic information systems, and the use of cyber technology as it relates to a variety of health care environments and nursing practice. Further discussion regarding the impact of these technologies on nursing clinical practice, nursing administration, education and research will be examined. Offered in third term of program. Prerequisite(s): (NURS 3221 Minimum Grade of C and NURS 3051 Minimum Grade of C) and (STAT 1561 Minimum Grade of C or STAT 1311 Minimum Grade of C or STAT 156 Minimum Grade of C or STAT 142 Minimum Grade of C). Corequisite(s): NURS 4251. Must have one of the following Student Attributes: RN/BSN Completion Program.

Course Attributes:
Scientific and Quantitative Literacy

NURS 4801 - Topics in Nursing

1 to 4 Credits
The practice and principles of specialized topics in nursing care in acute settings. Topics to be covered include but are not limited to: emergency/urgent nursing care and ICU nursing care. May be repeated as
the topic varies. Prerequisite(s): NURS 4401 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Nursing. Unlimited repeats permitted.

**NURS 4981 - Transition to Professional Practice: Nursing Capstone (2.5+0+14)**

*6 Credits*

Students evaluate achievement of graduate outcomes. Integration of theory and practice. Provides direct nursing care and makes clinical judgments based on thorough assessment and evidence based practice. Synthesis of content from previous courses. A scholarly project is required. Offered spring semester. Prerequisite(s): NURS 4101 Minimum Grade of C and NURS 4201 Minimum Grade of C and NURS 4401 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Nursing.

**NURS 4991 - Transition to Professional Nursing Practice for Registered Nurses: Clinical Capstone (2.6+0+7)**

*5 Credits*

Integration of theory and practice as in the approach to completion of the nursing major. A clinical area will be selected to carry out nursing activities that promote health potential. Assist in the decision-making process about delivery of nursing care based on a thorough assessment, analysis and exploration of potential consequences while utilizing therapeutic communication. Enhance skills needed to continue with professional role development. Clinical experiences are based on objectives developed with RN preceptor and faculty and may be chosen from a variety of settings. Offered in fourth term of program. Prerequisite(s): NURS 4251 Minimum Grade of C and NURS 4751 Minimum Grade of C. Must have one of the following Student Attributes: RN/BSN Completion Program.

Course Attributes:
Critical and Creative Thinking
Effective Comm Non-Writing

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**Department of Philosophy and Religion**

**Subject - Philosophy (PHIL)**

**PHIL 1001 - Theories of Human Nature**

*3 Credits*

Philosophical inquiry into rival theories of human nature with reference to religion, psychology, and science. Consideration of the various philosophical problems, such as the role of reason, free-will and determinism, the relationship between the individual and the universe/God (as well as society), moral psychology, and gender differences.

Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction

**PHIL 1011 - Plato**

*3 Credits*

Plato’s early to middle dialogues, including the Republic.

Course Attributes:
AS-HUM - Humanities
Informed Ethical Responses
PHIL 1021 - Philosophy of Science
3 Credits
Explores the logical and philosophical foundations that underlie science. Specific issues include: what is the difference between science and pseudo-science, what are scientific explanations, laws and theories, and what are science's limits?
Course Attributes:
AS-HUM - Humanities
Integration Across Disciplines

PHIL 1031 - Philosophy of Identity
3 Credits
Explores the question of who we are by examining questions related to our social identity, specifically how our identity is affected by attributes such as race, gender, and class and by the societal reaction to those attributes.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction

PHIL 1041 - Philosophy and Film
3 Credits
An exploration of perennial philosophical questions. What is real? What can I know? What is life's meaning? through classic and modern films and traditional philosophical treatises. Question concerning whether film is an appropriate medium in which to pursue philosophical issues.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction

PHIL 1051 - Ethics, Justice and Law
3 Credits
An exploration of challenging and controversial issues such as euthanasia, the meaning of equality, and the role of religious beliefs in a society with multiple religious traditions, starting with issues at the level of personal ethical beliefs, then moving to broader issues of social justice, and concluding with the role of law in a pluralistic society.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Informed Ethical Responses

PHIL 1901 - Special Topics in Philosophy
1 to 3 Credits
May be repeated for credit, depending on content. Unlimited repeats permitted.

PHIL 2021 - Ancient Philosophy
3 Credits
Greek philosophical traditions against the background of the Pre-Socratics and Socrates, with a special emphasis on Plato and Aristotle.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Informed Ethical Responses

**PHIL 2251 - Philosophy of Religion**

*3 Credits*
Critical inquiry into issues such as the nature and existence of God, the problem of evil, the significance of religious experience, the justification of religious belief, and the relation of faith and reason.

Course Attributes:
- AS-HUM - Humanities
- Critical and Creative Thinking
- Integration Across Disciplines

**PHIL 2281 - Philosophy of Law**

*3 Credits*
Major philosophical theories of law, from legal positivism to originalism. Application to topics such as criminal law, contract law, and constitutional interpretation. Specific applications include but are not limited to: free speech, the insanity defense, and surrogate mother contracts.

Course Attributes:
- AS-HUM - Humanities
- Informed Ethical Responses

**PHIL 2341 - Logic**

*3 Credits*
Logical fallacies and the principles of correct reasoning. The application of formal logical analysis to arguments encountered in ordinary language.

Course Attributes:
- AS-HUM - Humanities
- Critical and Creative Thinking

**PHIL 2401 - Professional Ethics**

*3 Credits*
Major ethical theories and their application to the professions and topics that arise in the professional setting. The nature of professions and responsibilities to clients and the public. Offered fall and spring semesters.

Course Attributes:
- AS-HUM - Humanities
- Informed Ethical Responses

**PHIL 2431 - Asian Philosophies**

*3 Credits*
Asian philosophical traditions on the metaphysical, epistemological, logical, and ethical questions about the universe's and human beings' origins, natures and purposes, including the historical origins of these traditions, their development, and interactions.

Course Attributes:
- AS-HUM - Humanities
- Diversity-Human Interaction
- Non Western Cultural
PHIL 2901 - Special Topics in Philosophy
1 to 3 Credits
May be repeated for credit, depending on content. Unlimited repeats permitted.

PHIL 3101 - Environmental Ethics
3 Credits
Theories of value, with special emphasis on the possible justification of extending the moral community to include non-human nature. Foci will include future generations, pollution, the commons, 'jobs vs. wilderness,' and legal and moral rights. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
Informed Ethical Responses

PHIL 3201 - Political Philosophy
3 Credits
Theories of political philosophy, such as social contract, libertarianism, utilitarianism, feminist, and political liberalism. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities

PHIL 3401 - Metaphysics
3 Credits
Classical metaphysical questions about human nature and the world, such as the nature of reality, essence, existence, and causation. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Effective Comm Non-Writing

PHIL 3441 - Ethical Theory
3 Credits
Major ethical theories, such as utilitarianism, deontology, and virtue theory. Additional topics, such as ethical egoism, moral realism, and ethical relativism. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking

PHIL 3551 - Epistemology
3 Credits
Knowledge, its origins, structure, scope, justification and limitations, with reference to such problems as skepticism, realism, sense perception, mental representation, opinion and truth. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
PHIL 3901 - Special Topics in Philosophy
1 to 3 Credits
May be repeated for credit, depending on content. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore. Unlimited repeats permitted.

PHIL 4801 - Philosophy Senior Essay
3 Credits
A critical essay on a topic selected in consultation with a faculty advisor. Enrollment in the semester during which the paper is to be completed. However, preliminary work on this project commences no later than the beginning of the senior year. Must be enrolled in one of the following Fields of Study: Philosophy.
Course Attributes:
AS-HUM - Humanities

PHIL 4971 - Independent Study in Philosophy
1 to 3 Credits
May be repeated for credit, depending on content. Must be enrolled in one of the following Fields of Study: Philosophy. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

**Subject - Religion (RELG)**

RELG 1001 - Death and Beyond in World Religions
3 Credits
An examination of distinct religious perspectives on individuals' dying, afterlife, and additional goals beyond the experience of physical death.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural

RELG 1011 - Encountering the Other
3 Credits
The diversity of religious and cultural worldviews and practices, with primary focus on the phenomenon of 'otherness,' or 'difference,' and its personal and social ramifications.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural

RELG 1021 - Christianity and Natural World
3 Credits
Christian theological and ethical responses to nature. Discussion of how Christianity has historically understood the doctrine of creation. The diverse ways that contemporary Christianity interprets the material world
Course Attributes:
AS-HUM - Humanities

**RELG 1031 - Religion and Culture**

*3 Credits*

The relationship between religious worldviews and culture, including fine arts, technology, and popular media. Different theological models that can be used to understand how culture challenges and influences religion.

Course Attributes:
AS-HUM - Humanities

**RELG 1041 - Women in the Bible**

*3 Credits*

The portrayal of women in the Old and New Testaments with secondary readings of feminist theory.

Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Informed Ethical Responses

**RELG 1071 - Religions East and West**

*3 Credits*

Representative major religions of the world, their origins, sacred writings, basic beliefs, and life practices, with special attention to non-Western religious traditions.

Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction

**RELG 1911 - Special Topics in Religion**

*3 Credits*

May be repeated for credit, depending on content. Unlimited repeats permitted.

Course Attributes:
AS-HUM - Humanities

**RELG 2001 - Introduction to Old Testament**

*3 Credits*

Critical reading of the Old Testament (Hebrew Bible): its historical background, literary features, and theological claims.

Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction

**RELG 2011 - Introduction to New Testament**

*3 Credits*


Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
RELG 2021 - Islam
3 Credits
The ideas and practices of the Muslim tradition, with emphasis on Islam's scriptural base, historical development, societal impact, and encounter with the West and with other religious traditions.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural

RELG 2031 - Eastern Religious Traditions
3 Credits
Major religions of Asia: their origins, sacred writings, basic beliefs, life practices, and, where applicable, presence in the West.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural

RELG 2041 - Western Religious Traditions
3 Credits
Major Semitic/Western religions: their origins, sacred writings, basic beliefs, life practices, and variations around the world.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction

RELG 2051 - Hinduism
3 Credits
The ideas and practices of the Hindu tradition, with emphasis on historical development, varied literatures, societal influence, and encounters with the contemporary West.
Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural

RELG 2061 - Issues in Science & Religion
1 Credit
Investigation of the work of a major figure in the contemporary science and religion dialogue. Students are required to attend annual weekend Goshen Conference on Religion and Science, where students will have the opportunity to interact with the author being studied. Fee required. Unlimited repeats permitted.
Course Attributes:
Integration Across Disciplines

RELG 2711 - Biblical Hebrew 1
0 or 3 Credits
Biblical Hebrew with heavy emphasis on grammar and vocabulary.
RELG 2731 - Biblical Hebrew 2
0 or 3 Credits
Biblical Hebrew with an emphasis on grammar and vocabulary as well as readings from the Hebrew Bible. Prerequisite(s): RELG 2711 Minimum Grade of C or RELG 271 Minimum Grade of C.

RELG 2811 - Biblical Greek 1
3 Credits
Biblical Greek with heavy emphasis on grammar and vocabulary and readings from the Greek New Testament.
Course Attributes:
AS-HUM - Humanities

RELG 2831 - Biblical Greek 2
3 Credits
Biblical Greek with heavy emphasis on grammar and vocabulary and readings from the Greek New Testament. Prerequisite(s): RELG 2811 Minimum Grade of C or RELG 281 Minimum Grade of C.
Course Attributes:
AS-HUM - Humanities

RELG 2911 - Special Topics in Religion
1 to 3 Credits
May be repeated for credit, depending on content. Unlimited repeats permitted.

RELG 3001 - Christian Thought to 1500
3 Credits
Christian history, theology and ethics from the formative period of the Church to the late Middle Ages. Emphasis on the Christian response to cultural settings, efforts to define orthodoxy, philosophers, theologians and mystics. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Effective Comm Writing

RELG 3011 - Christian Thought 1500 to the Present
3 Credits
Christian history, theology and ethics from the Reformation to the present. The rise of confessions, Enlightenment challenges to religion, and representative theologians and issues from the past two centuries. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.
Course Attributes:
AS-HUM - Humanities
Critical and Creative Thinking
Effective Comm Non-Writing

RELG 3021 - Buddhism
3 Credits
The ideas and practices of the Buddhist tradition in Asia as well as in the West, with emphasis on the life
and teachings of the Buddha and the evolution of extremely diverse forms of Buddhism. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

Course Attributes:
AS-HUM - Humanities
Diversity-Human Interaction
Non Western Cultural

**RELG 3911 - Special Topics in Religion**
*1 to 3 Credits*
May be repeated for credit, depending on content. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore. Unlimited repeats permitted.

**RELG 4811 - Religion Senior Essay**
*3 Credits*
A critical essay on a topic selected in consultation with a faculty advisor. Enrollment in the semester during which the paper is to be completed. However, preliminary work on this project commences no later than the beginning of the senior year. Must be enrolled in one of the following Fields of Study: Religion, Youth Ministry.

**RELG 4981 - Independent Study in Religion**
*1 to 3 Credits*
May be repeated for credit, depending on content. Must be enrolled in one of the following Fields of Study: Religion, Youth Ministry. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval

**Subject - Youth Ministry (YMIN)**

**YMIN 0011 - Youth Ministry Observation 1**
*0 Credits*
Observation of and reflection on youth ministry in a congregational setting related to one's own denominational tradition. Must be enrolled in one of the following Fields of Study: Youth Ministry.

**YMIN 0021 - Youth Ministry Observation 2**
*0 Credits*
Observation of and reflection on youth ministry in a congregational setting different from one's own denominational tradition. Must be enrolled in one of the following Fields of Study: Youth Ministry.

**YMIN 0031 - Youth Ministry Observation 3**
*0 Credits*
Observation and reflection on ministry to youth in a culturally, racially, and/or socioeconomically diverse setting. Must be enrolled in one of the following Fields of Study: Youth Ministry.

**YMIN 0041 - Internship: Group Reflection**
*0 Credits*
Group reflection on issues pertaining to students' internships. Must be enrolled in one of the following Fields of Study: Youth Ministry.
YMIN 2531 - Youth Ministry Issues and Settings
3 Credits
Exploration of various settings for youth ministry, including weekly youth meetings, camps, mission trips, Sunday School, and community service. Offered alternate years. Prerequisite(s): (YMIN 001 Minimum Grade of C or YMIN 0011 Minimum Grade of C) and (YMIN 002 Minimum Grade of C or YMIN 0021 Minimum Grade of C) and (YMIN 003 Minimum Grade of C or YMIN 0031 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Youth Ministry.

YMIN 2901 - Special Topics in Youth Ministries
1 to 3 Credits
May be repeated for credit depending on course content. Must be enrolled in one of the following Fields of Study: Youth Ministry. Unlimited repeats permitted.

YMIN 3901 - Special Topics in Youth Ministries
1 to 3 Credits
May be repeated for credit, depending on content. Must be enrolled in one of the following Fields of Study: Youth Ministry. Unlimited repeats permitted.

YMIN 4101 - Youth Ministry Internship
1 to 3 Credits
Internship in youth ministry in various possible settings: congregation, camp, mission trip, etc. Each credit hour requires 25 hours in internship. Prerequisite(s): (YMIN 001 Minimum Grade of C or YMIN 0011 Minimum Grade of C) and (YMIN 002 Minimum Grade of C or YMIN 0021 Minimum Grade of C) and (YMIN 003 Minimum Grade of C or YMIN 0031 Minimum Grade of C). Corequisite(s): YMIN 0041. Must be enrolled in one of the following Fields of Study: Youth Ministry. This course is repeatable for a total of 6 hours.

YMIN 4531 - Principles of Christian Education
3 Credits
The philosophy, theory, and current methods of Christian education. The relationship of Christian education to other areas of ministry (e.g., worship). Offered alternate years. Prerequisite(s): (YMIN 2531 Minimum Grade of C or YMIN 253 Minimum Grade of C) and (YMIN 4101 Minimum Grade of C or YMIN 410 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Youth Ministry.

YMIN 4991 - Independent Study in Youth Ministries
1 to 3 Credits
May be repeated for credit depending on course content. Must be enrolled in one of the following Fields of Study: Youth Ministry. Unlimited repeats permitted.

Course Attributes:
Requires Department Approval

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Department of Physics and Astronomy

Subject - Physics (PHYS)

PHYS 0001 - Orientation
1 Credit
Familiarization with the department, requirements for majors, planning a program of courses. Required of department majors. Offered fall semester.

**PHYS 1001 - Conceptual Physics**  
*3 Credits*  
Issues involving science and society, classical physics, relativity, atomic and nuclear physics. Students may not receive credit for PHYS 1001 after completion of either PHYS 2121 or 2321.  
Course Attributes:  
AS - Math\Natural Sciences  
Scientific and Quantitative Literacy

**PHYS 1031 - Exploring Physics and Astronomy**  
*3 Credits*  
The course will take a detailed look at important historical and cultural perspectives on astronomy. Qualitative and Quantitative study of physics used in art including the Fibonacci sequence, the golden ratio and fractal art.  
Course Attributes:  
AS - Math\Natural Sciences

**PHYS 1051 - Planetary Astronomy**  
*3 Credits*  
Introduction to solar system science, history of astronomy, telescopes, basic earth science.  
Course Attributes:  
AS - Math\Natural Sciences  
Scientific and Quantitative Literacy

**PHYS 1061 - Stars and Galaxies**  
*3 Credits*  
Structure, motions and evolution of stars, interstellar material, galaxies and the universe as a whole.  
Course Attributes:  
AS - Math\Natural Sciences  
Scientific and Quantitative Literacy

**PHYS 1081 - Planetary Astronomy Laboratory**  
*1 Credit*  
Laboratory and mathematical companion to PHYS 1051.

**PHYS 1091 - Stars and Galaxies Laboratory**  
*1 Credit*  
Laboratory and mathematical companion to PHYS 1061.

**PHYS 1901 - Special Topics in Physics**  
*1 to 3 Credits*  
This course may be repeated 4 times. This course is repeatable for a total of 6 hours.

**PHYS 1911 - Special Topics in Summer Honors Institute**  
*1 to 3 Credits*
Topics in Physics. Enrollment is restricted to attendees of the Summer Honors Institute. May be repeated as the topic varies. Unlimited repeats permitted.  
Course Attributes:  
Requires Instructor Approval

**PHYS 2051 - Physics with Health Science Applications**  
*3 Credits*  
Selected basic physical principles and their application to health science. Topics include levers and torques, fluid dynamics, electrical conduction, magnetism, optics, and radiation.  
Course Attributes:  
AS - Math\Natural Sciences

**PHYS 2111 - General Physics 1**  
*3 Credits*  
Classic Newtonian mechanics. Oscillations and sound. Thermodynamics. Algebra and trigonometry used. The corresponding laboratory is PHYS 2341. Offered fall semester.  
Course Attributes:  
AS - Math\Natural Sciences

**PHYS 2121 - General Physics 2**  
*3 Credits*  
Electric and magnetic phenomena. Optics. Algebra and trigonometry are used. The corresponding laboratory is PHYS 2351. Offered spring semester. Prerequisite(s): PHYS 2111 or PHYS 2311 or PHYS 211 or PHYS 231.  
Course Attributes:  
AS - Math\Natural Sciences

**PHYS 2311 - Physics 1**  
*3 Credits*  
Classic Newtonian mechanics. Oscillations and sound. Thermodynamics. Differential and integral calculus are used. The corresponding laboratory is PHYS 2341. Offered fall and spring semesters. Prerequisite(s): MATH 1611 or MATH 1631 or MATH 157 or MATH 163.  
Course Attributes:  
AS - Math\Natural Sciences

**PHYS 2321 - Physics 2**  
*3 Credits*  
Electric and magnetic phenomena. Optics. Differential and integral calculus are used. The corresponding laboratory is PHYS 2351. Offered fall and spring semesters. Prerequisite(s): PHYS 2311 or PHYS 231.  
Course Attributes:  
AS - Math\Natural Sciences

**PHYS 2341 - Physics Laboratory 1**  
*1 Credit*  
Experiments in Newtonian mechanics. Oscillations and sound. Thermodynamics. PHYS 2111 or 231 should be taken concurrently, or instructor's permission must be obtained. Offered fall and spring semesters.
PHYS 2351 - Physics Laboratory 2
1 Credit
Experiments in electricity and magnetism, and optics. PHYS 2121 or 2321 should be taken concurrently, or instructor's permission must be obtained. Offered fall and spring semesters.

PHYS 2901 - Special Topics in Physics
1 to 3 Credits
This course may be repeated 4 times. This course is repeatable for a total of 6 hours.

PHYS 3011 - Advanced Physics Research Lab
2 Credits
Statistical analysis of data and error propagation. Linear and non-linear curve fitting. Design and construction of scientific apparatus. Signal conditioning. Optical techniques. Vacuum systems. Research and scholarship ethics. Offered alternate spring semesters. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.

PHYS 3051 - Modern Physics
3 Credits
General and special relativity, Quantitativeum and wave mechanics, atomic and nuclear physics. Offered spring semester. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.

PHYS 3111 - Nuclear Physics
3 Credits
Nuclear structure, nuclear reactions, nuclear constituents, fundamentals of nuclear reactor theory and design, shielding and safety principles in nuclear physics. Offered alternate spring semesters. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.

PHYS 3411 - Optics
3 Credits
The laws of geometrical and physical optics. Image formation by mirrors and lenses and optical aberrations. Interference and diffraction. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.

PHYS 3451 - Math Methods
3 Credits
Vector algebra, vector calculus in arbitrary coordinate systems, Fourier analysis, contour integration in complex plane, special functions. Offered alternate fall semesters. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.

PHYS 3471 - Introductory Astrophysics
3 Credits
Motions and physical nature of objects in the solar system, electromagnetic radiation, telescopes and astronomical detectors. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.
Course Attributes:
AS - Math\Natural Sciences

PHYS 3511 - Solid State
3 Credits
Structure of solids. Quantitativeum and statistical mechanics are used to develop theories of internal stress and strain in crystals, conductivity of electricity in metals, semiconductors and superconductors, magnetism, the thermal properties of solids and imperfections in solids. Prerequisite(s): PHYS 3051 or PHYS 303.
Course Attributes:
AS - Math\Natural Sciences

PHYS 3531 - Statistical Mechanics
3 Credits
Properties of gases, thermal properties of solids and liquids. Thermodynamic laws. Heat transfer. Kinetic thermodynamic laws. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.
Course Attributes:
AS - Math\Natural Sciences

PHYS 3551 - Electronics
3 Credits
Theory of solid state devices, rectifier circuits, transistor amplifiers, oscillators and modulators, instrumentation applications. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.
Course Attributes:
AS - Math\Natural Sciences

PHYS 3571 - Computational Physics
3 Credits
Methods and problems in computational physics. Prerequisite(s): (PHYS 3451 or PHYS 345) and (ECCS 4611 or ECCS 461).
Course Attributes:
AS-HUM - Humanities

PHYS 3731 - Analytical Mechanics
3 Credits
Vector analysis, kinematics, conservative forces, planetary motion, pendulum, free and forced oscillations, coupled systems and normal coordinates, angular momentum, rigid bodies. Offered alternate fall semesters. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.
Course Attributes:
AS - Math\Natural Sciences

PHYS 3751 - Quantitativeum Mechanics
3 Credits
Eigenvalues and eigenvectors, commutators, bra-ket notation, postulates of Quantitativeum theory, solution of the Schrodinger wave equation for square well potential, harmonic oscillator, hydrogen
atom, and other potentials. Perturbation theory. Offered alternate fall semesters. Prerequisite(s): PHYS 2121 or PHYS 2321 or PHYS 213 or PHYS 233.

Course Attributes:
AS - Math\Natural Sciences

**PHYS 3901 - Special Topics in Physics**
1 to 3 Credits
This course may be repeated 4 times. This course is repeatable for a total of 6 hours.

**PHYS 3951 - Independent Research**
1 to 2 Credits
This course may be repeated 4 times. This course is repeatable for a total of 8 hours.

**PHYS 4111 - Electricity and Magnetism 1**
3 Credits
Electrostatic field theory, capacitance, multipole expansion, dielectric properties of matter; magnetic field theory; electromagnetic induction; magnetic properties of matter; Maxwell's equations and electromagnetic waves. Offered alternate fall semesters. Prerequisite(s): PHYS 2321 or PHYS 233.

Course Attributes:
AS - Math\Natural Sciences

**PHYS 4121 - Electricity and Magnetism 2**
3 Credits
Advanced electric and magnetic fields; electric and magnetic properties of solids, electromagnetic radiation. Offered alternate spring semesters. Prerequisite(s): PHYS 4111 or PHYS 411.

Course Attributes:
AS - Math\Natural Sciences

**PHYS 4151 - Plasma Physics**
3 Credits

Course Attributes:
AS - Math\Natural Sciences

**PHYS 4901 - Special Topics in Physics**
1 to 3 Credits
Part of the Physics major program and offered when needed. This course may be repeated 4 times. This course is repeatable for a total of 6 hours.

**PHYS 4951 - Senior Thesis Seminar**
2 Credits
Written and oral presentation of the complete Capstone Research Project. The Research Project is written in the format of a scientific manuscript and presented during a formal seminar. This course will be the culmination of the Capstone experience. Prerequisite(s): PHYS 3951 or PHYS 395.

**PHYS 4971 - Independent Research**
1 to 3 Credits
Part of the Physics major program and offered when needed. This course may be repeated 4 times. This course is repeatable for a total of 8 hours.

**Institute for Social Research**

**Subject - Institute for Social Research (ISR)**

**ISR 1861 - Social Research Practicum 1**

1 to 4 Credits

Participation in the Institute for Social Research under the direction of a faculty member. Offered fall and spring semesters.

Course Attributes:

Requires Instructor Approval

**ISR 2531 - Research Methods**

3 Credits

Major research techniques including surveys, observation, interviews, use of available data and experiments. Other topics include techniques for sampling, for measurement, and for research. Offered fall semester.

Course Attributes:

Scientific and Quantitative Literacy

**ISR 2541 - Data Analysis**

4 Credits

Concepts and procedures for understanding social science data. Covers both descriptive and inferential statistics, as well as qualitative data analysis. Includes the use of statistical software and emphasizes interpretation of results. Offered spring semester. Prerequisite(s): STAT 1311 Minimum Grade of C or STAT 142 Minimum Grade of C or STAT 156 Minimum Grade of C or STAT 1561 Minimum Grade of C.

Course Attributes:

Scientific and Quantitative Literacy

**ISR 2861 - Social Research Practicum 2**

1 Credit

Participation in the Institute for Social Research. Work as part of a team, under the direction of a faculty member in the Institute of Social Research. Offered fall and spring semesters. Prerequisite(s): ISR 1861 Minimum Grade of C or ISR 186 Minimum Grade of C.

Course Attributes:

Requires Instructor Approval

**ISR 3861 - Social Research Practicum 3**

1 Credit

Participation in the Institute for Social Research, including some leadership responsibilities under the direction of a faculty member. Offered fall and spring semesters. Prerequisite(s): ISR 2861 Minimum Grade of C or ISR 286 Minimum Grade of C.

Course Attributes:

Requires Instructor Approval
ISR 4861 - Social Research Practicum 4
1 Credit
Participation in the Institute for Social Research under the direction of a faculty member. Student assumes responsibility as a project director or assistant project director. Offered fall and spring semesters. Prerequisite(s): ISR 3861 Minimum Grade of C or ISR 386 Minimum Grade of C.
Course Attributes:
Requires Instructor Approval

Department of Psychology, Sociology, and Criminal Justice

Subject - Criminal Justice (CJ)

CJ 1211 - Introduction To Criminal Justice
3 Credits
Concepts, issues, substance, structures of the American criminal justice system, causes of criminal behavior, theories of law and punishment, and the roles of various actors within the system.
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing

CJ 2001 - Criminal Justice Systems: The Police
3 Credits
Historical, philosophical and legal basis of police institutions, practices and procedures. Issue oriented course. Discussion topics will vary with prevailing policing issues.
Course Attributes:
AS-SOCSCI - Social Science

CJ 2101 - Criminal Justice Systems: The Courts
3 Credits
Prosecution and defense in criminal cases. Constitutional rules that apply to criminal cases at trial and under appeal. The concept of due process. The rights and limitations of the state and the defense under the Bill of Rights. Preliminary hearings, arraignment, trials, sentencing, and appeals.
Course Attributes:
AS-SOCSCI - Social Science

CJ 2201 - Criminal Justice Systems: Corrections
3 Credits
Historical, philosophical and legal basis of correctional procedures and institutions. Probation and parole. Issue oriented course. Discussion topics will vary with prevailing corrections issues.
Course Attributes:
AS-SOCSCI - Social Science

CJ 3021 - Nature Center Seminar In Criminal Justice
1 Credit
Weekend seminar at the Metzger Nature Center on a wide range of topics in criminal justice. May be repeated as topic varies. A Nature Center use fee is charged. Unlimited repeats permitted.

**CJ 3401 - Comparative Criminal Justice**  
3 Credits  
Comparison of the American criminal justice system with international systems from the common, civil, socialist, and Islamic legal traditions. Comparative analysis of police, courts, corrections, and legal definitions of crime. Transnational crime.  
Course Attributes:  
AS-SOCSCI - Social Science

**CJ 3431 - Substantive Criminal Law**  
3 Credits  
Course Attributes:  
AS-SOCSCI - Social Science

**CJ 3541 - Women In Criminal Justice**  
3 Credits  
Course Attributes:  
AS-SOCSCI - Social Science  
Diversity-Human Interaction

**CJ 3551 - Minorities In Criminal Justice**  
3 Credits  
Racial and ethnic minorities in the American criminal justice system. Minority and ethnic group members as offenders, victims of crime, and criminal justice professionals. Impact of racism, prejudice, and discrimination.  
Course Attributes:  
AS-SOCSCI - Social Science  
Critical and Creative Thinking  
Diversity-Human Interaction

**CJ 3561 - Juvenile Justice**  
3 Credits  
Operations of the American juvenile justice system. The history of juvenile delinquency and the evolution of the juvenile justice system. Police treatment of juveniles, juvenile rights, juvenile court procedures, treatment and punishment of juvenile offenders. Prevention of juvenile delinquency.  
Course Attributes:  
AS-SOCSCI - Social Science  
Diversity-Human Interaction
CJ 3601 - Criminal Investigation
3 Credits
Course Attributes:
AS-SOCSCI - Social Science

CJ 3901 - Special Topics In Criminal Justice
3 Credits
May be repeated as topic varies. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

CJ 4011 - The Death Penalty
3 Credits
Examination of the Eighth Amendment and the death penalty. Major United States Supreme Court decisions that relate to the death penalty. Theoretical and practical perspectives on the death penalty. Historical development of the death penalty. Capital trials, the appeals process, methods of execution, and the doctrine of proportionality. Comparisons between male and female capital offenders. Rules that govern insane and juvenile capital offenders. The costs of executions.
Course Attributes:
AS-SOCSCI - Social Science

CJ 4101 - Criminal Behavior
3 Credits
Use of the descriptions and explanations that criminals themselves provide to understand how people become criminals. The roles that social and peer groups, social environment, and learning play in the process. Theoretical and policy implications of criminal behavior.
Course Attributes:
AS-SOCSCI - Social Science
Diversity-Human Interaction

CJ 4111 - Serial Killers
3 Credits
The historical origins of the concept of serial killers. The methods, motives, and psychological background of American serial killers. The culture of serial killers. Theories to explain serial killing. The concept and application of profiling.
Course Attributes:
AS-SOCSCI - Social Science

CJ 4121 - Domestic Violence
3 Credits
Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
**CJ 4211 - Crime And The Media**  
3 Credits  
Representations of crime and the criminal justice system in the media. How media representations affect society and the criminal justice system. How the media construct reality, influence attitudes and perceptions of crime and criminality, and affect criminal cases.  
Course Attributes:  
AS-SOCSCI - Social Science

**CJ 4621 - Issues In Criminal Justice**  
3 Credits  
Intensive study of selected topics related to criminal justice. May be repeated as topic varies. Unlimited repeats permitted.  
Course Attributes:  
AS-SOCSCI - Social Science

**CJ 4711 - Public Service Internship Program**  
1 to 15 Credits  
Field experience in the area of public service. Student works in a close relationship with public offices and officials or approved private agencies and firms. Student must enroll in at least 1 credit hour of Public Service Internship per internship experience. A full time Public Service Internship requires 600 hours of on-site work. Student may apply up to 15 credit hours of departmental internship to the BA degree. Consultation with the department internship committee and completion of the application process; 2.75 GPA. Must be enrolled in one of the following Classifications: Senior, Junior. This course is repeatable for a total of 15 hours.

**CJ 4721 - Seminar - The Washington Center Seminar**  
3 Credits  
Course Attributes:  
AS-SOCSCI - Social Science  
Requires Department Approval

**CJ 4901 - Special Topics In Criminal Justice**  
3 Credits  
May be repeated as topic varies. Formerly PLSC 490. Unlimited repeats permitted.  
Course Attributes:  
AS-SOCSCI - Social Science

**CJ 4941 - Seminar In Criminal Justice**  
3 Credits  
May be repeated as topic varies. Unlimited repeats permitted.  
Course Attributes:  
AS-SOCSCI - Social Science

**CJ 4961 - Independent Study In Criminal Justice**  
1 to 3 Credits  
Unlimited repeats permitted.  
Course Attributes:
Requires Department Approval

**CJ 4981 - Senior Thesis 1**

1 Credit

Topic selection and development of bibliography and outline for senior thesis under the direction of a departmental faculty member. First part of departmental Capstone course for majors in Criminal Justice. Required of all Criminal Justice majors. Enrollment at least two semesters before the semester of expected graduation. Formerly PLSC 488. Prerequisite(s): (ISR 2531 Minimum Grade of C or ISR 253 Minimum Grade of C) and (ISR 2541 Minimum Grade of C or ISR 254 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Criminal Justice. Must be enrolled in one of the following Classifications: Senior, Junior.

**CJ 4991 - Senior Thesis 2**

2 Credits

Completion of senior thesis under the direction of a departmental faculty member and a second reader. Second part of departmental Capstone course for majors in Criminal Justice. Required of all Criminal Justice majors. Enrollment at least one semester before the semester of expected graduation. Prerequisite(s): CJ 4981 Minimum Grade of C or PLSC 488 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Criminal Justice. Must be enrolled in one of the following Classifications: Senior, Junior.

**Subject - Psychology (PSYC)**

**PSYC 1001 - Psychology**

3 Credits

Introduction to the scientific approach to understanding human behavior and mental processes. Topics may include human development, learning and memory, personality, social and environmental factors, biological aspects of behavior, the experience of emotion and psychological disorders. Offered fall and spring semesters.

Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking

**PSYC 2101 - Motivation and Emotion**

3 Credits

Examination of how motivational factors, including emotion, affect the behavior of human and non-human organisms. Theoretical and empirical evidence addressing the biological, behavioral and mental events that trigger and direct behavior will be covered. Offered alternate fall semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.

Course Attributes:
AS-SOCSCI - Social Science
Effective Comm Writing
Integration Across Disciplines

**PSYC 2151 - Development across the Lifespan**

3 Credits

Basic theories in human development from conception through old age using a biopsychosocial model;
contemporary research at each age level. Offered fall and spring semesters. May not be enrolled in one of the following Major fields of study: Psychology.

Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking

**PSYC 2161 - Child Psychology**  
*3 Credits*  
Survey of the basic theories and research relative to human growth and development from conception through late childhood with an emphasis on the physiological, cognitive, socioemotional and cultural changes associated with human life. Offered spring semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.

Course Attributes:
AS-SOCSCI - Social Science

**PSYC 2171 - Adolescent Psychology**  
*3 Credits*  
Survey of the basic theories and research relative to human growth and development from preadolescence through young adulthood with an emphasis on the physiological, cognitive, socioemotional and cultural changes associated with human life. Offered fall semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.

Course Attributes:
AS-SOCSCI - Social Science

**PSYC 2201 - Health Psychology**  
*3 Credits*  
Examination health using a bio-psycho-social model and investigation of the relation between psychology, health-promoting behaviors, wellness, sickness, and the health care system. Offered alternate spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.

Course Attributes:
AS-SOCSCI - Social Science
Integration Across Disciplines

**PSYC 2261 - Human Sexual Behavior**  
*3 Credits*  
Use of research literature in an attempt to provide an understanding of what is known (as well as what is not known) about the major facets of human sexual behavior. Offered spring semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.

Course Attributes:
AS-SOCSCI - Social Science

**PSYC 2301 - Introduction to Counseling**  
*3 Credits*  
Discusses the basic skills involved in the counseling relationship, including attending, client observation, paraphrasing, summarization, confrontation, and reflection of feeling; explores basic skills and emphasizes skill development as well as counseling theory. Offered fall semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science

**PSYC 2401 - Statistics for the Behavioral Sciences**
*3 Credits*
Provides an introduction to statistical methods in the behavioral sciences and stresses understanding when and why certain statistical procedures are used. Topics include descriptive and inferential statistics, including measures of central tendency and dispersion, correlation, hypothesis testing, t-tests, analysis of variance, and chi square. This course may be used to fulfill a math/stat distributional requirement. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Must be enrolled in one of the following Fields of Study: Psychology.
Course Attributes:
AS-SOCSCI - Social Science
Scientific and Quantitative Literacy

**PSYC 2901 - Special Topics in Psychology**
*3 Credits*
Coverage of special topics in psychology. This course may be repeated as topic changes. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

**PSYC 2921 - Topics in Psychology**
*3 Credits*
Coverage of topics in psychology. This course may be repeated as topic changes. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

**PSYC 3011 - Social Psychology**
*3 Credits*
The effects of social and cultural forces upon the individual. The nature and development of attitudes, languages, cognitive processes. Individual and group projects illustrative of the methodology of social psychology. Offered fall semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science

**PSYC 3111 - Psychology of Personality**
*3 Credits*
The major theories of personality from Freud to contemporary theoretical approaches. Offered alternate fall semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science
PSYC 3121 - Psychological Assessment
3 Credits
Psychological measurement and evaluation in the areas of intelligence tests, tests of separate abilities, and personality inventories. Experience will be gained in test administration, scoring and interpretation. Offered spring semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3151 - Learning and Behavior with Lab
4 Credits
The major theories and empirical issues related to common forms of learning, such as classical and instrumental conditioning. Current research in learning is covered on both the human and non-human animal level. Laboratory component involves application of learning principles to modify the behavior of organisms. Offered fall semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3201 - Psychology and the Law
3 Credits
A review of the role of the psychologist in civil commitment procedures, the insanity defense, patient's rights, the determination of competency and testifying as an expert witness. An examination of significant course cases involving psychology and the law, research in the areas of jury selection, eye witness testimony and psychologists' licensing procedures. Offered alternate fall semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3211 - Psychology of the Criminal Mind
3 Credits
Focus on forensic psychology utilizing criminal justice and psychological theoretical approaches. Specific attention is paid to the processes of identifying personality traits, behavioral tendencies, geographical location and demographic variables of an offender based on characteristics of a crime. Offered alternate fall semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3251 - Cognitive Psychology with Lab
4 Credits
An introduction to the complex system of mental abilities. Theoretical and empirical approaches to the role of pattern recognition, attention, memory, problem-solving and decision making in human thinking will be explored. Laboratory component involves participation in experiments designed to facilitate student understanding of cognition phenomena. Offered spring semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science
PSYC 3301 - Sensation and Perception with Lab
4 Credits
Biological and psychological mechanisms responsible for internalizing the external world. In-depth discussion of the relationship between physical and psychological events based on theoretical and empirical evidence. Laboratory component will use laboratory techniques to illustrate the biological and psychological mechanisms underlying sensation and perception. Offered alternate fall semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3351 - Physiological Psychology with Lab
4 Credits
Psychology as a biological science. Physiological events underlying behavior, including sensory, neural, and glandular involvement in such topics as motivation, emotion, and learning. Laboratory component involves dissections and experiments used to illustrate the role of biological processes in behavior. Offered spring semester. Prerequisite(s): (PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C) and (BIOL 1201 Minimum Grade of C or BIOL 121 Minimum Grade of C or BIOL 1311 Minimum Grade of C).
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3401 - Experimental Psychology with Lab
4 Credits
The logic of experimental research and the application of the methods of science to the study of behavior. Particular emphasis on framing empirically testable hypotheses, experimental design, and analysis of data. Extensive instruction in scientific communication and the APA Publications Manual. Laboratory component involves use of computer simulation and research experience to facilitate student understanding of the processes involved in empirical psychological investigations. Offered fall and spring semesters. Prerequisite(s): (PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C) and (PSYC 2401 Minimum Grade of C or STAT 142 Minimum Grade of C or STAT 156 Minimum Grade of C).
Course Attributes:
AS-SOCSCI - Social Science
Effective Comm Non-Writing
Scientific and Quantitative Literacy

PSYC 3901 - Special Topics in Psychology
3 Credits
Coverage of special topics in psychology. This course may be repeated as topic changes. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

PSYC 3921 - Topics in Psychology
3 Credits
Coverage of topics in psychology. This course may be repeated as topic changes. Offered fall and spring
semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.

Course Attributes:
AS-SOCSCI - Social Science

**PSYC 4201 - Abnormal Psychology**

*3 Credits*

The development of a scientific approach to abnormal behavior. A review of the psychological, sociological, and biological factors related to the development of abnormal behavior. A review of the research of, the causal factors related to, and the diagnosis and treatment of mental disorders and mental retardation. Offered spring semester. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C.

Course Attributes:
AS-SOCSCI - Social Science

**PSYC 4261 - Internship Practicum in Psychology**

*1 to 12 Credits*

A field experience in the area of psychology. Only 3 practicum credits may be applied to the major. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. This course may be repeated 1 time.

**PSYC 4271 - Research Practicum in Psychology**

*1 to 12 Credits*

A research experience in the field of psychology supervised by a faculty member. Only 3 research practicum credits may be applied to the major. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.

**PSYC 4281 - Teaching Practicum in Psychology**

*4 Credits*

A mentoring experience in conducting undergraduate psychology laboratories. Practicum students work with a supervising professor in preparation and presentation of instruction and laboratory exercises and providing feedback to students. Ethical, organizational and practical issues will be discussed. Only 3 practicum credits may be applied to the major. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. This course may be repeated 1 time.

Course Attributes:
AS-SOCSCI - Social Science

**PSYC 4351 - Psychopharmacology**

*3 Credits*

An advanced examination of pharmacological agents and their effects on neuronal function, with a particular emphasis on the alteration of behavioral states. Major drug classes, their pharmacological properties and their use to treat various psychological disorders will be covered. Offered alternate fall semesters. Prerequisite(s): (PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C) and (BIOL 1201 Minimum Grade of C or BIOL 121 Minimum Grade of C or BIOL 1311 Minimum Grade of C).

Course Attributes:
AS-SOCSCI - Social Science
Critical and Creative Thinking
Effective Comm Non-Writing
Scientific and Quantitative Literacy

**PSYC 4901 - Special Topics in Psychology**
*3 Credits*
Coverage of special topics in psychology. This course may be repeated as topic changes. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

**PSYC 4921 - Topics in Psychology**
*3 Credits*
Coverage of topics in psychology. This course may be repeated as topic changes. Offered fall and spring semesters. Prerequisite(s): PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C. Unlimited repeats permitted.
Course Attributes:
AS-SOCSCI - Social Science

**PSYC 4951 - Senior Capstone in Psychology I**
*1 Credit*
Use of developed skills in the field of psychology to prepare students for graduate studies in psychology or careers in psychology. Students will be exposed to the Psychology GRE subject test, graduate school interview process, preparation of a curriculum vitae, preparation of a personal statement, reviewing psychological journal articles, and preparation of literature review or experimental study proposal. Offered fall semester. Prerequisite(s): (PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C) and (PSYC 3401 Minimum Grade of C or PSYC 341 Minimum Grade of C). Must be enrolled in one of the following Classifications: Senior.

**PSYC 4961 - Senior Capstone in Psychology II**
*1 Credit*
Continuation of PSYC 4951. Offered spring semester. Prerequisite(s): (PSYC 1001 Minimum Grade of C or PSYC 100 Minimum Grade of C) and (PSYC 3401 Minimum Grade of C or PSYC 341 Minimum Grade of C) and (PSYC 4951 Minimum Grade of C or PSYC 495 Minimum Grade of C). Must be enrolled in one of the following Classifications: Senior.

**PSYC 4971 - Independent Study in Psychology**
*1 to 4 Credits*
Offered fall and spring semesters. This course may be repeated 1 time.

**Subject - Sociology (SOC)**

**SOC 1001 - Introduction to Sociology**
*3 Credits*
The basic phenomena and processes of social life: culture, socialization, deviance, social institutions (family, economy, education, religion, military), bureaucratization, collective behavior, social inequality, race, ethnicity, class, gender, and sexuality. Analysis of the interplay between the person and social groups. Offered fall and spring semesters.
Course Attributes:
Diversity-Human Interaction

**SOC 2301 - Sociology of Religion**

*3 Credits*

Survey of the sociological study of religion as a social institution within a social system. Trends and patterns of individual, group, and organizational religious behavior are assessed using critical and empirical analysis, sociological theories, ideas and concepts. Offered alternate spring semesters.

Course Attributes:
Integration Across Disciplines

**SOC 2401 - Sociology of the Family**

*3 Credits*

Historical, cross cultural, and analytical study of family with emphasis on ideology and the effects of social structures and agencies on family composition and roles. Offered spring semester. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

Course Attributes:
Critical and Creative Thinking

**SOC 2431 - Deviant Behavior**

*3 Credits*

Sociological perspectives on the processes of individual and group deviance. An examination of how deviant behavior is defined, how the definitions are maintained, and how the violators are processed. Theory and research regarding specific classes of deviants are explored, and current public policy issues concerning deviants are discussed. Offered alternate fall semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

**SOC 2501 - Cultural Anthropology**

*3 Credits*

The major concepts and principles of cultural anthropology, emphasizing the understanding of the total configuration and interrelationships of culture traits, complexes, and social relationships in a particular geographic environment and historical context. Offered fall and spring semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

Course Attributes:
Diversity-Human Interaction
Non Western Cultural

**SOC 2601 - Social Problems**

*3 Credits*

Sociological perspectives on contemporary problems and the process by which these issues come to be socially constructed as problems. Offered alternate spring semesters.

Course Attributes:
Informed Ethical Responses

**SOC 2611 - Criminology**

*3 Credits*

The nature and extent of crime, development of criminological theory, major forms of criminal behavior, and society's attempts at prevention and control of crime. The major perspectives, issues and diverse
concerns that characterize contemporary criminology are presented. Offered fall semester. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

**SOC 2631 - Victimology**
*3 Credits*
The history of victimology, patterns of victimization, the role of the victim in crime, the victim in the criminal justice system (including jury perceptions of victims), victim assistance programs, and victim/offender reconciliation programs. Offered alternate fall semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

**SOC 2901 - Special Topics**
*1 Credit*
Coverage of topics in sociology. Offered fall and spring semesters. Unlimited repeats permitted.

**SOC 3461 - Social Stratification**
*3 Credits*
The origins, institutionalization and change of class, status, prestige, power, and other forms of social inequality with attention to the effects of stratification on the individual. Offered alternate fall semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.
Course Attributes:
Diversity-Human Interaction

**SOC 3471 - Race, Class, and Gender**
*3 Credits*
Analysis of the structural interplay and social ramifications of race, social class, and gender. The course focuses on power relationships, intra and intergroup conflict, and minority relations. Offered alternate spring semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.
Course Attributes:
Diversity-Human Interaction

**SOC 3481 - Sociology of Health and Health Care**
*3 Credits*
This course introduces students to the social dimensions of health, illness, and health care. The sociology of health and health care, often referred to as medical sociology, examines a broad range of topics relevant to those in many fields of study. These topics include the social distribution of disease, social stress, health and illness behaviors, medical professions, the doctor-patient relationship, and health care systems. Offered alternate fall semesters.

**SOC 3491 - Sociology of Mental Health and Illness**
*3 Credits*
Sociological perspectives on the definition, causes, patterning, and responses to mental health and illness. Topics include sociological (versus psychological or biological) theories of mental health and illness, the stress process, and the differential distribution of mental health and illness by race/ethnicity, gender, socioeconomic status, age, and marital status. Also covers the labeling or social construction of mental illness, as well as how society and various social institutions respond to those in need of treatment. Offered alternate spring semesters.
SOC 3501 - Self and Identity
3 Credits
The theories of and research done on the self, self-concept, and identities in humans from both sociological and psychological perspectives. Offered alternate fall semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

SOC 3551 - Advanced Data Analysis
3 Credits
Multivariate statistical procedures, including measures of association for nominal and ordinal variables as well as correlation. Simple, multiple and logistic regression. Cleaning data, and construction of and evaluation of measurement scales. Involves the use of statistical software. Prerequisite(s): ISR 2541 Minimum Grade of C or ISR 254 Minimum Grade of C or PSYC 2401 Minimum Grade of C or STAT 142 Minimum Grade of C or STAT 156 Minimum Grade of C or STAT 1311 Minimum Grade of C.

SOC 3611 - Delinquency & Juvenile Justice
3 Credits
An analysis of competing theoretical approaches to the causes of delinquent behavior, and the study of the prevention, treatment, and control of delinquency. Procedures and major contemporary issues in Juvenile Justice are addressed. Offered alternate fall semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C.

SOC 3621 - Occupational Crime & Deviance
3 Credits
The various forms of criminal and deviant behavior that occur in the occupational context. A discussion of the natures, extent, consequences, and strategies to control this behavior. Major theoretical perspectives on occupational crime and deviance are considered. Topics covered include: white-collar crime, organized crime, employee theft, career criminality, and workplace violence. Offered alternate spring semesters.

SOC 3631 - Sociology of Substance Abuse
3 Credits

SOC 3901 - Special Topics in Sociology
1 Credit
Coverage of topics in sociology. Offered fall and spring semesters. Unlimited repeats permitted.

SOC 4461 - Classical Sociological Theory
3 Credits
Traces sociological theorizing from sociology's historical origins. Major theorists covered include Marx, Durkheim, Weber, Simmel, and Chicago School sociologists. Emphasis on building an understanding of the roots of contemporary social theory. Senior status. Offered fall semester. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing

**SOC 4471 - Contemporary Sociological Theory**
*3 Credits*
The major sociological theories developed since 1950. An examination of the critical debates in contemporary social theory. Senior status. Offered spring semester. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing

**SOC 4811 - Sociology Internship**
*1 to 12 Credits*
Supervised field placement which involves work experience related to sociology or criminal justice or work experience on a specified external research project. Only 3 internship hours may be applied to the major. Offered fall and spring semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
Requires Department Approval

**SOC 4821 - Research Practicum in Sociology**
*1 to 12 Credits*
A research experience in the field of sociology supervised by a faculty member. Only 3 research practicum credits may be applied to the major. Offered fall and spring semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C. This course is repeatable for a total of 3 hours.
Course Attributes:
Requires Department Approval

**SOC 4831 - Teaching Practicum in Sociology**
*1 to 12 Credits*
A mentoring experience in instruction of undergraduates. Practicum students work with a supervising professor in preparation and presentation of instruction and course exercises and providing feedback to students. Ethical, organizational, and practical issues will be discussed. Only 3 practicum credits may be applied to the major. Offered fall and spring semesters. Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C. This course is repeatable for a total of 3 hours.
Course Attributes:
Requires Department Approval

**SOC 4881 - Senior Capstone Research 1**
*2 Credits*
Development of research topic and/or question, literature review, and outline of research project directed by faculty advisor. Capstone Research does not count toward Sociology elective hours. Senior status, sociology primary major, and permission of advisor. Offered fall and spring semesters.
Prerequisite(s): SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C. Corequisite(s): SOC 4461. Must be enrolled in one of the following Classifications: Senior.
SOC 4891 - Senior Capstone Research 2  
3 Credits 
Research design, data collection, data analysis, and writing of the research paper directed by faculty advisor. Capstone Research does not count toward Sociology elective hours. Offered fall and spring semesters. Prerequisite(s): (SOC 4881 Minimum Grade of C or SOC 488 Minimum Grade of C) and (SOC 1001 Minimum Grade of C or SOC 105 Minimum Grade of C). Corequisite(s): SOC 4471. Must be enrolled in one of the following Classifications: Senior.

SOC 4981 - Independent Study in Sociology  
1 to 4 Credits  
Offered fall and spring semesters.  
Course Attributes: 
Requires Department Approval

Department of Technological Studies

Subject - Technology (TECH)

TECH 1001 - Technology and Society  
3 Credits 
An overview of the development and design of technical systems in society, their impact throughout history, and procedures for making choices of appropriate technology to apply in the future. Lab activities and visitations utilized to reinforce concepts. Offered fall semester.

TECH 1201 - Intro to Computer Aided Design  
3 Credits  
Graphic representation using the personal computer. Attention will be placed on the standards of the technical graphics field and the graphic illustration and visualization techniques as applied to CAD software. Develop proficient use of CAD software for solid modeling and orthographic projection, sections, auxiliary views, file conversion, and size description. Offered spring semester.

TECH 1301 - Materials Science  
3 Credits  
An investigation into major industrial materials and their properties using industry standard testing formulas and equipment. The conversion of raw materials via extraction, refining, and processing into consumer products. An emphasis on safety, metallurgy, nondestructive testing, destructive testing and material processing will be applied. Offered fall semester.

TECH 1401 - Intro to Information Systems  
3 Credits  
Fundamental computer literacy skills in Windows environment. Basic computer terminologies. Productivity software applications such as word processing, spreadsheets, database and presentation tools with an emphasis on organizing, accessing, managing and presenting data for personal and professional communication. Offered fall semester.
TECH 1421 - Web Design
3 Credits
The development of computing skills focusing on web site design. Site structure, site planning, multimedia authoring, and the use of computer peripherals. Developing web sites using XHTML, DHTML, CSS, and web authoring software applications. Designing web based computer graphics and publishing web sites to the WWW. Offered fall and spring semesters.

TECH 1601 - Fundamentals of Electronics
3 Credits
The fundamentals of alternating and direct current will be explored in the context of changing technological advances. Basic electrical circuits and electronic components will be studied and utilized in the laboratory. MATH 1401 or above required. Offered fall and spring semesters. Prerequisite(s): MATH 1401 Minimum Grade of C or MATH 1461 Minimum Grade of C or MATH 1611 Minimum Grade of C or MATH 1631 Minimum Grade of C or MATH 1661 Minimum Grade of C or MATH 1671 Minimum Grade of C or MATH 154 Minimum Grade of C or MATH 157 Minimum Grade of C or MATH 163 Minimum Grade of C or MATH 172 Minimum Grade of C or MATH 173 Minimum Grade of C or MATH 120 Minimum Grade of C.

TECH 1621 - Visual Basic
3 Credits
An introduction to computer programming and application development using Visual Basic. Computer lab activities and assignments emphasize the development of programs for various technology applications, including the use of graphics and integration with Windows-based programs.

TECH 1901 - Special Topics in Technology
1 to 3 Credits
May be repeated as the topic varies. Unlimited repeats permitted.

TECH 2211 - Construction Design
4 Credits
Pre-construction planning, scheduling, design, engineering and layout. Residential and commercial construction principles, print reading, architectural details, plot surveying and layout, scheduling, creation of architectural working drawings and introductory cost estimating using the latest software and technology available. Offered spring semester. Prerequisite(s): TECH 1201 Minimum Grade of C or TECH 120 Minimum Grade of C.

TECH 2231 - Product Design and Analysis
4 Credits
Technical sketching, product design processes and the components/variables of good design. Use of CAD solids modeling software to create part models and assemblies. Product designs will be designed and analyzed for manufacturability, performance, and potential for profitability for a company. Oral presentations, patent searches, and prototype development. Offered fall semester. Prerequisite(s): TECH 1201 Minimum Grade of C or TECH 120 Minimum Grade of C.

TECH 2301 - Materials and Processes
3 Credits
Materials and processes involved in machining and fabricating of consumer products. Machining
TECH 2311 - Custom Woodworking  
*3 Credits*  
Basic processes, tools, and materials employed in the production of custom, individually designed, and crafted wood projects. Offered summers. This course is repeatable for a total of 6 hours.

TECH 2401 - Computer Networking  
*3 Credits*  
Introduction to network terminologies, infrastructure (wired topologies), network functions and models of internet. Description of the OSI and TCP/IP layered models. Overview of applications and services of Application, Network, Data Link and Physical Layers. Simulation of LAN topology, configuration of routers and switches, implementation of cable selection and IP addressing schemes. Offered fall and spring semesters.

TECH 2501 - Construction Materials & Methods  
*4 Credits*  
Basic concepts of construction techniques used today; including the methods and materials involved in framing, enclosing, and finishing residential and light commercial buildings. Financing, contracting, procuring, supervising, site-operation, foundation, structural elements, utilities, landscaping and personnel associated with construction activities. Offered fall semester.

TECH 2701 - Fluid and Mechanical Systems  
*3 Credits*  
Concepts of fluid power transmission, mechanical applications, and its control. Methods of maintaining, troubleshooting, and repairing energy conversion and transmission devices. Hydraulic and pneumatic power concepts, components, and their symbols. Control techniques experienced with hardware, and simulated with software based PLC ladder logic that is used in fluid and mechanical systems. Offered spring semester.

TECH 2901 - Special Topics  
*1 to 3 Credits*  
May be repeated as the topic varies. Unlimited repeats permitted.

TECH 3211 - Digital Manufacturing  
*3 Credits*  
Design of mechanical parts and products for manufacturing using 3D CAD solid modeling. Overview of digital manufacturing technologies, and product data and product lifecycle management systems, including Internet applications. Introduction to computer simulation for analysis of assembly processes and ergonomic improvements. Offered fall semester. Prerequisite(s): TECH 2231 Minimum Grade of C or TECH 223 Minimum Grade of C.

TECH 3221 - Manufacturing Simulation  
*3 Credits*  
Application of discrete event computer simulation software for analysis of manufacturing operations and processes. Specific applications include robotics, factory layouts, and product flows. Manufacturing
Simulation team project with a local industrial company. Offered fall semester. Prerequisite(s): TECH 3211 Minimum Grade of C or TECH 321 Minimum Grade of C.

**TECH 3251 - Construction Specifications and Methods**
3 Credits
This course is designed to provide knowledge of construction documents and contracts as they relate to a residential and commercial construction project. The student will understand the documentation process from pre design to post design phases of construction through the interpretation of a set of construction documents including contracts, specifications in CSI master format, working drawings, regulatory codes, and any sustainability concepts that apply. Prerequisite(s): TECH 2501 and TECH 2211.

**TECH 3411 - Wide Area Networking**
3 Credits
The equipment and procedures for selecting hardware and configuring networking equipment and control software for network communication. Overview of WAN protocols, routing protocols, network management, and physical connections. Offered spring semester. Prerequisite(s): TECH 2401 Minimum Grade of C or TECH 240 Minimum Grade of C.

**TECH 3421 - Database Management and Applications**
3 Credits
Comprehensive introduction to database concepts, design and applications. Database terminologies, relational database, database models, data normalization, and Structured Query Language (SQL). Constructing and maintaining of databases and objects in databases. Implementation of data sharing in applications. Offered fall and spring semesters.

**TECH 3461 - Digital Photography**
3 Credits
Techniques of digital photographic composition, camera types, uses and accessories, photographic optics, Photoshop software applications, special effects, image formats, media types, equipment and accessory use, laboratory methods, materials for the collection and manipulation of digital images, and methods of processing. Reference to, and experiences of chemical photography and the shift to digital photographic methods. Offered fall and spring semesters.

Course Attributes:
Informed Responses-Aesthetics

**TECH 3511 - Applications of Soils and Foundations**
3 Credits
Principles of soil mechanics as it relates to general construction and foundation systems including footings, piles, caissons, cofferdams, and other substances. Includes applications with properties of soils, soil exploration, compaction, water in soil, consolidation and settlement, soil strength, foundation design, and slope stability. Offered spring semester. Prerequisite(s): TECH 2501 Minimum Grade of C or TECH 350 Minimum Grade of C.

**TECH 3611 - Applied Controls 1**
4 Credits
Combinational digital logic and logic design will lay down a framework from which programmable logic controllers are presented. The concepts of inputs, outputs, relay logic and ladder logic will be addressed. Industrial robots will also be introduced and on-line programming will include tasks such as pick and
place, finish application, and robot integration. Offered fall semester. Prerequisite(s): TECH 1601 Minimum Grade of C or TECH 261 Minimum Grade of C.

**TECH 3631 - Applied Controls 2**
3 Credits
A further investigation into automation systems dealing with automated manufacturing practices in CNC machines, PLCs, vision systems, RFID, and industrial robotics. Activities include such things as automated handling and processing of materials using conveyors, positioners/work-holders, industrial robots, and CNC machines. Computer Integrated Manufacturing techniques including technologies such as sensing, vision, automated product identification, and storage and retrieval. Offered spring semester. Prerequisite(s): TECH 3611 Minimum Grade of C or TECH 332 Minimum Grade of C.

**TECH 3801 - Professional Practice in Technological Studies**
1 Credit
Study and professional experience in a technological studies related occupation in an industrial enterprise, consulting firm, or governmental agency. A midterm and final report on the assignment and employer's evaluation are required. Minimum 2.50 accumulative GPA. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore. This course is repeatable for a total of 4 hours.

**TECH 3901 - Special Topics**
1 to 3 Credits
May be repeated as the topic varies. Unlimited repeats permitted.

**TECH 4111 - Product Manufacturing**
4 Credits
Application of operations management principles and practices in the manufacture of various types of products into consumer products. Creation, management, and dissolution of a simulated company to produce and sell a tangible product. Emphasis on process design, material handling, organization of work, division of labor, distribution and sales practices relating to mass production industries. Offered fall semester. Prerequisite(s): (TECH 2301 Minimum Grade of C and TECH 2231 Minimum Grade of C) or (TECH 230 Minimum Grade of C and TECH 223 Minimum Grade of C) or (TECH 2301 Minimum Grade of C and TECH 223 Minimum Grade of C) or (TECH 2231 Minimum Grade of C and TECH 230 Minimum Grade of C) or (BIZ 233 Minimum Grade of C or BIZ 2331 Minimum Grade of C or MGMT 333 Minimum Grade of C).

**TECH 4121 - Manufacturing Management**
4 Credits
Methods applied in mass production industries. Quality topics include Statistical Process Control, TQM, Lean Mfg. and Six Sigma, ISO/QS/TS quality systems, and automatic identification and data capture. Work measurement topics include methods engineering, traditional time studies, predetermined time measurement and work sampling. Offered spring semester. Prerequisite(s): TECH 4111 Minimum Grade of C or TECH 232 Minimum Grade of C or BIZ 233 Minimum Grade of C or BIZ 2331 Minimum Grade of C or MGMT 333 Minimum Grade of C.

**TECH 4341 - Advanced Robotics 1**
2 Credits
The first half of a two course capstone sequence. An advanced investigation of robotics and automated equipment. Topics of investigation will include robot and automated system design, construction,
programming and troubleshooting in a team based environment. Offered spring semester. Prerequisite(s): TECH 3611 Minimum Grade of C or TECH 332 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior, Junior.

TECH 4351 - Advanced Robotics 2
2 Credits
The second half of a two course capstone sequence. An advanced investigation of robotics and automated equipment. Topics of investigation will include robot and automated system design, construction, programming and troubleshooting in a team based environment. Offered spring semester. Prerequisite(s): TECH 4341 Minimum Grade of C.

TECH 4521 - Construction Estimating and Scheduling
3 Credits
Methods and techniques in construction estimating, scheduling, and bidding to include Quantitativeness take-off, labor costs, material costs, overhead, profits, and bidding using industry standard software packages. Includes extended practice in scheduling and submittal activities from pre-construction to completion. Practical applications emphasized. Offered fall semester. Prerequisite(s): TECH 3511 Minimum Grade of C or TECH 351 Minimum Grade of C.

TECH 4621 - Programming in Embedded Systems
4 Credits
Exploration of programming applications in an embedded environment using various microcontroller functions including I/O, memory, and interface techniques. Offered fall semester. Prerequisite(s): TECH 3611 Minimum Grade of C or TECH 332 Minimum Grade of C.

TECH 4671 - Robotic Systems
3 Credits
An introduction to digitally-controlled robotic manipulators. Topics include coordinate frames, coordinate frame transformations, forward and inverse kinematic solutions, and control of robot manipulators. Offered spring semester. Prerequisite(s): TECH 3651 Minimum Grade of C.

TECH 4841 - Internship
6 to 12 Credits
A supervised program of experiences in production practices, management techniques, research applications, and other activities representative in modern industry. Selection is based upon proper application, screening, and acceptance by an appropriate industry. Six hours of credit for one summer term or 12 hours for one full-time semester. A maximum of 12 hours to count toward graduation. Minimum 2.50 accumulative GPA. Must be enrolled in one of the following Classifications: Senior, Junior.

TECH 4901 - Special Topics
1 to 3 Credits
May be repeated as the topic varies. Unlimited repeats permitted.

TECH 4951 - Senior Project
1 Credit
Individual research project expanding upon and applying content learned in a Technological Studies major. Course must be repeated 2 times to fulfill the senior capstone requirement unless the student
participates in a specific major capstone requirement in one of the majors in the department. This course is repeatable for a total of 2 hours.

**TECH 4961 - Tour of Industries**  
*1 Credit*  
Participation in the annual department sponsored comprehensive tour of industries including the submission of a written technical report pertaining to one or more facets of the experience. Offered spring semester. This course is repeatable for a total of 4 hours.

**TECH 4971 - Independent Study**  
*1 to 3 Credits*  
Individual research project of content not normally included in regular coursework of the department. May be repeated as the topic varies. Unlimited repeats permitted.

**TECH 4991 - Senior Capstone**  
*1 Credit*  
Report, presentation, and culmination of the senior capstone experience. Presentation of the project management planning, researching, developing, fabricating, assembling, testing, and evaluating processes completed in the senior capstone activity. Offered spring semester. Prerequisite(s): TECH 4841 Minimum Grade of C or TECH 3801 Minimum Grade of C or TECH 435 Minimum Grade of C or TECH 484 Minimum Grade of C or TECH 495 Minimum Grade of C or EDUC 4721 Minimum Grade of C or TECH 4351 Minimum Grade of C or TECH 380 Minimum Grade of C.
The James F. Dicke College of Business Administration Courses

Subject - General Business (ABUS)

ABUS 1901 - Special Topics in Business
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ABUS 2011 - Personal Computer Applications for Business
3 Credits
Business applications for microcomputers. Introductory level use of software for word processing, file management, spreadsheets, and graphics. Offered fall and spring semesters.
Course Attributes:
Effective Comm Non-Writing

ABUS 2221 - Principles of Entrepreneurship
3 Credits
Entrepreneurship and new venture creation. Offered fall and spring semesters.
Course Attributes:
Diversity-Human Interaction
Effective Comm Non-Writing
Informed Ethical Responses

ABUS 2901 - Special Topics in Business
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ABUS 3051 - Basics of Expert Testimony
3 Credits
Legal aspects of the forensic engagement, including rules of evidence and procedure. Offered fall semester.

ABUS 3331 - Entrepreneurial Finance
3 Credits
Basic financial and accounting concepts; financial planning; obtaining finance; use and analysis of financial statements; cash flow management and budgeting in a new venture or entrepreneurial organization. Prerequisite(s): ABUS 2221. Must be enrolled in one of the following Minor fields of study: Entrepreneurship.
Course Attributes:
Critical and Creative Thinking
Informed Ethical Responses
ABUS 3901 - Special Topics in Business
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ABUS 4441 - New Venture Creation
3 Credits
Capstone course for the Entrepreneurship minor. Develop a business plan to support the launch of a new business venture. Offered fall and spring semesters. Prerequisite(s): ABUS 2221 or ABUS 222.
Course Attributes:
Effective Comm Non-Writing
Scientific and Quantitative Literacy

ABUS 4901 - Special Topics in Business
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

Subject - Accounting (ACCT)

ACCT 1901 - Special Topics in Accounting
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ACCT 2901 - Special Topics in Accounting
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ACCT 3011 - Intermediate Financial Accounting 1
3 Credits
Financial accounting functions and basic theory. Preparation of financial statements. Offered fall semester. Prerequisite(s): BIZ 2121 or BIZ 212 or ACCT 212.

ACCT 3021 - Intermediate Financial Accounting 2
3 Credits
Preparation of financial statements, working capital, operational assets, long-term liabilities, leases and owners equity. Offered spring semester. Prerequisite(s): ACCT 3011 or ACCT 301.

ACCT 3061 - Business Valuation
3 Credits
Assessment of organizational health and value via business strategy analysis, accounting analysis, financial analysis, and prospective analysis. Case studies and financial statement analysis applications. Offered fall semester. Prerequisite(s): (BIZ 2121 or BIZ 212) and (BIZ 2031 or BIZ 203 or IBEC 203).

ACCT 3071 - Fraud Examination
3 Credits
Survey of the types of occupational fraud with the goal of understanding how and why people commit fraud, how fraudulent conduct might be deterred, and how allegations of fraud should be investigated and resolved. Offered spring semester. Prerequisite(s): BIZ 2121 or BIZ 212 or ACCT 212.
ACCT 3141 - Intermediate Managerial Accounting 1
3 Credits

ACCT 3151 - Intermediate Managerial Accounting 2
3 Credits

ACCT 3871 - Taxation 1
3 Credits
Tax concepts in the taxation of individuals and entities. The role of taxation in business decisions, how to conduct basic tax research, tax planning, and professional standards and ethics. Interrelationships and differences between financial and tax accounting. Offered spring semester. Prerequisite(s): BIZ 2121 or BIZ 212 or ACCT 212.

ACCT 3901 - Special Topics in Accounting
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

ACCT 4031 - Auditing 1
3 Credits
Auditor's professional ethics and legal liability. Business processes and internal control structure, including current AIS topics. Auditing procedures and practices relating to the independent verification of financial records, including assessment of the internal control system, audit evidence, issues of materiality and risk, and audit reports. Offered fall semester. Prerequisite(s): BIZ 2121.

ACCT 4041 - Auditing 2
3 Credits
Continuation of ACCT 4031, including statistical sampling in auditing, computer technology in auditing, auditor's responsibility for detecting fraud, and current issues and problems in auditing. Offered spring semester. Prerequisite(s): ACCT 4031 or ACCT 403.

ACCT 4351 - International Financial Accounting
3 Credits
Guiding principles behind international financial reporting standards (IFRS): commonalities, substantial divergences between US GAAP and IFRS. Financial Accounting from a multinational viewpoint involving foreign currency transactions and translation of financial statements denominated in a foreign currency. Also listed as IBEC 4351. Offered spring semester. Prerequisite(s): ACCT 3021 or ACCT 302.

ACCT 4901 - Special Topics in Accounting
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
ACCT 4991 - Independent Study in Accounting
1 to 3 Credits
An in-depth exploration of a subject of special interest. Can be repeated as topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

Subject - Business Planning (BIZ)

BIZ 0001 - Biz Lab 1
1 Credit
Familiarization with the college, requirements of majors and general education, planning sequences of courses, university catalog. Introduce the Student Leadership Challenge as a vehicle for improved student leadership in the college. Activities include college required program assessment. Offered fall semester. Corequisite(s): BIZ 1001. Must be enrolled in one of the following Colleges: Business Administration.

BIZ 1001 - Free Enterprise and Business Planning
3 Credits
Integrative business survey course designed to introduce students to the free enterprise system via a business planning model. An overview of the key functions of business including accounting, finance, management, marketing, operations and human resources and career opportunities pertaining to each. Business majors only. Offered fall semester. Corequisite(s): BIZ 0001. Must be enrolled in one of the following Colleges: Business Administration.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing
Integration Across Disciplines

BIZ 1201 - Ethics for Business Planning
3 Credits
Systematic examination of alternative ethical decision making approaches necessary to business planning. Provides a critical thinking framework for analysis and discussion of alternative ethical decision making approaches. Case analysis provides experience in the implementation of the ethical decision making framework. Formerly ABUS 120. Offered spring semester. Must be enrolled in one of the following Colleges: Business Administration.
Course Attributes:
Informed Ethical Responses

BIZ 2021 - Microeconomic Foundations for Business Planning
3 Credits
Economics of the individual firm in the free market economy; competitive and monopolistic markets with a business planning focus. How prices ration goods and services to users, and the principles on which the total product is divided among the owners of the factors of production. Offered fall semester.
Course Attributes:
AS-SOCSCI - Social Science
Integration Across Disciplines

**BIZ 2031 - Macroeconomic Foundations for Business Planning**  
*3 Credits*  
Forces that determine the behavior of national income and output, unemployment, and the price level with a business planning focus. Rudiments of money and banking, monetary and fiscal policy, growth and development. The dynamics between macroeconomy and business. Formerly IBEC 203. Offered spring semester.  
Course Attributes:  
AS-SOCSCI - Social Science  
Informed Ethical Responses

**BIZ 2111 - Financial Accounting Foundations for Business Planning**  
*3 Credits*  
Analysis and recording of business transactions and accumulating data on the results of economic activity to support business planning. Concepts and issues of financial reporting for business entities, including basic theory of the report writing model. Basic financial statement analysis. Formerly ACCT 211. Offered fall semester. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**BIZ 2121 - Managerial Accounting Tools for Business Planning**  
*3 Credits*  
Uses of accounting data to support business planning and management decision-making and control of business operations, determination of costs and cost behavior. Formerly ACCT 212. Offered spring semester. Prerequisite(s): BIZ 2111 Minimum Grade of C or BIZ 211 Minimum Grade of C or ACCT 211 Minimum Grade of C. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**BIZ 2131 - Legal Environment for Business Planning**  
*3 Credits*  
Legal environment concepts and contract, agency, employment, business organization, property, and consumer law applied to business planning. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**BIZ 2331 - Behavioral Management for Business Planning**  
*3 Credits*  
Modern management concepts with emphasis on the human factors involved in a successful business plan. Historical foundations, individual, group, and organizational processes including current management issues. Formerly MGMT 333. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**BIZ 2401 - Information Systems for Business Planning**  
*3 Credits*  
The development, design and implementation of information systems for business planning. Terminology, concepts, and trends in computer hardware and software. Formerly ABUS 240. Offered fall and spring semesters.
**BIZ 2511 - Marketing for Business Planning**  
*3 Credits*  
Principles of marketing strategy in the business planning process. Product design and planning, promotional activities, pricing strategy, aspects of physical distribution, retailing, market research, buyer behavior, ethics and global marketing. Formerly MRKT 351. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**BIZ 2801 - Career Planning and Preparedness**  
*3 Credits*  
Career development from résumé writing to negotiating job offers. Development of written, electronic, and oral communication skills in employment search. Critiques of résumés, cover letters, and interview styles. Career and industry exercises. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Business Administration. Must be enrolled in one of the following Departments: Business Administration. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**BIZ 3001 - Global Environment for Business Planning**  
*3 Credits*  
Functional and environmental features of global business in the business planning process. Analysis of economic, cultural, legal and political forces affecting global business operations. Examination of organizational responses to the challenges of global business organizations. Formerly IBEC 300. Offered fall and spring semesters. Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and STAT 3001.  
Course Attributes:  
- Diversity-Human Interaction  
- Effective Comm Writing  
- Informed Ethical Responses

**BIZ 3621 - Financial Analysis for Business Planning**  
*3 Credits*  
The role of financial analysis within the business planning process. Time value of money and risk/return concepts serve as the foundation for valuing (analyzing) the firm's sources of capital (debt and equity) and effectively allocating these funds through the capital budgeting process. Formerly FINC 362. Offered fall and spring semesters. Prerequisite(s): (BIZ 2111 or BIZ 211 or ACCT 211) and STAT 2561.

**BIZ 3641 - Quantitative Management for Business Planning**  
*3 Credits*  
Major issues and analytical problem solving techniques in the field of operations management that are used to successfully control the transformation of resources into products and services as established in a business plan. Formerly MGMT 364. Offered fall and spring semesters. Prerequisite(s): (BIZ 2331 or BIZ 233 or MGMT 333) and STAT 2561. Must be enrolled in one of the following Classifications: Senior, Junior.

**BIZ 3991 - Biz Lab 2**  
*1 Credit*  
Preparation for senior capstone. Activities cultivate synthesis of BIZ core curriculum courses, initial selection of senior capstone project, and college required program assessment activities. Must be enrolled in one of the following Colleges: Business Administration.
BIZ 4851 - Integrated Business Planning 1
2 Credits
Capstone course integrates tools and concepts from Business core courses. Develops strategic thinking and analysis for business planning. Case study is emphasized. Taken concurrently with BIZ 4852. Offered fall semester. Prerequisite(s): (BIZ 1001 or BIZ 100) and (BIZ 1201 or BIZ 120) and (BIZ 2021 or BIZ 202 or IBEC 202) and (BIZ 2031 or BIZ 203 or IBEC 203) and (BIZ 2111 or BIZ 211 or ACCT 211) and (BIZ 2121 or BIZ 212) and (BIZ 2331 or BIZ 233 or MGMT 333) and (BIZ 2401 or BIZ 240) and (BIZ 2511 or BIZ 251 or MRKT 351) and (BIZ 2801 or BIZ 280) and (BIZ 3001 or BIZ 300 or IBEC 300) and (BIZ 2131 or BIZ 312 or ABUS 312) and (BIZ 3621 or BIZ 362 or FINC 362) and (BIZ 3641 or BIZ 364 or MRKT 364 Minimum Grade of Corequisite(s): BIZ 4852. Must be enrolled in one of the following Fields of Study: Accounting, Finance, International Business & Econ, Management, Marketing, Pharmaceutical Business. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing

BIZ 4852 - Business Planning Lab
1 Credit
Lab for BIZ 4851. Taken concurrently with BIZ 4851. Corequisite(s): BIZ 4851.
Course Attributes:
Integration Across Disciplines

BIZ 4861 - Integrated Business Planning 2
1 Credit
Continuation of BIZ 4851. Completion of a strategic business plan for an applied business case. Offered spring semester. Prerequisite(s): BIZ 4851 or BIZ 485 or MGMT 485. Must be enrolled in one of the following Fields of Study: Accounting, Finance, International Business & Econ, Management, Marketing, Pharmaceutical Business. Must be enrolled in one of the following Classifications: Senior.
Course Attributes:
Integration Across Disciplines

BIZ 4911 - Internship in Accounting
1 to 15 Credits
Field experience in accounting. Can be repeated for a maximum of 16 credit hours. Up to 4 hours can be used to satisfy the accounting major requirement. Additional hours can be used as general elective hours and cannot be used to satisfy either accounting or business elective requirements. Consult advisor. Formerly ACCT 427. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Accounting. This course is repeatable for a total of 15 hours.

BIZ 4921 - Internship in Finance
1 to 15 Credits
Field experience in Finance. Can be repeated for a maximum of 16 credit hours. Up to 4 hours can be used to satisfy the finance major requirement. Additional hours can be used as general elective hours and cannot be used to satisfy either finance or business elective requirements. Consult advisor. Formerly FINC 421. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Finance. This course is repeatable for a total of 15 hours.
**BIZ 4931 - Internship in International Business and Economics**  
*1 to 15 Credits*  
Field experience in international business and economics. Can be repeated for a maximum of 16 credit hours. Up to 4 hours can be used to satisfy the international business and economics major requirement. Additional hours can be used as general elective hours and cannot be used to satisfy either international business and economics or business elective requirements. Open only to international business and economics majors. Consult advisor. Formerly IBEC 426. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: International Business & Econ. This course is repeatable for a total of 15 hours.

**BIZ 4941 - Internship in Management**  
*1 to 15 Credits*  
Field experience in Management. Can be repeated for a maximum of 16 credit hours. Up to 4 hours can be used to satisfy the management major requirement. Additional hours can be used as general elective hours and cannot be used to satisfy either management or business elective requirements. Consult advisor. Formerly MGMT 425. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Management. This course is repeatable for a total of 15 hours.

**BIZ 4951 - Internship in Marketing**  
*1 to 15 Credits*  
Field experience in marketing. Can be repeated for a maximum of 16 credit hours. Up to 4 hours can be used to satisfy the marketing major requirement. Additional hours can be used as general elective hours and cannot be used to satisfy either marketing or business elective requirements. Consult advisor. Formerly MRKT 420. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Marketing. This course is repeatable for a total of 15 hours.

**BIZ 4961 - Internship in Pharmaceutical Business**  
*1 to 15 Credits*  
Field experience in pharmaceutical business. Can be repeated for a maximum of 16 credit hours. Up to 4 hours can be used to satisfy the pharmaceutical business major requirement. Additional hours can be used as general elective hours and cannot be used to satisfy either pharmaceutical business or business elective requirements. Consult advisor. Formerly PHBU 495. Offered fall and spring semesters. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business. This course is repeatable for a total of 15 hours.

**Subject - Forensic Accounting and Auditing (FAAS)**

**FAAS 5101 - Professional Ethics and Sarbanes Oxley Compliance**  
*3 Credits*  
Ethical reasoning, integrity, objectivity, independence and other core values as defined by the American Institute of Certified Public Accountants are discussed. A discussion of the provisions of the Sarbanes-Oxley Act provides the students with an appreciation of the legal constraints that result from lapses in ethical reasoning, integrity and objectivity in the accounting profession. Also listed as TAX 5101. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

**FAAS 5201 - Corporate Governance**  
*3 Credits*
The structured system of policies and processes established and maintained by the board of directors to oversee an organization's strategic activities, accountability and openness in conducting its activities for the long-term. Focus on board size, structure, membership, member nomination, election and tenure; committee structure and the nature, composition and duties of the committees; rights, responsibilities and relationship of directors, management, and shareholders; policies and procedures related to accounting, auditing, executive compensations and financial reporting. Also listed as TAX 5201. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

**FAAS 5341 - Fraud Examination**  
*3 Credits*  
Survey of the types of occupational fraud with the goal of understanding how and why people commit fraud, how fraudulent conduct might be deterred, and how allegations of fraud should be investigated and resolved. Also listed as ACCT 3071. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

**FAAS 5381 - Information Technology Auditing and Risk Management**  
*3 Credits*  
This course covers management's role in controlling information technology and addressing the major risks related to technology. Topics include information security, contingency planning, desktop computer controls, systems development controls, computer center operation controls, assurance of information related to on-line, client-server, web-based, internet and other advanced computer systems. Students will learn approaches to evaluating and addressing technology risk throughout the organization from the perspective of internal and external audit in addition to the view of every end user. Topics included in the class will include coverage of all areas to prepare students to take the Certified Information Systems Auditor (CISA) examination. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

**FAAS 5421 - Internal Auditing**  
*3 Credits*  
The course will cover internal audit from a broad perspective that includes information technology, business processes, and accounting systems. Topics include internal auditing standards, risk assessment, governance, ethics, audit techniques, and emerging issues. The course covers the design of business processes and the implementation of key control concepts and will use a case study approach that addresses tactical, strategic, systems, and operational areas. Improvement in effectiveness and efficiency will be covered in the areas of operations, finance and technology. This course's content follows the recommended curriculum of the Institute of Internal Auditors' Internal Auditing Educational Partnership program. Topics included in the class will assist students in preparing to take the Certified Internal Auditor examination. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

**FAAS 5601 - Business Valuation**  
*3 Credits*  
Assessment of organizational health and value via business strategy, accounting, financial, and prospective analysis. Calculation of values using the income and market approaches. Selection of appropriate standard of value. Financial statement adjustments and calculation of premiums, discounts, and capitalization rates. Use of research and database resources. The curriculum of this course follows recommendations set forth by the National Association of Certified Valuation Analysts. Students passing
the final examination in this course will earn 16 credit hours toward the training requirement necessary to sit for the NACVAs Accredited Valuation Analyst (AVA) certification examination. Ohio Northern University is an educational partner with the NACVA. Also listed as TAX 5601. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

FAAS 5701 - Basics of Expert Testimony
3 Credits
Legal aspects of the forensic engagement, including rules of evidence and procedure. Also listed as TAX 5701. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

FAAS 5801 - Internship in Forensic Accounting and Auditing
1 to 15 Credits
Offered fall and spring semesters. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

FAAS 5841 - Computer Forensics and Investigation
3 Credits
This course introduces students to the techniques and tools of computer forensics investigations. Students will receive step-by-step explanations on how to use the most popular forensic tools. The course maps to the objectives of the International Association of Computer Investigative Specialists (IACIS) certificate, and includes coverage of the latest technology including PDAs, cell phones, and thumb drives. Many hands-on activities are included, which allow students to practice skills as they are learned. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

FAAS 5881 - Advanced Topics in Auditing
3 Credits
This is a seminar course which covers current issues in auditing. Content varies each year. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

Subject - Finance (FINC)

FINC 1101 - Personal Finance
3 Credits
Personal and family financial planning with an emphasis on financial recordkeeping, budgeting, tax planning, consumer credit, housing, insurance, investments and retirement and estate planning. Offered fall and spring semesters.

FINC 1901 - Special Topics in Finance
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

FINC 2901 - Special Topics in Finance
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
**FINC 3651 - Introduction to Health Care Systems Finance**  
*3 Credits*  
The course introduces basic concepts, principles, and practices associated with the financial aspects of the U.S. health care delivery system. Offered fall semester. Prerequisite(s): (BIZ 2021 or BIZ 202 or IBEC 202) and (BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C). May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**FINC 3681 - Working Capital Management**  
*3 Credits*  
Planning for and management of short term funds within the firm. Topics include cash management, short term investments, receivables management, and short term borrowings. Globalization of financial services delivery, and international cash management and foreign exchange risk emphasized. Techniques used to manage short term surplus funds and hedge for short term foreign exchange risk exposures discussed. Offered spring semester. Prerequisite(s): BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C.

**FINC 3691 - Intermediate Financial Management**  
*3 Credits*  
Advanced concepts and methods employed in financial management. Topics include financial analysis and planning, working capital management, risk analysis and valuation of long-term investments, and capital structure analysis. Offered fall semester.

**FINC 3901 - Special Topics in Finance**  
*1 to 3 Credits*  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

**FINC 4601 - Financial Markets and Institutions**  
*3 Credits*  
Policies and decisions regarding asset, liability, and capital management of a variety of financial institutions such as banks, insurance companies, pension funds, mutual funds and others within the legal, competitive and economic environment. Offered spring semester. Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and (BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C).

**FINC 4611 - Investments**  
*3 Credits*  
The risk-return trade off and distinctive characteristics of different vehicles of financial investment including equities; debt and derivatives; portfolio management; the functioning and regulation of securities markets; the operation of mutual funds and other investment companies. The Efficient Markets Hypothesis receives special attention. Foundations for corporate as well as personal investment decisions. Offered fall and spring semesters. Prerequisite(s): BIZ 3621 Minimum Grade of C or FINC 362 Minimum Grade of C or BIZ 362 Minimum Grade of C.

**FINC 4621 - Insurance**  
*3 Credits*  
Principles of personal risk management and insurance. Topics include property and liability insurance, life and health insurance, employee benefits, and social security. Discussion of the functional and
financial aspects of insurers. Offered spring semester. Prerequisite(s): BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C.

**FINC 4671 - International Finance**  
**3 Credits**  
The unique financial challenges and opportunities faced by a multinational enterprise. Hedging as a pivotal tool of exchange rate risk management; the long-term and short-term financing opportunities available to a multinational enterprise; international cash management; and multinational capital budgeting. Also listed as IBEC 4671. Offered spring semester. Prerequisite(s): (BIZ 3001 or BIZ 300 or IBEC 300) and (BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C).

**FINC 4901 - Special Topics in Finance**  
**1 to 3 Credits**  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

**FINC 5001 - Independent Study in Finance**  
**1 to 3 Credits**  
An in-depth exploration of a subject of special interest. Can be repeated as topic varies. Offered fall and spring semesters. Unlimited repeats permitted.  
Course Attributes:  
Requires Department Approval

**Subject - International Business/Economics (IBEC)**

**IBEC 1901 - Special Topics in International Business and Economics**  
**1 to 3 Credits**  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

**IBEC 2901 - Special Topics in International Business and Economics**  
**1 to 3 Credits**  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

**IBEC 3521 - Money and Banking**  
**3 Credits**  
Theories of money and credit; commercial banking practices; reserve banking; monetary and banking laws; money market; money and credit in the world economy. (Discipline: Economics.) Offered fall semester. Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and (BIZ 2021 or BIZ 202 or IBEC 202).

**IBEC 3661 - Pharmaceutical Economics**  
**3 Credits**  
Economic analysis of the pharmaceutical industry. Cost and benefit analysis of industry choices; drug therapy costs and health care outcomes; market structure analysis; patients and trademarks; and government policy impacts. (Discipline: Economics.) Also listed as PHBU 3661. Offered fall semester. Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and (BIZ 2021 or BIZ 202 or IBEC 202). May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.
IBEC 3831 - Managerial Economics
3 Credits
Application of economic principles to managerial concerns. Use of interdisciplinary Quantitativeitative methods such as optimization analysis, game theory, statistics, and forecasting to solve business problems and predict managerial responses to changes in the business environment. Also listed as PHBU 3831. Prerequisite(s): BIZ 2021 or BIZ 202 or IBEC 202. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

IBEC 3841 - Intermediate Macroeconomic Theory
3 Credits
The principles, measurement, analysis, and control of aggregate economic activity; the role of consumption, investment, and saving in achieving full employment output, economic growth and price stability. Offered alternate years. (Discipline: Economics.) Prerequisite(s): BIZ 2031 or BIZ 203 or IBEC 203.

IBEC 3861 - Development Economics
3 Credits
Special problems faced by less developed countries and the economic mechanisms that effect living standards. Topics include population growth, the demographic transition, savings and capital accumulation, education and human capital, health and human capital, institutions and the development process, the role of history and multiple equilibria, the role of expectations and multiple equilibria, and economic integration. Prerequisite(s): BIZ 2021 or BIZ 2031.

IBEC 3871 - Exporting
3 Credits
Tools, mechanics, opportunities, key success factors, unique challenges of exporting successfully: global market, industry and product assessment, export controls, export intermediaries and distribution, export pricing and terms of sale including INCO terms, documentation requirements, shipping terminology, export financing and credit, risk sharing, modes of entry, government export support programs. Regional and specific industry emphases. Presented in applied fashion using industry level export documentation/planning software, field trip, speakers, and an experiential project. Offered spring semester. Prerequisite(s): BIZ 3001 or BIZ 300 or IBEC 300.

IBEC 3901 - Special Topics in International Business and Economics
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

IBEC 4301 - Applied Econometrics
3 Credits
Introductory econometrics. Application of statistical methods to economic, business and social science topics. (Discipline: Economics.) Also listed as PHBU 4301. Offered spring semester. Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and (STAT 2561 or STAT 256) and (BIZ 2021 or BIZ 202 or IBEC 202). May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

IBEC 4311 - Seminar in Pharmaceutical Economics
3 Credits
In-depth analysis of the pharmaceutical industry. Topics will vary. Guest speakers to include industry leaders, researchers, and government officials. (Discipline: Economics.) Also listed as PHBU 4311.
Prerequisite(s): IBEC 3661 or IBEC 366 or PHBU 3661 or PHBU 366. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

IBEC 4351 - International Financial Accounting
3 Credits
Guiding principles behind international financial reporting standards (IFRS): commonalities, substantial divergences between US GAAP and IFRS. Financial Accounting from a multinational viewpoint involving foreign currency transactions and translation of financial statements denominated in a foreign currency. Also listed as ACCT 4351. Offered spring semester. Prerequisite(s): ACCT 3021 or ACCT 302. May not be enrolled in one of the following Fields of Study: Accounting.

IBEC 4421 - Economic History of the United States
3 Credits
Economic life in colonial America and the east-west migration; the development of modern business and industry in the United States; the corporation and its part in the nation's growth; the causes and consequences of the Great Depression. Offered alternate years. (Discipline: Economics.) Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and (BIZ 2021 or BIZ 202 or IBEC 202).

IBEC 4531 - International Marketing
3 Credits
World markets, their respective consumers and environments, and the marketing management required to meet the demand of world markets in a dynamic and everchanging setting. Contrasting marketing in the United States with marketing in foreign countries. Case studies illustrate marketing problems faced by international marketers. (Also listed as MRKT 4351.) Offered fall semester. Prerequisite(s): (BIZ 3001 or BIZ 300 or IBEC 300) and (BIZ 2511 or BIZ 251 or MRKT 351). May not be enrolled in one of the following Fields of Study: Marketing.

IBEC 4671 - International Finance
3 Credits
The unique financial challenges and opportunities faced by a multinational enterprise. Hedging as a pivotal tool of exchange rate risk management; the long-term and short-term financing opportunities available to a multinational enterprise; international cash management; and multinational capital budgeting. Also listed as FINC 4671. Offered spring semester. Prerequisite(s): (BIZ 3001 or BIZ 300 or IBEC 300) and (BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Accounting, Finance, International Business & Econ, Management, Marketing, Pharmaceutical Business.

IBEC 4861 - International Management
3 Credits
The application of management concepts and techniques in a multinational environment. The meaning of culture as it applies to international management. Issues in international human resource management. A focus on relevant business simulations and cases. Also listed as MGMT 4861. Offered spring semester. Prerequisite(s): (BIZ 2331 or BIZ 233 or MGMT 333) and (BIZ 2511 or BIZ 251 or MRKT 351) and (BIZ 3001 or BIZ 300 or IBEC 300) and (BIZ 3621 or BIZ 362 or FINC 362). May not be enrolled in one of the following Fields of Study: Finance.
IBEC 4901 - Special Topics in International Business and Economics
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

IBEC 4971 - Independent Study in International Business and Economics
1 to 3 Credits
An in-depth exploration of a subject of special interest. Can be repeated as topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

Subject - Management (MGMT)

MGMT 1901 - Special Topics in Management
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MGMT 2901 - Special Topics in Management
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MGMT 3251 - Employment Law
3 Credits
The legal relationship between employers and employees. Topics include the basic laws regulating labor relations, employment discrimination, workers' compensation and disability payments, occupational safety and health, employment, and unemployment compensation, termination of employment, and retirement. Prerequisite(s): BIZ 2131 or BIZ 312 or ABUS 312.

MGMT 3341 - Cases and Exercises in Organizational Behavior
3 Credits
Experiential and case-based approach to managing organizational behavior. Offered spring semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333.

MGMT 3631 - Human Resource Management
3 Credits
Analysis of the role of human resources in contemporary organizations. Functions performed by the human resource practitioner in the areas of recruitment, training and development, compensation, employee relations, health and safety, and employee separation. The impact of government regulations. Offered fall and spring semesters. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333.

MGMT 3751 - Management Decision Making
3 Credits
Qualitative and Quantitative management tools and techniques used in problem solving and decision making. Qualitative tools include brainstorming, cause and effect diagrams, the nominal group technique, the Delphi technique, focus groups, force field analysis, competitive analysis, and value chain analysis. Quantitative methods concentrate on linear programming and forecasting. Also listed as
PHBU 3751. Offered fall semester. Prerequisite(s): BIZ 3641 or BIZ 364 or MGMT 364. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

MGMT 3901 - Special Topics in Management
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MGMT 4001 - Current Labor Relations
3 Credits
Managerial and organizational aspects arising out of employer/union relations. The evolution of labor relations, current labor law, negotiation and administration of labor agreements, and labor relations in the public sector as well as in foreign countries. Prerequisite(s): MGMT 3631 or MGMT 363.

MGMT 4101 - Business and Society
3 Credits
The complex and dynamic interrelationships between business and society: the social, cultural, legal, ethical, economic and technological issues, philosophies and points of view which influence business. Issues of corporate responsibility, individual rights and multi-national business. Offered spring semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333.

MGMT 4121 - Health Care Management
3 Credits
Special management issues in the health sector: governance, human resources, financial statements and resource seeking, and performance assessments. Also listed as PHBU 4121. Offered spring semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

MGMT 4151 - Compensation Management
3 Credits
Compensation and benefits fundamentals, strategies, practices, and current issues, including wage level determinants, job requirements, wage and salary structures, incentive systems, methods of job evaluation and wage payments, fringe benefits. Also listed as PHBU 4151. Offered spring semester. Prerequisite(s): MGMT 3631 or MGMT 363. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

MGMT 4571 - Project Management
3 Credits
Managerial planning and control. Tools and techniques involved in managing projects. Exercises in decision making and critical thinking. Also listed as PHBU 4571. Offered spring semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

MGMT 4741 - Small Business Management
3 Credits
The importance of small business, its current status, problems encountered and requirements for successful operations. Emphasis on problem solving techniques for small business. Prerequisite(s): BIZ 1001 or ABUS 2221.
MGMT 4771 - Nonprofit Management
3 Credits
Special management issues in the nonprofit sector: governance, human resources, financial statements and resource seeking, performance assessment, and current issues of concern to nonprofit managers. Offered fall semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333.

MGMT 4775 - Executive Classroom: Leadership Realities
3 Credits
Develop leadership skills for students who will work in interdisciplinary teams shortly after graduation. Must be enrolled in one of the following Colleges: Business Administration. Must be enrolled in one of the following Classifications: Senior, Junior.
Course Attributes:
Requires Instructor Approval

MGMT 4861 - International Management
3 Credits
The application of management concepts and techniques in a multinational environment. The meaning of culture as it applies to international management. Issues in international human resource management. A focus on relevant business simulations and cases. Offered spring semester. Prerequisite(s): (BIZ 2331 or BIZ 233 or MGMT 333) and (BIZ 2511 or BIZ 251 or MRKT 351) and (BIZ 3001 or BIZ 300 or IBEC 300) and (BIZ 3621 or BIZ 362 or FINC 362). May not be enrolled in one of the following Fields of Study: International Business & Econ.

MGMT 4901 - Special Topics in Management
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MGMT 4981 - Independent Study in Management
1 to 3 Credits
An in-depth exploration of a subject of special interest. Can be repeated as topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

Subject - Marketing (MRKT)

MRKT 1901 - Special Topics in Marketing
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MRKT 2901 - Special Topics in Marketing
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MRKT 3341 - Marketing Research
3 Credits
Research design, data collection methods, sampling techniques, tabulation, analysis and presentation of
information concerning problems in marketing. Provides a working knowledge of the concepts and methods of marketing research. Also listed as PHBU 3341. Formerly offered as MRKT 434. Offered fall semester. Prerequisite(s): (BIZ 2511 or BIZ 251 or MRKT 351) and (STAT 1561 or STAT 156). May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**MRKT 3521 - Consumer Behavior**  
*3 Credits*  
Determinants of behavior which influence the purchase of goods and services. Consumer characteristics, situation analysis and product attributes are key topics covered in this area of behavior. Sociological, cultural, psychological, economic and communication theories used to create unique marketing mixes for specialized target markets. Also listed as PHBU 3521. Formerly offered as MRKT 452. Offered spring semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**MRKT 3631 - Product Development**  
*3 Credits*  
Issues in the development and marketing of new products and services. Also listed as PHBU 3631. Formerly offered as MRKT 413 New Product Development. Offered fall semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**MRKT 3901 - Special Topics in Marketing**  
*1 to 3 Credits*  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

**MRKT 4531 - International Marketing**  
*3 Credits*  
World markets, their respective consumers and environments, and the marketing management required to meet the demand of world markets in a dynamic and everchanging setting. Contrasting marketing in the United States with marketing in foreign countries. Case studies illustrate marketing problems faced by international marketers. Also listed as IBEC 4531. Offered fall semester. Prerequisite(s): (BIZ 2511 or BIZ 251 or MRKT 351) and (BIZ 3001 or BIZ 300 or IBEC 300). May not be enrolled in one of the following Fields of Study: International Business & Econ.

**MRKT 4601 - Integrated Marketing Communication**  
*3 Credits*  
Management of the promotion mix and how its elements can be integrated to solve marketing communication problems. Specific topics include: advertising, personal selling, sales promotion, direct marketing, internet marketing and public relations. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351.

**MRKT 4701 - Retailing**  
*3 Credits*  
Retail store formats, trading area analysis, store location and design, inventory evaluation and management, pricing strategies, sales promotion, merchandise planning, procurement and selling functions. Offered fall semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351.

**MRKT 4711 - Sales and Customer Relationship Management**  
*3 Credits*
Aspects of the behavioral approach to selling in the context of the marketing concept. Selling techniques which build long term customer relationships. Prospecting, ethics, qualifying, presenting, product demonstrations, handling objections, closing and follow up techniques, and international selling. Also listed as PHBU 4711. Formerly offered as MRKT 371 Personal Selling. Offered fall semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351. May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

MRKT 4731 - Supply Chain Management
3 Credits
Move-storage activities that are necessary to deliver products to the right place, at the desired time, in the appropriate condition and at the lowest cost. Warehousing, transportation, order processing, inventory and material handling are key topics. Emphasis is given to the development of decision skills which will provide the best minimum total cost service to the customer. Also listed as PHBU 4731. Formerly offered as MRKT 373 Logistics. Offered spring semester. Prerequisite(s): (BIZ 2331 or BIZ 233 or MGMT 333) and (BIZ 2511 or BIZ 251 or MRKT 351). May not be enrolled in one of the following Fields of Study: Pharmaceutical Business.

MRKT 4761 - Business to Business Marketing
3 Credits
Basic business marketing systems as distinguished from consumer marketing. Characteristics of manufacturer's goods, channels of distribution, pricing, vendor and value analysis, commercial buying, advertising, and meeting product specifications. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351.

MRKT 4901 - Special Topics in Marketing
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

MRKT 4961 - Independent Study in Marketing
1 to 3 Credits
An in-depth exploration of a subject of special interest. Can be repeated as topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
Course Attributes:
Requires Department Approval

MRKT 4991 - Advanced Marketing
3 Credits
Integrative capstone in marketing which brings together all of the functional areas of marketing and requires development of marketing strategies and their application to problem situations. A group case approach is used. Also listed as PHBU 4991. Formerly offered as MRKT 455. Offered spring semester. Must be enrolled in one of the following Classifications: Senior.

Subject - Pharmaceutical Business (PHBU)

PHBU 1901 - Special Topics in Pharmaceutical Business
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.
PHBU 2901 - Special Topics in Pharmaceutical Business  
1 to 3 Credits  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

PHBU 3051 - Introduction to Pharmaceutical Science  
3 Credits  
Basic and pharmaceutical sciences including medical terminology, pharmacology, toxicology, medicinal chemistry, pharmacokinetics and pharmaceutics. The role of pharmaceutical sciences in the health care system. Offered spring semester. Prerequisite(s): (BIOL 1101 or BIOL 110) and (BIOL 2311 or BIOL 231) and (CHEM 1201 or CHEM 136). Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 3171 - Pharmaceutical Industry Legal Environment  
3 Credits  
Law and regulations related to the pharmaceutical industry. Offered spring semester. Prerequisite(s): BIZ 2131 or BIZ 312 or ABUS 312.

PHBU 3341 - Marketing Research  
3 Credits  
Research design, data collection methods, sampling techniques, tabulation, analysis and presentation of information concerning problems in marketing. Provides a working knowledge of the concepts and methods of marketing research. Also listed as MRKT 3341. Formerly offered as PHBU 434. Offered fall semester. Prerequisite(s): (BIZ 2511 or BIZ 251 or MRKT 351) and (STAT 1561 or STAT 156). Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 3521 - Consumer Behavior  
3 Credits  
Determinants of behavior which influence the purchase of goods and services. Consumer characteristics, situation analysis and product attributes are key topics covered in this area of behavior. Sociological, cultural, psychological, economic and communication theories used to create unique marketing mixes for specialized target markets. Also listed as MRKT 3521. Formerly offered as PHBU 452. Offered spring semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 3631 - Product Development  
3 Credits  
Issues in the development and marketing of new products and services. Also listed as MRKT 3631. Formerly offered as PHBU 413 New Product Development. Offered fall semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 3651 - Introduction to Health Care Systems Finance  
3 Credits  
The course introduces basic concepts, principles, and practices associated with the financial aspects of the U.S. health care delivery system. Offered fall semester. Prerequisite(s): (BIZ 2021 or BIZ 202 or IBEC 202) and (BIZ 3621 Minimum Grade of C or BIZ 362 Minimum Grade of C or FINC 362 Minimum Grade of C). Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.
PHBU 3661 - Pharmaceutical Economics
3 Credits
Economic analysis of the pharmaceutical industry. Cost and benefit analysis of industry choices; drug therapy costs and health care outcomes; market structure analysis; patients and trademarks; and government policy impacts. (Discipline: Economics.) Also listed as IBEC 3661. Offered fall semester. Prerequisite(s): (BIZ 2031 or BIZ 203 or IBEC 203) and (BIZ 2021 or BIZ 202 or IBEC 202). Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 3751 - Management Decision Making
3 Credits
Qualitative and Quantitative management tools and techniques used in problem solving and decision making. Qualitative tools include brainstorming, cause and effect diagrams, the nominal group technique, the Delphi technique, focus groups, force field analysis, competitive analysis, and value chain analysis. Quantitative methods concentrate on linear programming and forecasting. Also listed as MGMT 3751. Offered fall semester. Prerequisite(s): BIZ 3641 or BIZ 364 or MGMT 364. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 3831 - Business Analytics
3 Credits
Application of economic principles to managerial concerns. Use of interdisciplinary Quantitative methods such as optimization analysis, game theory, statistics, and forecasting to solve business problems and predict managerial responses to changes in the business environment. Also listed as IBEC 3831. Prerequisite(s): BIZ 2021 or BIZ 202 or IBEC 202. Must be enrolled in one of the following Fields of Study: Marketing, Pharmaceutical Business.

PHBU 3901 - Special Topics in Pharmaceutical Business
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

PHBU 4121 - Health Care Management
3 Credits
Special management issues in the health sector: governance, human resources, financial statements and resource seeking, and performance assessments. Also listed as MGMT 4121. Offered spring semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

PHBU 4151 - Compensation Management
3 Credits
Compensation and benefits fundamentals, strategies, practices, and current issues, including wage level determinants, job requirements, wage and salary structures, incentive systems, methods of job evaluation and wage payments, fringe benefits. Also listed as MGMT 4151. Offered spring semester. Prerequisite(s): MGMT 3631 or MGMT 363.

PHBU 4301 - Advanced Business Analytics
3 Credits
Introductory econometrics. Application of statistical methods to economic, business and social science topics. Also listed as IBEC 4301. Offered spring semester. Prerequisite(s): (BIZ 2021 or BIZ 202 or IBEC
202) and (BIZ 2031 or BIZ 203 or IBEC 203) and (STAT 2561 or STAT 256). Must be enrolled in one of the following Fields of Study: Marketing, Pharmaceutical Business.

**PHBU 4311 - Seminar in Pharmaceutical Economics**  
*3 Credits*  
In-depth analysis of the pharmaceutical industry. Topics will vary. Guest speakers to include industry leaders, researchers, and government officials. Also listed as IBEC 4311. Prerequisite(s): IBEC 3661 or PHBU 3661 or IBEC 366 or PHBU 366. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**PHBU 4571 - Project Management**  
*3 Credits*  
Managerial planning and control. Tools and techniques involved in managing projects. Exercises in decision making and critical thinking. Also listed as MGMT 4571. Offered spring semester. Prerequisite(s): BIZ 2331 or BIZ 233 or MGMT 333. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**PHBU 4711 - Sales and Customer Relationship Management**  
*3 Credits*  
Aspects of the behavioral approach to selling in the context of the marketing concept. Selling techniques which build long term customer relationships. Prospecting, ethics, qualifying, presenting, product demonstrations, handling objections, closing and follow up techniques, and international selling. Also listed as MRKT 4711. Formerly offered as PHBU 371 Personal Selling. Offered fall semester. Prerequisite(s): BIZ 2511 or BIZ 251 or MRKT 351. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**PHBU 4731 - Supply Chain Management**  
*3 Credits*  
Move-storage activities that are necessary to deliver products to the right place, at the desired time, in the appropriate condition and at the lowest cost. Warehousing, transportation, order processing, inventory and material handling are key topics. Emphasis is given to the development of decision skills which will provide the best minimum total cost service to the customer. Also listed as MRKT 4731. Formerly offered as PHBU 373 Logistics. Offered spring semester. Prerequisite(s): (BIZ 2331 or BIZ 233 or MGMT 333) and (BIZ 2511 or BIZ 251 or MRKT 351). Must be enrolled in one of the following Fields of Study: Pharmaceutical Business.

**PHBU 4901 - Special Topics in Pharmaceutical Business**  
*1 to 3 Credits*  
Can be repeated as the topic varies. Offered fall and spring semesters. Unlimited repeats permitted.

**PHBU 4991 - Advanced Marketing**  
*3 Credits*  
Integrative capstone in marketing which brings together all of the functional areas of marketing and requires development of marketing strategies and their application to problem situations. A group case approach is used. Also listed as MRKT 4991. Formerly offered as PHBU 455. Offered spring semester. Must be enrolled in one of the following Fields of Study: PHBU - Marketing Concentration. Must be enrolled in one of the following Classifications: Senior.
Subject - Taxation (TAX)

TAX 5101 - Professional Ethics and Sarbanes Oxley Compliance
3 Credits
Ethical reasoning, integrity, objectivity, independence and other core values as defined by the American Institute of Certified Public Accountants are discussed. A discussion of the provisions of the Sarbanes-Oxley Act provides the students with an appreciation of the legal constraints that result from lapses in ethical reasoning, integrity and objectivity in the accounting profession. Also listed as FAAS 5101. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5201 - Corporate Governance
3 Credits
The structured system of policies and processes established and maintained by the board of directors to oversee an organization's strategic activities, accountability and openness in conducting its activities for the long-term. Focus on board size, structure, membership, member nomination, election and tenure; committee structure and the nature, composition and duties of the committees; rights, responsibilities and relationship of directors, management, and shareholders; policies and procedures related to accounting, auditing, executive compensations and financial reporting. Also listed as FAAS 5201. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5331 - Federal Income Tax
3 Credits
The fundamentals of federal income taxation, emphasizing its application to individuals. Gross income (inclusions and exclusions); adjusted gross income; deductions; taxable income; taxable credits; identification of the taxpayer; general tax accounting principles; and basic federal tax procedure. The application of the income tax law to business and investment property, including capital gains and losses, depreciation, and recapture. A consideration of the non-recognition and deferral of income, and other factors affecting the computation of tax liability. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5371 - Research Methods
3 Credits
Legal research methods with a focus on tax law, including distinctions between primary and secondary sources and location of materials in electronic and printed form. Methodology to determine, research, resolve and communicate tax law issues. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5411 - Taxation of Partnerships and Partners
3 Credits
Taxation of partnerships and partners. The federal tax law applying to the relationship between the partnership and its partners. The formation, operation, and liquidation of partnerships, as well as the sale of a partnership, interest, and the retirement of a partner. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.
TAX 5431 - Taxation of Estates, Gifts, and Trusts  
*3 Credits*  
The operation and use of federal tax provisions applicable to inter vivos and testamentary dispositions of property with particular emphasis upon matters of federal estate and gift taxation. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5451 - Non-Profit Organizations  
*3 Credits*  
The rules affecting charitable organizations, including tax-exempt income, unrelated business income, lobbying and political activities, and the deduction of contributions. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5601 - Business Valuation  
*3 Credits*  
Assessment of organizational health and value via business strategy, accounting, financial, and prospective analysis. Calculation of values using the income and market approaches. Selection of appropriate standard of value. Financial statement adjustments and calculation of premiums, discounts, and capitalization rates. Use of research and database resources. The curriculum of this course follows recommendations set forth by the National Association of Certified Valuation Analysts. Students passing the final examination in this course will earn 16 credit hours toward the training requirement necessary to sit for the NACVA's Accredited Valuation Analyst (AVA) certification examination. Ohio Northern University is an educational partner with the NACVA. Also listed as FAAS 5601. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5701 - Basics of Expert Testimony  
*3 Credits*  
Legal aspects of the forensic engagement, including rules of evidence and procedure. Also listed as FAAS 5701. Offered fall semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5801 - Internship in Taxation  
*1 to 15 Credits*  
Offered fall and spring semesters. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5831 - Taxation of Corporations  
*3 Credits*  
Federal income taxation of corporate activities, with emphasis on consequences to individual shareholders. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5871 - Business Planning  
*3 Credits*  
State substantive law and securities and tax law in planning the formation and change of business entities. Proposing solutions to the problems presented by the business client, the preparation of better explaining proposals to the client, and drafting documents that will carry out the proposed plan.
Problems involving both incorporated and unincorporated business entities. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5891 - Estates, Wills & Trusts
3 Credits
The law of intestate and testate succession; formal requirements of wills, testamentary capacity, undue influence, fraud and mistake, holographic and nuncupative wills integration and incorporation by reference; revocation, republication, revival and amendment. The nature, creation, and elements of a trust; rights, liabilities and duties of settlor, trustee and beneficiary; creditors rights against trust property; modification and termination of a trust, charitable trusts; resulting and constructive trusts, and general fiduciary responsibilities and administrative problems. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.

TAX 5931 - International Taxation
3 Credits
Basic survey of international taxation law, including source of income and expense allocation rules, international tax credits, transfer pricing, antideferral rules, withholding taxes, income tax treaties, tax incentives, and expatriate issues. Offered spring semester. Must be enrolled in one of the following Programs: Master of Professional Practice in Accounting.
The Thomas Jefferson Smull College of Engineering Courses

Department of Civil Engineering

CE 2031 - Surveying
3 Credits
Plane surveying; use of level, distance measurement devices, data collectors, and total stations; traversing, roadway applications, and topographic mapping, and introduction to coordinate geometry, GIS and GPS applications. Offered fall semester. Prerequisite(s): MATH 1611 or MATH 1631 or MATH 157 or MATH 163.

CE 3031 - Advanced Surveying
3 Credits
A second surveying course that expands on the basic surveying skills presented in CE 2031. Topics include: history of Ohio land surveys, Ohio surveying law, boundary surveying fundamentals, gathering of surveying field data, and preparation of preliminary engineering site drawings. Offered spring semester. Prerequisite(s): CE 2031 or CE 203.

CE 3131 - Numerical and Statistical Methods
3 Credits
Principles of numerical methods used in solving civil engineering problems. Topics include numerical solutions of single variable equations, systems of non-linear equations, integration and differentiation, differential and partial differential equations by finite differences, and statistical techniques. Offered spring semester. Prerequisite(s): MATH 2651 or MATH 275.

CE 3231 - Environmental Engineering and Science
3 Credits
Sources and characteristics of pollutants, their effects on the environment, humans, and animals. Emphasis placed on interdisciplinary approach to reduce and treat wastes. Offered spring semester. Prerequisite(s): CHEM 1501 or CHEM 225.

CE 3251 - Environmental Systems Analysis
3 Credits
Introduction to principles of environmental systems analysis. Principles of optimization, mathematical simulation, uncertainty, economic analysis, risk and reliability are applied for decision support in human-altered environmental systems. Methods are demonstrated using case studies from environmental engineering within air, surface and subsurface pollution modeling and abatement. Some programming experience is recommended. Offered spring semester. Prerequisite(s): CE 3231 or CE 321.

CE 3411 - Structural Analysis
4 Credits
Analyses of determinate beams, trusses and frames and indeterminate beams and frames. Topics include deflections, displacements, principle of superposition, moving loads, influence lines, cables and arches, slope deflection method, and moment distribution method. Offered fall semester. Prerequisite(s): ENGR 2231 or GE 223.
CE 3431 - Reinforced Concrete Design
4 Credits
Mechanics of structural concrete and method for design of reinforced concrete (RC) beams, columns, slabs, and footing. In addition, laboratory on concrete testing. Offered spring semester. Prerequisite(s): CE 3411 or CE 341.

CE 3511 - Highway Engineering and Traffic Analysis
3 Credits
Components of transportation systems, traffic flow modeling, geometric design of highways, horizontal and vertical curves, traffic control devices, the use of statistical analysis techniques in traffic engineering, principles of traffic engineering, capacity, and level of service, intersection analysis and design. Offered fall semester. Prerequisite(s): CE 2031 or CE 203.

CE 3531 - Pavement Analysis and Design
3 Credits
Design of pavements for transportation facilities, material properties and their impact on pavement design. Offered spring semester. Prerequisite(s): (ENGR 2231 or GE 223) and (CE 3511 or CE 351).

CE 3551 - Highway Materials
3 Credits
Fundamental understanding of the behavior of highway materials including aggregates, asphalt binder, and asphalt mixes. Covers mix design, material testing procedures, and specifications. Offered spring semester. Prerequisite(s): ENGR 2231 or GE 223.

CE 3611 - Engineering Fluid Mechanics
3 Credits
Principles of the mechanics of fluids; engineering properties of fluids, fluid statics, fluid dynamics by continuity, momentum and energy principles; steady flow in pipes, to include series and parallel pipes and pipe networks. A water distribution term project is required. ENGR 2141 is strongly recommended before you take this course. Offered fall semester. Prerequisite(s): ENGR 2131 or GE 113.

CE 3631 - Water Resources Engineering
3 Credits
Pump design, and water hammer; flow measurement and dimensional analysis and similitude. Estimates of population, water usage and wastewater generation; the hydrologic cycle, precipitation and stream flow data measurement and analysis; runoff prediction, hydrographs, flood routing, and open channel flow. A design term project is required. Offered spring semester. Prerequisite(s): CE 3611.

CE 3711 - Urban Planning
3 Credits
Principles of city and regional planning; land-use, zoning, subdivision regulations, metropolitan problems and urban development. Topics will cover applications in the transportation planning and the environmental areas. Offered spring semester.

CE 3901 - Special Topics
1 to 3 Credits
Selected topics of current interest in civil engineering. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**CE 3951 - Independent Study**
*1 to 3 Credits*
Independent study of a topic of particular interest to the student in civil engineering. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**CE 4101 - Civil Engineering Design Seminar**
*1 Credit*
Engineering design process; selection of senior design project; oral and written presentation of project proposal. Civil Engineering senior standing. Offered fall semester. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Civil Engineering. Must be enrolled in one of the following Classifications: Senior.

**CE 4141 - Project Management**
*3 Credits*
Principles of organization, management, and control of civil engineering projects. Topics include present and emerging legal and technical issues, critical path methods, project estimating and engineering economics. Offered fall semester.

**CE 4151 - Civil Engineering Design Project**
*3 Credits*
Capstone design project under the specific guidance of a civil engineering faculty member. Offered spring semester. Prerequisite(s): CE 4101 or CE 410. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Civil Engineering.

**CE 4241 - Water and Wastewater Engineering**
*4 Credits*
Physical, chemical, and biological processes in drinking water and wastewater treatment systems. Offered fall semester. Prerequisite(s): (CE 3231 or CE 321) and (CE 3631 or CE 363).

**CE 4251 - Watershed Water Quality Analysis**
*3 Credits*
Integrated lecture and field laboratory course experience to delve more deeply into the mass balance and kinetic relationships in environmental processes presented in CE 3231 Environmental Engineering & Science. Students will participate in laboratory and field experiences to determine common environmental water quality parameters and their impacts on surface water quality. Report preparation included. Offered spring semester. Prerequisite(s): CE 3231 or CE 321.

**CE 4341 - Geotechnical Principles**
*3 Credits*
Physical characteristics, index properties, classification, and compaction of soils. Principles of mechanics of soils, settlement, and consolidation. Offered fall semester. Prerequisite(s): GE 223 or ENGR 2231.
CE 4351 - Geotechnical Design  
3 Credits 
Analysis and design of structural foundations, retaining structures, and slope stability. Offered spring semester. Prerequisite(s): CE 4341.

CE 4441 - Structural Steel Design  
3 Credits 
Load and resistance factor design concept (LRFD), and design of tension and compression members, beam, columns, beam-column members, and simple connections. Instability of steel members. Offered fall semester. Prerequisite(s): CE 3411 or CE 341.

CE 4451 - Structural Design  
3 Credits 
Design of structural projects. Offered spring semester. Prerequisite(s): (CE 3431 or CE 343) and (CE 4441 or CE 444).

CE 4661 - Advanced Open Channel Hydraulics and Ground Water  
3 Credits 
Continuation of open channel flow analysis with sewer design and modeling water surface profiles. Groundwater topics of confined and unconfined aquifers, steady and unsteady groundwater hydraulics, aquifer pumping tests, and mathematical groundwater modeling. Offered spring semester. Prerequisite(s): CE 3631 or CE 363.

CE 4901 - Special Topics  
1 to 3 Credits 
Selected topics of current interest in civil engineering. Unlimited repeats permitted.

CE 4951 - Independent Study  
1 to 3 Credits 
Independent study of a topic of particular interest to the student in civil engineering. Unlimited repeats permitted.

Department of Electrical and Computer Engineering and Computer Sciences

Subject - Electrical and Computer Engineering and Computer Sciences (ECCS)

ECCS 1101 - Computer Science Orientation  
1 Credit 
Introduction to the ECCS Department with primary emphasis on the Computer Science Program.
Understanding of the curriculum and the role played by Computer Scientists in society. A discussion about how the general education learning outcomes may relate to the students career with a focus on critical and creative thinking. All requirements of the General Education Transitions Experience are met by this course. Offered fall semester. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Science.

Course Attributes:
Critical and Creative Thinking

ECCS 1421 - Net-Centric Computing
3 Credits
Software development tools and techniques appropriate for application development on the World Wide Web. HTTP, HTML, Cascading Style Sheets, client-side scripting, server-side scripting, server-side data storage and retrieval, relational databases. Offered spring semester. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore, Freshman.

ECCS 1611 - Programming 1
4 Credits
Use of a high-level programming language in a modern integrated development environment to produce small-scale programs that meet written specifications. Simple and aggregate data types. Input/output. Arithmetic and Boolean expressions. Fundamentals of sequence, selection, and iteration. Functions. Introduction to object-oriented programming. Recommended background: College Algebra (MATH 1251). Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore, Freshman.

Course Attributes:
Critical and Creative Thinking
Scientific and Quantitative Literacy

ECCS 1621 - Programming 2
4 Credits
Continuation of Programming 1. Focus on the object-oriented programming paradigm: classes, objects, methods, information hiding, inheritance, polymorphism. Software engineering: tools, design, testing, validation. Graphical user interfaces and their fundamental widgets. Event-driven programming. Offered spring semester. Prerequisite(s): ECCS 1611 or ECCS 164. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore, Freshman.

ECCS 2311 - Electric Circuits
4 Credits
DC and AC circuits. Basic laws, analysis techniques, and circuit theorems. Op amps, first-order circuits, sinusoids and phasors, ac power analysis, ideal transformers and three phase circuits. Computer simulation. Integrated laboratory experience. Offered fall semester. Prerequisite(s): MATH 1631 or MATH 164 or MATH 159 or MATH 1621. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

ECCS 2321 - Signals and Systems
3 Credits
Signal and system analysis in the time domain. Frequency domain analysis using LaPlace transform, Fourier series, Fourier transform, and Discrete Fourier transform. Discrete-time signal analysis using Z-
transform. Offered spring semester. Prerequisite(s): (ECCS 2311 or GE 202) and (MATH 2651 or MATH 275). Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2411 - Design Patterns**
3 Credits
Named problems occurring in object-oriented design featuring the 23 fundamental Gang of Four design patterns, applications and use. Offered fall semester. Prerequisite(s): ECCS 1621 or ECCS 165. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2421 - Software Engineering**
3 Credits
Requirements, design, implementation, testing, deployment, and maintenance of software systems, primarily directed to object oriented systems. Focus on Agile Software Development Principles and Practices. Offered spring semester. Prerequisite(s): (MATH 3061 or MATH 336) and (ECCS 2671 or ECCS 268). Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2431 - Programming Environments**
3 Credits
Use of a software environment to build a large project. Solutions incorporate third party library code and student generated libraries. Students work independently. Offered fall semester. Prerequisite(s): ECCS 1621 or ECCS 165. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2671 - Data Structures & Algorithms 1**
3 Credits
Basics of algorithm analysis and creation. Standard sorting algorithms. Trade-offs of various algorithms. Classical data structures: arrays, heaps, queues, priority queues, hash tables, linked lists, binary trees. Offered fall semester. Prerequisite(s): ECCS 1621 or ECCS 166. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2681 - Data Structures & Algorithms 2**
3 Credits
Continuation of Data Structures and Algorithms 1. Advanced techniques for algorithm analysis and creation. Greedy algorithms. Amortized analysis. Dynamic programming. Fibonacci heaps. Graph-based data structures and algorithms. Offered spring semester. Prerequisite(s): ECCS 2671 or ECCS 268. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2721 - Digital Logic**
3 Credits
Analysis and design of combinational circuits. Analysis and design of sequential systems. Design using standard combinational and sequential modules. Application of VHDL and Xilinx software design tools. Verification of digital systems in FPGAs and ModelSim simulation. Offered spring semester. Prerequisite(s): MATH 3061 or MATH 336. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**ECCS 2991 - Research Experience**
1 to 3 Credits
A planned learning experience involving participation in an approved research project. A paper and an
oral presentation regarding the research experience are required. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering.

Course Attributes:
Requires Department Approval

**ECCS 3111 - Electromagnetics**
*3 Credits*
The study of electrostatics, magnetostatics and time-varying fields in different coordinate systems using various laws and principles through the application of vector calculus and vector algebra. Analysis of transmission lines using both mathematical and graphical techniques. Offered fall semester. Prerequisite(s): (ECCS 2311 or GE 202) and (MATH 2631 or MATH 263). Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3121 - Energy Systems 1**
*4 Credits*
Electric machines and power electronics. Analysis, performance characteristics, operation principles, and applications of power transformers, rotating machines, converters, inverters, and switched-mode power supplies. Computer Simulation. Integrated laboratory experience. Offered spring semester. Prerequisite(s): ECCS 3111 or ECCS 337. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3141 - Control Systems**
*4 Credits*
Fundamental concepts of feedback control systems. Control systems analysis and design by conventional methods: transient-response and steady-state error analysis, root-locus analysis, frequency-response and stability analysis, design and compensation techniques. Computer simulation. Integrated laboratory experience. Offered spring semester. Prerequisite(s): ECCS 2321 or ECCS 314 or ECCS 380. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3191 - Communication Systems**
*4 Credits*
Analog and digital communication systems; modulation and demodulation techniques. Noise and bandwidth requirements. System design and performance analysis. Integrated laboratory experience. Offered spring semester. Prerequisite(s): ECCS 2321 or ECCS 414 or ECCS 380. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3221 - Operations Research**
*3 Credits*
Linear programming simplex method, duality, sensitivity analysis, PERT/CPM. Standard O.R. applications including transportation, maximum flow, and shortest path problems, among others. Formerly ECCS 332. Also listed as MATH 3221. Offered alternate spring semesters. Prerequisite(s): MATH 2651 or MATH 275 or MATH 3261 or MATH 372. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3241 - Embedded Systems**
*3 Credits*
UML and model-based embedded system design, microprocessor/digital signal processor/network processor instruction sets, CPUs, bus-based system design, embedded computing platform, program design and analysis, real time operating systems and processes, hardware accelerators, networks and
distributed embedded architectures, and systems design techniques, multicore embedded systems; integrated laboratory experimental activities. Offered spring semester. Prerequisite(s): ECCS 3351 or ECCS 362 or ECCS 3611 or ECCS 365. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3311 - Digital Signal Processing**  
3 Credits  
Analog to digital and digital to analog conversions. Analysis of discrete-time signals and systems in both time domain and Z-domain. Design and implementation of FIR and IIR systems. Using MATLAB to simulate and model discrete-time systems. Integrated laboratory experience. Offered fall semester. Prerequisite(s): ECCS 2321 or ECCS 314 or ECCS 380. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3331 - Electronics**  
4 Credits  
Analysis and design of analog and digital electronic circuits using semiconductor diodes, transistors and integrated circuits. Computer techniques will be combined with laboratory work for several projects. Offered fall semester. Prerequisite(s): (ECCS 2311 or GE 202) and (ECCS 2321 or ECCS 314 or ECCS 380) and (ECCS 2721 or ECCS 260). Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3351 - Microprocessors**  
3 Credits  
Microprocessors and microcontroller system design, microprocessor structure, registers, RAM and ROM addressing, machine cycles and timing relationships, input and output ports and addressing, assembly level programming, embedded C programming, microcontroller structure, timer systems, analog-to-digital converters, serial and parallel communication, use of development systems and design simulators, embedded microcontroller design projects; integrated laboratory experimental activities. Offered fall semester. Prerequisite(s): (ECCS 1611 or ECCS 164) and (ECCS 2721 or ECCS 260). Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3411 - Computer Security**  
3 Credits  
Managing secure development, control hijacking, defensive programming, user authentication, discretionary access control, mandatory access control, multilevel and multilateral security, assurance and certifications, database security, protocol vulnerabilities, symmetric cryptography, asymmetric cryptography, network attack and defense, advanced topics. Offered fall semester. Prerequisite(s): ECCS 2671 or ECCS 268. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3431 - Theory of Computation**  
3 Credits  
A mathematical approach to the theory of computation with emphasis on rigorous arguments of various sorts. Regular and Context-Free Languages. Turing machines. The implications of these issues to the discipline of computing. Offered fall semester. Prerequisite(s): MATH 3061 or MATH 336. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3451 - User Interface Design**  
3 Credits  
Human-Computer Interaction topics as related to graphical user interfaces encountered in software
applications and web sites. User-centered interface development methodology and life cycle. Style, structure, layout, and organizational design guidelines. Color, typography, accessibility, globalization, and personalization issues. Offered fall semester. Prerequisite(s): ECCS 2671 or ECCS 268. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3481 - Databases**  
*3 Credits*  
Overview of data models and applications. Relational Algebra. Structured Query Language (SQL). Security issues. Offered spring semester. Prerequisite(s): ECCS 2671 or ECCS 268. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3611 - Computer Architecture**  
*4 Credits*  
Aspects of computer hardware; computer arithmetic, micro-architecture design (both datapath and control unit), instruction sets, storage hierarchies. Current families of microprocessors illustrating design tradeoffs. Integrated laboratory experience. Offered spring semester. Prerequisite(s): ECCS 2721 or ECCS 260. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3631 - Networks & Data Communications**  
*3 Credits*  
The Internet Protocol Stack. Coverage of the application, transport, network, data link and physical layers with project assignments. Protocols used to implement communication over the Internet. Offered fall semester. Prerequisite(s): ECCS 2671 or ECCS 268. Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3651 - Computer Vision**  
*3 Credits*  
Extraction of useful information from captured images to make decisions about the real world, modeling cameras, calibration, feature extraction, feature synthesis, segmentation, still and video image processing. Define and produce an individualized course-long project that utilizes computer vision to solve a problem of the student's choice. Recommended: Matlab and/or C++ experience. Offered spring semester. Prerequisite(s): (ECCS 1621 or ECCS 165) and (MATH 1631 or MATH 163). Must be enrolled in one of the following Classifications: Senior, Junior.

**ECCS 3661 - Operating Systems**  
*3 Credits*  

**ECCS 3901 - Special Topics**  
*1 to 3 Credits*  
Selected topics in electrical or computer engineering or computer science of current interest. May be repeated for credit. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering. Must be enrolled in one of the following Classifications: Senior, Junior. Unlimited repeats permitted.
ECCS 3951 - Independent Study
1 to 3 Credits
Individual study of topic in electrical or computer engineering or computer science of particular interest to the ECCS student. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering. Must be enrolled in one of the following Classifications: Senior, Junior. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

ECCS 3991 - External Research Experience
1 to 3 Credits
A planned learning experience involving participation in an approved research project. A paper and an oral presentation regarding the research experience are required. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering.
Course Attributes:
Requires Department Approval

ECCS 4111 - Energy Systems 2
3 Credits
Power systems fundamentals, single line diagrams and per unit calculations, transmission lines modeling, load flow techniques, economic dispatch, fault analysis, and power systems control. Computer simulation. Team-oriented design cases. Offered fall semester. Prerequisite(s): (ECCS 2311 or GE 202) and ECCS 3121. Must be enrolled in one of the following Classifications: Senior.

ECCS 4121 - Advanced Power
3 Credits
Selected advanced topics in power engineering. Offered spring semester. Must be enrolled in one of the following Classifications: Senior.

ECCS 4131 - Advanced Communications
3 Credits
Selected advanced topics in communications. Offered spring semester. Prerequisite(s): ECCS 3191 or ECCS 458. Must be enrolled in one of the following Classifications: Senior.

ECCS 4141 - Information Theory
3 Credits
Introduction to information theory; channel coding techniques and their trade-offs; compression techniques of voice, image, and video; encryption and decryption techniques. Offered spring semester. Prerequisite(s): (ECCS 2721 or ECCS 260) and (STAT 2501 or STAT 280).

ECCS 4161 - Advanced Controls
3 Credits
Selected advanced topics in control systems. Offered spring semester. Prerequisite(s): ECCS 3141 or ECCS 345.
ECCS 4191 - System Design
1 Credit
Integration of different areas of electrical engineering in the design of a complete practical system. The process of defining the architecture, components, modules, and interfaces for a system to satisfy specified requirements. Offered fall semester. Must be enrolled in one of the following Classifications: Senior.

ECCS 4211 - VLSI System Design
3 Credits
VLSI Fabrication Process, CMOS logic gate implementations, combination logic networks, clocking, subsystem design, floorplanning and layout, architecture design, FPGA technology, high level synthesis, testing and verification. Industry standard computer-aided design tools will be used to simulate, design and layout VLSI/FPGA circuits in the laboratory. Offered fall semester. Prerequisite(s): (ECCS 2721 or ECCS 260) and (ECCS 3331 or ECCS 321). Must be enrolled in one of the following Classifications: Senior.

ECCS 4311 - Advanced DSP
3 Credits
Selected topics in Digital Signal Processing techniques and their applications in 1-D and 2-D spaces. Offered fall semester. Prerequisite(s): ECCS 3311 or ECCS 411. Must be enrolled in one of the following Classifications: Senior.

ECCS 4321 - Computer Networks
3 Credits
Selected topics in computer/wireless networks. Offered spring semester. Prerequisite(s): ECCS 3631 or ECCS 366 or ECCS 3191. Must be enrolled in one of the following Classifications: Senior.

ECCS 4331 - Photovoltaic and Power Devices
3 Credits
Semiconductor and Electric Transport, Characteristics of Sunlight, Solar Cell: Properties and Design, PV cell interconnection and modules, Power Diodes and Breakdown Voltages, Power MOSFETs, Power BJTs, Thyristors; Stand-alone Photovoltaic Systems; Grid-Connected Photovoltaic Systems. Offered fall semester. Prerequisite(s): ECCS 3121.

ECCS 4341 - Advanced Electronics
3 Credits
Advanced topics in electronics. Offered spring semester. Prerequisite(s): ECCS 3331 or ECCS 321. Must be enrolled in one of the following Classifications: Senior.

ECCS 4351 - Smart Grid
3 Credits
Smart Grid for efficient Power System; Resource Adequacy and Transmission Planning; Energy Efficiency; Power Production and Delivery; Wind/Solar power forecasting; Integration of intermittent renewable sources; DC Distribution; Probabilistic Reliability Evaluation; Energy Storage; Microgrids; Demand Side Management; Energy Efficiency; Electric End Use; Smart and Sustainable Buildings; Cyber-physical Systems; Cyber-security in Energy Grid. Offered spring semester. Prerequisite(s): ECCS 3351 and ECCS 4111.
ECCS 4391 - Engineering Economy
1 Credit
Decision making based on criteria of economic factors including present worth, future worth, internal rate of return, cost benefit ratio, depreciation, and taxes. Offered fall semester. Corequisite(s): ECCS 4711. Must be enrolled in one of the following Classifications: Senior. This course may be repeated 1 time. This course is repeatable for a total of 1 hour.

ECCS 4411 - Programming Languages
3 Credits
Constructs of programming languages in different programming paradigms: syntax analysis. Semantic analysis. Offered fall semester. Prerequisite(s): ECCS 2671 or ECCS 268. Must be enrolled in one of the following Classifications: Senior.

ECCS 4471 - Computer Science Capstone 1
2 Credits
Team-based design or research project in computer science. Application of design and development principles and methods as appropriate to a project featuring a relevant and current subject. Development and delivery of project proposal. Offered fall semester. Must be enrolled in one of the following Classifications: Senior.

ECCS 4481 - Computer Science Capstone 2
3 Credits
Continuation of Computer Science Capstone 1. Delivery of a project featuring a relevant and current subject. Demonstration and verification of project capabilities as appropriate to project. Development and delivery of documentation as appropriate to project. Offered spring semester. Prerequisite(s): ECCS 4471. Must be enrolled in one of the following Classifications: Senior.

ECCS 4611 - Numerical Analysis
3 Credits
Review of programming concepts using MATLAB or other programming software. Errors that occur in representing numbers on a computer and approximating solutions; methods for locating roots of a non-linear equation; interpolation, numerical differentiation; and numerical integration. Numerical solution of differential equations and of systems of linear algebraic equations. Splines. Also listed as MATH 4611. Offered alternate spring semesters. Prerequisite(s): (MATH 2651 or MATH 275) and (MATH 3601 or MATH 360). Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

ECCS 4711 - Senior Design 1
2 Credits
Team-based design project in area in or related to computer engineering, computer science, and/or electrical engineering. Utilization of project management standards. Establishment of project capabilities, requirements, and constraints. Fundamentals of economics and entrepreneurship as applied to projects. Development of project proposal. Prototyping. Issues regarding effective teamwork and conflict resolution. Offered fall semester. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering. Must be enrolled in one of the following Classifications: Senior.

ECCS 4721 - Senior Design 2
3 Credits
Continuation of Senior Design 1. Demonstration of project capabilities. Acceptance testing. Project deliverables. Offered spring semester. Prerequisite(s): ECCS 4711. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering. Must be enrolled in one of the following Classifications: Senior.

**ECCS 4901 - Special Topics**
*1 to 3 Credits*
Selected topics in electrical or computer engineering or computer science of current interest. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering. Must be enrolled in one of the following Classifications: Senior. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**ECCS 4951 - Independent Study**
*1 to 3 Credits*
Individual study of topic in electrical or computer engineering or computer science of particular interest to the ECCS student. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering. Must be enrolled in one of the following Classifications: Senior. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

**ECCS 4991 - Research Experience**
*1 to 3 Credits*
A planned learning experience involving participation in an approved research project. A paper and an oral presentation regarding the research experience are required. Must be enrolled in one of the following Fields of Study: Computer Engineering, Computer Science, Electrical Engineering.
Course Attributes:
Requires Department Approval

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**General Engineering Courses**

**Subject - Engineering (ENGR)**

**ENGR 1001 - Engineering Orientation**
*0 Credits*
Student introduction to the College of Engineering, introduction to the profession, and a forum for first-year advising. Offered fall semester. Must be enrolled in one of the following Colleges: Engineering.

**ENGR 1041 - Introduction to Engineering 1**
*3 Credits*
The engineering profession and application of the engineering design and analysis processes: problem
solving with consideration of assumptions, criteria and constraints, generation of solutions through the application of standard engineering techniques; communication of results in standard formats. Engineering ethics. Offered fall semester.

Course Attributes:
Critical and Creative Thinking
Effective Comm Writing
Informed Ethical Responses

**ENGR 1051 - Introduction to Engineering 2**
*3 Credits*
A team-based conceptual design project based on the engineering design method: preparation of proposal, analysis of design alternatives, constraints and criteria, testing and verification by prototyping, preparation and presentation of project report. Offered spring semester. Prerequisite(s): ENGR 1041.

Course Attributes:
Diversity-Human Interaction
Effective Comm Non-Writing
Integration Across Disciplines

**ENGR 1901 - Special Topics**
*1 to 3 Credits*
Selected topics of current interest in general engineering. May be repeated as topic varies. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Sophomore, Freshman. Unlimited repeats permitted.

Course Attributes:
Requires Instructor Approval

**ENGR 1911 - Special Topics**
*1 to 3 Credits*
Topics in engineering. Enrollment is restricted to student with specific engineering experiences, such as attendees of programs such as Summer Honors Institute or Project Lead The Way. May be repeated as topics or experiences vary. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Classifications: Sophomore, Freshman. Unlimited repeats permitted.

**ENGR 1951 - Independent Study**
*1 to 3 Credits*
Individual study of topic of particular interest to the student and instructor in general engineering. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Sophomore, Freshman. Unlimited repeats permitted.

Course Attributes:
Requires Instructor Approval

**ENGR 2131 - Statics**
*3 Credits*
Fundamental principles of statics with vector methods. Emphasis on free body diagrams and equations of equilibrium. Topics include resultants of force systems, centroids, centers of gravity, moments of inertia, equilibrium, shear and moment diagrams, loads, trusses, and internal forces. Offered fall and spring semesters. Prerequisite(s): (MATH 1631 or MATH 163) and (PHYS 2311 or PHYS 231).
ENGR 2141 - Dynamics
3 Credits
Fundamental principles of mechanics with vector methods as applied to dynamics. Topics include: kinematics, absolute and relative motion, force, mass and acceleration, work and energy, and impulse and momentum. Offered spring semester. Prerequisite(s): (ENGR 2131 Minimum Grade of C or GE 113 Minimum Grade of C) and (MATH 1641 or MATH 164 or MATH 159).

ENGR 2231 - Strength of Materials
3 Credits
Elastic analysis of deformable bodies using concepts of stress and strain. Topics include: members subjected to tension, compression, torsion, and flexure; development and application of Mohr's circle, determinate beam deflection, material properties, pressure vessels, and composite beams. Offered spring semester. Prerequisite(s): ENGR 2131 or GE 113.

ENGR 2501 - Introduction to Career Development
1 Credit
An introduction to career development including an introduction to industry, the industrial work environment, resume writing, interviewing and job search techniques. Course is designed to prepare a sophomore engineering or computer science student for the industrial experience. Offered fall semester. Must be enrolled in one of the following Colleges: Engineering. May not be enrolled in one of the following Classifications: Freshman.

ENGR 2901 - Special Topics
1 to 3 Credits
Selected topics of current interest in general engineering. May be repeated as topic varies. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Junior, Sophomore. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

ENGR 2951 - Independent Study
1 to 3 Credits
Individual study of topic of particular interest to the student and instructor in general engineering. Offered fall and spring semesters. Must be enrolled in one of the following Classifications: Sophomore, Junior. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval

ENGR 3101 - Engineering Education 1
4 Credits
To include topics from history of engineering and math/science that apply to engineering, an overview of the mathematical foundation of engineering, graphing and the use of technology in a K-12 classroom. Admission to Teacher Education or permission of instructor required. Offered spring semester.
Course Attributes:
Requires CTE admission
ENGR 3501 - Professional Practice
1 Credit
Cooperative education (co-op) employment in a semi-professional capacity. Students work full-time (40 hours per week) in the research, development, manufacturing, or engineering department of an industrial company, consulting firm or governmental agency. A student report on the assignment and an employer's evaluation are required. CUM GPA of 2.5 minimum required. Offered fall, spring and summer semesters. Prerequisite(s): ENGR 2501 or GE 250. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Classifications: Senior, Junior. This course may be repeated 5 times.

ENGR 4101 - Engineering Education 2
4 Credits
To include topics from history and pedagogy of engineering in a K-12 environment, use of pedagogical tools, curriculum development and current policy issues. Admission to Teacher Education or permission of instructor required. Offered fall semester. Prerequisite(s): ENGR 3101. Must be enrolled in one of the following Fields of Study: Engineering Education.
Course Attributes:
Requires CTE admission

ENGR 4201 - Engineering Education Senior Design 1
3 Credits
Educational aspects within a team-based design project in area in or related to a specific discipline within engineering issues regarding effective teamwork. Utilization of project management standards. Establishment of project capabilities, requirements and constraints. Pedagogy and/or policy issues as applied to projects. Must be enrolled in one of the following Fields of Study: Engineering Education.
Course Attributes:
Critical and Creative Thinking
Effective Comm Writing
Integration Across Disciplines

ENGR 4211 - Engineering Education Senior Design 2
3 Credits
Continuation of Engineering Education Senior Design 1. Demonstration of educational aspects of project capabilities. Acceptance testing. Project deliverables. Prerequisite(s): ENGR 4201.
Course Attributes:
Informed Responses-Aesthetics

Department of Mechanical Engineering

Subject - Mechanical Engineering (ME)

ME 1411 - Engineering Material Science
3 Credits
Fundamental physical and microstructural characteristics of materials and how these relate to their mechanical properties. Evaluation of these properties for material selection. Metallurgical aspects
including equilibrium diagrams. Includes hands-on experiences in material science. Offered spring semester.

**ME 1901 - Special Topics**  
*1 to 3 Credits*  
Selected topics of current interest in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.

**ME 1951 - Independent Study**  
*1 to 3 Credits*  
Independent study of a topic of particular interest to the student in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.  
Course Attributes: Requires Instructor Approval

**ME 2311 - Thermodynamics**  
*3 Credits*  
Fundamentals of classical thermodynamics. Work, heat transfer, and thermodynamic properties. The First and Second Law of Thermodynamics. Application to power and refrigeration cycles. Offered fall and spring semesters. Prerequisite(s): PHYS 2311 or PHYS 232.

**ME 2511 - Computer Applications**  
*3 Credits*  
Mechanical engineering problem solving using computer software, including MATLAB. Prerequisite(s): ENGR 2131.

**ME 2901 - Special Topics**  
*1 to 3 Credits*  
Selected topics of current interest in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.

**ME 2951 - Independent Study**  
*1 to 3 Credits*  
Independent study of a topic of particular interest to the student in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.  
Course Attributes: Requires Instructor Approval

**ME 3111 - Mechanical Design 1**  
*3 Credits*  
Introduction to mechanical design with the computer used as a tool for solid modeling and design layout. Synthesis and analysis of linkages along with cam design. Offered fall semester. Prerequisite(s): (ENGR 2141 or GE 214) and (ME 2511 or ECCS 1611 or ECCS 160 or ECCS 164).
ME 3121 - Mechanical Design 2
3 Credits
Advanced mechanics of materials. Design and selection of various machine elements such as screws, bearings, welds, and gears, etc. Offered spring semester. Prerequisite(s): ME 3111 and (ENGR 2231 or GE 223).

ME 3211 - Dynamic Systems 1
3 Credits
Fundamentals of dynamic system behavior. Mathematical modeling of mechanical, thermal, fluid, and electrical systems; analytical and computer solution methods. La Place transforms, transfer function and state variable methods. Free and forced vibration analysis, vibration suppression, multiple DOF systems. Offered fall semester. Prerequisite(s): (MATH 2651 or MATH 275) and (ENGR 2141 Minimum Grade of C or GE 214 Minimum Grade of C) and (ECCS 2311 or GE 201).

ME 3221 - Dynamic Systems 2
4 Credits
Modeling, analysis and design of linear feedback control systems. Transfer function and state space methods. Frequency response. Digital logic and controls. Laboratory work in digital logic design and performance studies of real systems. Prerequisite(s): ME 3211.

ME 3231 - Automotive Engineering
3 Credits
Studies in land vehicle dynamics and driveline systems. Specific topics include acceleration and braking performance, steering, suspensions, tires and current developments in powertrain and safety systems. Prerequisite(s): (ME 3211 or ECCS 2321).

ME 3311 - Fluid Mechanics
3 Credits
Fundamentals of fluids phenomena, including hydrostatics, conservation of mass, momentum, and energy, dimensional analysis, internal and external flow, compressible flow. Offered spring semester. Prerequisite(s): (MATH 2651 or MATH 275) and (ME 2311 or ME 365).

ME 3321 - Heat Transfer
4 Credits
Principles of the three mechanisms of heat transfer (conduction, convection, radiation) in solid, fluid and vacuum media. Development of the control volume approach, as well as numerical solution techniques. Applications to engineering problems and systems. Prerequisite(s): (PHYS 2311 or PHYS 232) and (MATH 2651 or MATH 275) and (ME 3311 or ME 366).

ME 3411 - Manufacturing Laboratory
1 Credit
Introduction to the machines and processes involved in manufacturing. Students will manufacture parts by sand casting, welding, rapid prototyping, as well as using a mill, lathe, drill, press and CNC plasma cutter.

ME 3421 - Manufacturing Processes
3 Credits
Manufacturing engineering and technology including casting, rolling, forging, extrusion, drawing, sheet
metal forming, machining, and welding. Theoretical as well as practical considerations. Quality control and statistical methods. Prerequisite(s): ME 1411 or GE 243.

**ME 3511 - Experimental Methods**
*2 Credits*

**ME 3521 - Finite Element Analysis**
*3 Credits*
The finite element method techniques are studied. These techniques are used to solve engineering continuum problems, both 'by hand' and using the general purpose commercial FEA package, ANSYS. Applications to engineering design of static and dynamic structures, as well as thermal systems. Offered spring semester. Prerequisite(s): ENGR 2231 or GE 223.

**ME 3901 - Special Topics**
*1 to 3 Credits*
Selected topics of current interest in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.

**ME 3951 - Independent Study**
*1 to 3 Credits*
Independent study of a topic of particular interest to the student in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.
Course Attributes: Requires Instructor Approval

**ME 4011 - Process of Design**
*3 Credits*
The process of design is covered with a focus on problem-solving methodology, project management, and engineering economy. Teamwork tools and design are used on a team project. Offered fall semester. Corequisite(s): ME 4111. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Must be enrolled in one of the following Classifications: Senior.

**ME 4111 - Capstone 1**
*1 Credit*
Initiation of capstone design project as a team effort. Offered fall semester. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Must be enrolled in one of the following Classifications: Senior.

**ME 4121 - Capstone 2**
*2 Credits*
Completion of capstone design project as a team effort. Offered spring semester. Prerequisite(s): ME 4111 or ME 411. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one
of the following Fields of Study: Mechanical Engineering. Must be enrolled in one of the following Classifications: Senior.

**ME 4211 - Industrial Controllers**  
*3 Credits*  
Applications in control systems concentrating on PLCs and ladder logic. Advanced control theory explored. Laboratory work concentrates on PLC applications. Offered fall semester. Prerequisite(s): ME 3221 or ECCS 3141.

**ME 4221 - Intelligent Systems**  
*3 Credits*  
Students will learn to model and control actual systems. Systems from a variety of disciplines will be used. Students will apply a variety of algorithms to control and test these systems in a laboratory setting. Offered spring semester. Prerequisite(s): ME 3211 or ECCS 3141 or ME 339 or ECCS 344.

**ME 4231 - Robotics**  
*3 Credits*  
An introduction to topics in robotics. Topics will include robot kinematics, notion planning, mobile robots, robot sensors, and artificial intelligence. Students will complete projects using robots.

**ME 4311 - Computational Fluid Dynamics**  
*3 Credits*  
The theory and methods of computational fluid dynamics, including grid generation, flow solution, and postprocessing analysis. Implicit and explicit methods are studied, as well as direct and iterative solution techniques, and stability criteria. Students develop their own computer programs, as well as working with Fluent, Pointwise, Cobalt, and Fieldview. Lab time is primarily spent using commercial CFD codes to perform flow analyses, but some computer programming may be required. Offered fall semester. Prerequisite(s): ME 3311 or ME 366.

**ME 4321 - Renewable Energy**  
*3 Credits*  
An overview of renewable energy sources such as solar, wind, water, and biomass. Current and potential technologies for extracting, storing, and converting renewable energy into electricity. Economic and social issues that impact renewable energy projects. Offered spring semester. Prerequisite(s): (ME 2311 or ME 365).

**ME 4331 - Advanced Thermodynamics**  
*3 Credits*  
Application of thermodynamic laws to the analysis of advanced cycles and processes. Modifications to the basic Rankine, Brayton and piston engine power cycles, including topping cycles and cogeneration. Basic and advanced refrigeration and heat pump cycles. Prerequisite(s): ME 2311 or (ME 366 and ME 367).

**ME 4411 - Biomaterials and Medical Devices**  
*3 Credits*  
Properties and application of materials that are used in contact with biological systems. Structures and properties of human tissues. Biomechanics related to implant design. Host reactions to implants. Offered fall semester.
ME 4511 - Engineering Analysis
3 Credits
Solution of a wide range of mechanical engineering problems using various analytical and numerical techniques. Prerequisite(s): (ME 2511 or ECCS 160) and ME 3121 and ME 3221 and ME 3321 and ME 3321.

ME 4901 - Special Topics
1 to 3 Credits
Selected topics of current interest in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.

ME 4911 - Advanced Thermal Sciences
3 Credits
Application of fundamental concepts from thermodynamics, fluid mechanics, and heat transfer to the analysis of complex thermal systems, including combustion and psychrometrics, compressible flow, and convective and radiative heat transfer. Offered fall semester. Prerequisite(s): (ME 3311 or ME 366) and (ME 3321 or ME 367).

ME 4921 - Mechanical Design of Components
3 Credits
Design and selection of various machine elements. Formerly ME 417. Offered fall semester. Prerequisite(s): ME 319.

ME 4951 - Independent Study
1 to 3 Credits
Independent study of a topic of particular interest to the student in mechanical engineering. Must be enrolled in one of the following Colleges: Engineering. Must be enrolled in one of the following Fields of Study: Mechanical Engineering. Unlimited repeats permitted.
Course Attributes:
Requires Instructor Approval
The Rudolph H. Raabe College of Pharmacy Courses

Department of Pharmaceutical and Biomedical Sciences

Subject - Pharmaceutical and Biomedical Sciences (PHBS)

PHBS 2901 - Applied Sciences of Pharmacy
3 Credits
Fundamental principles and professional applications of basic and applied sciences, such as physics and biostatistics, are explored in relation to advanced science topics and integrated clinical sciences. Drug discovery and development, medical imaging, and the science of alternative medicine are discussed in the context of applications to pharmacy practice. The Human Genome Project is described and a method of DNA sequencing is presented with specific application to pharmacy. Model drug compounds are presented to illustrate the critical need for thorough understanding and broad integration of basic science principles when considering the multitude of related professional applications in the practice of pharmacy. Offered spring semester. Prerequisite(s): STAT 1761 or STAT 1561 or STAT 156 or STAT 256. This course may be repeated 2 times.
Course Attributes:
Integration Across Disciplines

PHBS 3101 - Drug Abuse Education
2 Credits
Development of skills in educating community groups regarding drugs and drug abuse. Emphasis on the development, mastery and delivery of concept-oriented lectures, and the effective use of learning materials in providing drug abuse education to various community groups, especially middle school and high school students. Background information, presentation techniques and approaches, and various current topics relating to drug abuse and chemical dependency. Offered fall and spring semesters. Prerequisite(s): BIOL 1341 or BIOL 124. Corequisite(s): PHBS 3111. This course is repeatable for a total of 2 hours.

PHBS 3111 - Service Learning in Drug Abuse Education
1 Credit
Community service-oriented presentation of drug abuse education talks to various community groups, including middle school and high school students. Opportunity to further develop skills in conveying health information to the public, focusing on issues relating to drug abuse and chemical dependency. Offered fall and spring semesters. This course is repeatable for a total of 7 hours.

PHBS 3201 - Pharmacy Applications Laboratory
1 Credit
Clinical skills and problem-solving laboratory experiences examining basic science and clinical applications in pharmacy. In vitro and in vivo laboratory experiences as well as clinically-based exercises emphasizing patient care. Offered spring semester. Prerequisite(s): PHBS 3411 or PHBS 341. This course may be repeated 2 times.
PHBS 3311 - Pharmaceutical Sciences 1
2 Credits
Physical pharmacy applications in the pharmaceutical sciences. Application of physicochemical principles applied to pharmaceutical preparations. Offered spring semester. Prerequisite(s): (PHBS 3411 or PHBS 341) and (PHPR 3011 or PHPR 301) and (PHPR 3311 or PHPR 331). This course may be repeated 2 times.

PHBS 3411 - Biochemistry 1
3 Credits
The chemistry of living organisms with emphasis on the human system. Topics include acid-base balance, buffers, chemistry of amino acids, proteins, enzymes, carbohydrates, lipids, vitamins, nucleic acids and porphyrins. Biochemical genetics and genetic disorders are also covered. Offered fall semester. Prerequisite(s): (CHEM 253) or (CHEM 2521 and CHEM 2561). This course may be repeated 2 times.

PHBS 3421 - Biochemistry 2
3 Credits
The major metabolic processes that are essential for human life, including biochemical energetics, the electron transport system, Krebs cycle, the metabolism of carbohydrates, lipids and amino acids, and the biosynthesis of purines, pyrimidines, nucleic acids and proteins. Offered spring semester. Prerequisite(s): PHBS 3411 or PHBS 341. This course may be repeated 2 times.

PHBS 3501 - Basic Nutrition
2 Credits
Basic principles of nutrition for Pharmacy and non-Pharmacy students. Topics include a description of essential nutrients, methods of evaluating individual dietary adequacy, and dietary methods for weight control. Offered spring semester. This course may be repeated 2 times.

PHBS 3751 - Immunology
3 Credits
Modern immunology and immunotherapy. The principles of basic and clinical immunology, historical background, host defense mechanisms, types of immune responses, nature of antigens and antibodies, antigen-antibody interactions leading to immunological disease, and transplantation and cancer immunology. The use of immunobiologics currently available in the USA for prevention and treatment of most common infections and immunologic diseases. The role of biotechnology as a source of immunobiologics will be discussed. Offered spring semester. Prerequisite(s): (PHBS 3411 or PHBS 341 or CHEM 3111). This course may be repeated 2 times.

PHBS 4321 - Pharmaceutical Sciences 2
8 Credits
Basic and clinical pharmacokinetics, and concepts of pharmacokinetics related to physiology and pathophysiology. Pharmaceutic and biopharmaceutic aspects of a variety of drug dosage forms and delivery systems. Offered fall semester. Prerequisite(s): (PHBS 3311 or PHBS 431) and (PHBS 3421 or PHBS 342) and (PHBS 3751 or PHBS 375) and (PHBS 3201). This course may be repeated 2 times.

PHBS 4431 - Biomedical Sciences 1
5 Credits
An interdisciplinary focus on the mechanisms by which diseases, drugs and chemicals alter normal biochemical and physiological processes. The sciences of pathophysiology, pharmacology, toxicology,
and medicinal chemistry are integrated to provide an in-depth understanding of these mechanisms. The course progresses from factors affecting sub-cellular mechanisms to those of whole organ systems. Includes small group recitation and student-presented seminar sections in order to introduce the basic and clinical scientific literature and provide activities which illustrate the pharmacotherapeutic applications of the material. Offered fall semester. Prerequisite(s): (PHBS 3311 or PHBS 431) and (PHBS 3421 or PHBS 342) and (PHBS 3751 or PHBS 375) and (PHBS 3201). This course may be repeated 2 times.

**PHBS 4441 - Biomedical Sciences 2**

*6 Credits*
Continuation of PHBS 4431. Offered spring semester. Prerequisite(s): (PHBS 4431 or PHBS 443) and (PHBS 4321 or PHBS 432). Must have one of the following Student Attributes: P4. This course may be repeated 2 times.

**PHBS 5621 - Survey of Research Areas in the Pharmaceutical and Biomedical Sciences**

*1 Credit*
Presentation of the research areas in the pharmaceutical and biomedical areas. Opportunities in these areas are defined. Offered spring semester. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times.

**PHBS 5651 - Research in the Pharmaceutical and Biomedical Sciences**

*2 Credits*
A research experience for students who may pursue graduate studies in the pharmaceutical or biomedical sciences or related areas. Participation in all aspects of the design, implementation, model preparation, instrumentation, and reporting of specific research problems. Offered fall and spring semesters. This course may be repeated 8 times.

**PHBS 5901 - Special Topics in Pharmaceutical and Biomedical Sciences**

*1 to 3 Credits*
Distinct special topics in the pharmaceutical and/or biomedical sciences. Offered fall and spring semesters. This course may be repeated 2 times.

Course Attributes:
Requires Instructor Approval

**PHBS 5971 - Independent Study - Pharmaceutical and Biomedical Sciences**

*1 to 3 Credits*
Independent study in the pharmaceutical and/or biomedical sciences. Offered fall and spring semesters. This course may be repeated 8 times.

**Department of Pharmacy Practice**

**Subject - Pharmacy Practice (PHPR)**

**PHPR 1011 - The Profession of Pharmacy 1**

*1 Credit*
The profession of pharmacy, the delivery of patient care, and the operation of the University and College of Pharmacy will be covered. Traditional classroom presentations are reinforced through
structured experiential rotations in a variety of health care and service learning sites. Offered fall semester. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 1 hour.

Course Attributes:
Critical and Creative Thinking

**PHPR 1021 - The Profession of Pharmacy 2**

*1 Credit*

Continuation of PHPR 1011. Offered spring semester. Prerequisite(s): PHPR 1011. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 1 hour.

Course Attributes:
Informed Ethical Responses

**PHPR 1151 - Lifetime Wellness for Pharmacy Professionals**

*1 Credit*

Lecture and lab course covering the essential elements of wellness. Topics include: fitness components, weight management, nutrition, stress management, emotional health, and behavior modification strategies. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Pharmacy. Must be enrolled in one of the following Classifications: Freshman. Must have one of the following Student Attributes: P1. This course may be repeated 2 times. This course is repeatable for a total of 1 hour.

**PHPR 2011 - The Profession of Pharmacy 3**

*2 Credits*

Continuation of professional development and understanding of pharmacy services and patient care delivery. Addresses issues relevant to pharmacy internship and advanced pharmacy course work. Offered fall semester. Prerequisite(s): PHPR 1021. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

Course Attributes:
Scientific and Quantitative Literacy

**PHPR 2021 - The Profession of Pharmacy 4**

*2 Credits*

Continuation of PHPR 2011. Offered spring semester. Prerequisite(s): PHPR 2011. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

Course Attributes:
Effective Comm Non-Writing

**PHPR 2301 - Ethics in Professional Practice**

*2 Credits*

Guided discussions show there are ethical problems in life and there are better and worse ways of dealing with those problems. Offered spring semester. Must have one of the following Student Attributes: P5, P4.

**PHPR 2411 - Contemporary Pharmacy Practice 1**

*2 Credits*
Multiple practice settings including retail, institutional, manufacturing, distribution, association, government and how each is implementing a pharmaceutical care mission. Offered fall semester. Prerequisite(s): PHPR 1021 or PHPR 103. Must be enrolled in one of the following Colleges: Pharmacy, Business Administration. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business, Pharmacy. Must be enrolled in one of the following Classifications: Senior, Junior, Sophomore.

**PHPR 2421 - Contemporary Pharmacy Practice 2**  
*2 Credits*  
Current topics from multiple practice settings including retail, institutional, manufacturing, distribution, health care/pharmacy associations, and government will be discussed and includes how each is implementing a patient care and pharmaceutical care mission. Offered spring semester. Prerequisite(s): PHPR 1021 or PHPR 103. Must be enrolled in one of the following Colleges: Pharmacy, Business Administration. Must be enrolled in one of the following Fields of Study: Pharmaceutical Business, Pharmacy. Must be enrolled in one of the following Classifications: Pharmacy - Fifth Year.

**PHPR 2511 - Preventative Medicine: Issues and Education**  
*2 Credits*  
Important health issues in the United States and the applications these disease states have on individual health, health care costs, and productivity. Special emphasis on learning teaching methods that can be effective in increasing public awareness and modifying behavior in order to prevent disease. Offered spring semester. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

**PHPR 2611 - Professional Leadership Development**  
*1 Credit*  
Professional Leadership Development is an elective course designed for pharmacy students who have completed one or two years of study in the Pharmacy College. The goal of the course is to help students in developing their leadership skills for preparation in future leadership roles in the profession. Prerequisite(s): PHPR 1021 or PHPR 103. Must be enrolled in one of the following Colleges: Pharmacy.

**PHPR 3011 - The Profession of Pharmacy 5**  
*2 Credits*  
Continues professional development, understanding, and reinforcement of pharmacy services and patient care delivery. The functional practice of pharmacy, including product (medication and information) distribution systems and evaluation of their quality and impact on patient care. Offered fall semester. Prerequisite(s): PHPR 2021. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

**PHPR 3021 - The Profession of Pharmacy 6**  
*3 Credits*  
Continuation of PHPR 3011. Offered spring semester. Prerequisite(s): PHPR 3011 and PHPR 3311. Must be enrolled in one of the following Colleges: Pharmacy. Must be enrolled in one of the following Fields of Study: Pharmacy. Must be enrolled in one of the following Classifications: Senior, Junior. Must have one of the following Student Attributes: P3. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

**PHPR 3200 - Courses for P4s**  
*18 Credits*  
Placeholder course for P4 registration. A single section of each course listed below will be in each
section of PHPR 3200. After Advanced Registration, students will be moved to the correct sections of classes. Students will not be graded in this course. Must be enrolled in one of the following Fields of Study: Pharmacy. Must have one of the following Student Attributes: P4, P3.

**PHPR 3311 - OTC Products**
*3 Credits*
Students gain skills to counsel patients who desire to conduct self-medication or self-therapy with non-prescription drug products. Offered fall semester. Prerequisite(s): PHPR 2021. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 3 hours.

**PHPR 3401 - Women's Health Issues**
*1 Credit*
This course introduces students to timely and important topics in women's health through a discussion-based approach guided by the course instructor. This course broadly covers a number of issues that impact women's health and affect the provision of healthcare to women in the U.S. and internationally, both from a clinical health and public health perspective. Students will be presented with a holistic view of women's health across the lifespan and will also be exposed to social and economic issues that impact women's health. Offered fall semester. Prerequisite(s): PHPR 1011 or PHPR 103. Must have one of the following Student Attributes: P5, P4, P3, P2.

**PHPR 3411 - Introduction to Natural Product Therapeutics**
*2 Credits*
The course will help pharmacy students understand the use of therapeutics and natural products in modern medical practice and the role of the pharmacist within the practice. Offered spring semester. Must have one of the following Student Attributes: P5, P4.

**PHPR 3431 - Chemical Dependency**
*2 Credits*
This course educate the pharmacy student about the disease of chemical dependency, the risks to pharmacists, consequences of use (personal and professional) and treatment methods and recovery. Offered fall semester. Must have one of the following Student Attributes: P5, P4, P3, P2.

**PHPR 3451 - Pharmacy Ownership**
*2 Credits*
A step wise approach to establishing a pharmacist owned business. Starting with a review of the various business opportunities available for someone with a pharmacy degree, the course begins with the philosophy of business ownership and then leads the student through the steps needed to open a business. Market and site analysis, business forms, lease review, developing a business plan, understanding financial considerations, capital needs, acquiring startup monies, layout, human resources and promotional strategy are all reviewed. Offered spring semester. Prerequisite(s): PHPR 2021 or PHPR 203. Must have one of the following Student Attributes: P3.

**PHPR 4011 - Patient Care Assessment Module 1**
*2 Credits*
Preparation for subsequent therapeutic modules. Development and enhancement of analytical and communicative skills required to prepare a drug therapy problem list. Offered fall semester.
Prerequisite(s): PHPR 3021 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 2 hours.

**PHPR 4411 - Cardiovascular Module**

*6 Credits*

An integrated approach to organ system disorders including the rational use of pharmacological agents used to treat them. Comprehensive discussion of drug design and structure activity relationships is integrated with the therapeutic and toxicologic actions of the drugs. Basic principles of the pharmacokinetic and pharmaco-dynamic properties of the drugs used in these disorders are presented and discussed. Offered spring semester. Prerequisite(s): PHBS 4321 and PHBS 4431 and PHPR 4011. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 6 hours.

**PHPR 4421 - Chronic and Ambulatory Medicine Module**

*6 Credits*

Continuation of PHPR 4411. An integrated approach to organ system disorders including the rational use of pharmacological agents used to treat them. Comprehensive discussion of drug design and structure activity relationships is integrated with the therapeutic and toxicologic actions of the drugs. Basic principles of the pharmacokinetic and pharmaco-dynamic properties of the drugs used in these disorders are presented and discussed. Offered spring semester. Prerequisite(s): PHBS 4321 and PHBS 4431 and PHPR 4011. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 6 hours.

**PHPR 5200 - Courses for P5s Fall Semester**

*18 Credits*

Placeholder course for P5 fall semester registration. A single section of each course listed below will be in each section of PHPR 5200. After Advanced Registration, students will be moved to a section of: PHPR 5431, PHPR 5441, PHPR 5451, PHPR 5471. Students will not be graded in this course. Must have one of the following Student Attributes: P5, P4.

**PHPR 5251 - Drugs of Abuse**

*1 Credit*

Major issues regarding drug abuse, with special emphasis on the specific agents, their sources, common distribution modes, patterns of substance abuse, pharmacological effects, mechanisms, toxicological concerns, treatment modalities, and approaches to drug abuse education. Offered fall and spring semesters. Must have one of the following Student Attributes: P5.

**PHPR 5401 - Patient Counseling and Communications**

*2 Credits*

To be a pharmacist is to be an educator and communicator of health and medication information. Counseling patients regarding prescription and over-the-counter medications is a skill that usually develops with practice and professional guidance. The purpose of this course is to give the interested student some constructive critical evaluation in the art of patient counseling. Offered spring semester. Must have one of the following Student Attributes: P5, P4, P3.

**PHPR 5431 - Infectious Disease Module**

*5.5 Credits*

Continuation of PHPR 4421. An integrated approach to organ system disorders including the rational use
of pharmacological agents used to treat them. Comprehensive discussion of drug design and structure activity relationships is integrated with the therapeutic and toxicologic actions of the drugs. Basic principles of the pharmacokinetic and pharmaco-dynamic properties of the drugs used in these disorders are presented and discussed. Offered fall semester. Prerequisite(s): PHPR 4411 and PHPR 4421. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 5.5 hours.

**PHPR 5441 - Advanced Endocrine Module**  
*3.5 Credits*  
Continuation of PHPR 5431. An integrated approach to organ system disorders including the rational use of pharmacological agents used to treat them. Comprehensive discussion of drug design and structure activity relationships is integrated with the therapeutic and toxicologic actions of the drugs. Basic principles of the pharmacokinetic and pharmaco-dynamic properties of the drugs used in these disorders are presented and discussed. Offered fall semester. Prerequisite(s): PHPR 4411 and PHPR 4421. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 3.5 hours.

**PHPR 5451 - Central Nervous System Module**  
*5.5 Credits*  
Continuation of PHPR 5441. An integrated approach to organ system disorders including the rational use of pharmacological agents used to treat them. Comprehensive discussion of drug design and structure activity relationships is integrated with the therapeutic and toxicologic actions of the drugs. Basic principles of the pharmacokinetic and pharmaco-dynamic properties of the drugs used in these disorders are presented and discussed. Offered fall semester. Prerequisite(s): PHPR 4411 and PHPR 4421. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 5.5 hours.

**PHPR 5461 - Capstone in Pharmacy Practice**  
*6 Credits*  
The module requires the student to utilize accumulated pharmaceutical education and apply learned principles to organize and synthesize relevant information to describe, optimize and critique drug therapy in unique and classic diseases. Information will be presented in written and oral, formal and informal formats. Activities include case presentations, reviews of 'the literature,' literature critiques and other formats that allow demonstration of proficiency in effective, safe, and 'patient specific' application of drug therapy. Students work in small groups when possible to demonstrate interpersonal skills. Culminates with an encompassing final exam which is a prerequisite for clinical rotations. Offered spring semester. Prerequisite(s): PHPR 5431 and PHPR 5441 and PHPR 5451 and PHPR 5471. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 6 hours.

**PHPR 5471 - Oncology Module**  
*3.5 Credits*  
Continuation of PHPR 5451. An integrated approach to organ system disorders including the rational use of pharmacological agents used to treat them. Comprehensive discussion of drug design and structure activity relationships is integrated with the therapeutic and toxicologic actions of the drugs. Basic principles of the pharmacokinetic and pharmaco-dynamic properties of the drugs used in these disorders are presented and discussed. Offered fall semester. Prerequisite(s): PHPR 4411 and PHPR
4421. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 3.5 hours.

**PHPR 5501 - Pharmacy Administration Module**  
**6 Credits**  
An interdisciplinary approach to the practice of pharmacy as it fits into the contemporary health-care system and the business environment. Includes theoretical concepts as well as practical methodology techniques to assess the external and internal economic, social, philosophical, ethical, and legal influences on the practice. Planning, evaluating, and decision making through financial report analysis and case study is stressed. Offered spring semester. Prerequisite(s): PHPR 5431 and PHPR 5441 and PHPR 5451 and PHPR 5471. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 6 hours.

**PHPR 5531 - Special Populations**  
**3 Credits**  
The course will educate students in the clinical guidelines and therapeutics of special patient populations including pediatrics, geriatrics, pregnancy and lactation, and others. Offered spring semester. Prerequisite(s): PHPR 5431 and PHPR 5441 and PHPR 5451 and PHPR 5471. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 3 hours.

**PHPR 5551 - Emergency Medicine**  
**2 Credits**  
An overview of unscheduled medical appointments and emergencies. Offered spring semester. Must have one of the following Student Attributes: P5.

**PHPR 5561 - Palliative Care**  
**2 Credits**  
Discuss and understand related pathophysiology changes and apply related therapeutics to various chronic disease states that warrant palliation of related symptoms. The role of the interdisciplinary team including pharmacists, nurses, physicians, chaplains and related social support will be explored as a pivotal point for successful palliative care. Pharmacokinetic and pharmacodynamic implications of geriatric patients will be discussed in relation to therapeutic selection and various disease progression models. Offered spring semester. Must have one of the following Student Attributes: P5.

**PHPR 5581 - Advanced Compounding**  
**2 Credits**  
A laboratory based course designed to expand on the basic compounding technique and develop problem solving skills pertaining to pharmaceutical compounding dilemmas. Must be enrolled in one of the following Classifications: Pharmacy - Fifth Year.

**PHPR 5591 - Career Planning**  
**1 Credit**  
This course offers an overview of information to prepare a student pharmacist to take necessary steps to achieve the desired pharmacy career. The course will be a combination of class discussions, guest speakers, in-class workshops, readings and assignments. Prerequisite(s): PHPR 5431 and PHPR 5441 and PHPR 5451 and PHPR 5471.
PHPR 5941 - Seminar in Pharmacy Practice
1 to 3 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Pharmacy. This course is repeatable for a total of 3 hours.

PHPR 5971 - Independent Study-Pharmacy Practice
1 to 16 Credits
Can be repeated as the topic varies. Offered fall and spring semesters. Must be enrolled in one of the following Colleges: Pharmacy. This course is repeatable for a total of 16 hours.

PHPR 6501 - Advanced Pharmacy Practice Experience - 1
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6502 - Advanced Pharmacy Practice Experience - 2
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6503 - Advanced Pharmacy Practice Experience - 3
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6504 - Advanced Pharmacy Practice Experience - 4
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6505 - Advanced Pharmacy Practice Experience - 5
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6506 - Advanced Pharmacy Practice Experience - 6
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6507 - Advanced Pharmacy Practice Experience - 7
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and tertiary patient care settings, as well as a means of integrating facts and principles received from antecedent courses. The process will occur in both institutional and ambulatory settings. At each practice setting, the student is expected to become a functioning component of the ongoing pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required. Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531 Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be repeated 2 times. This course is repeatable for a total of 4 hours.

PHPR 6508 - Advanced Pharmacy Practice Experience - 8
4 Credits
Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and
tertiary patient care settings, as well as a means of integrating facts and principles received from
antecedent courses. The process will occur in both institutional and ambulatory settings. At each
practice setting, the student is expected to become a functioning component of the ongoing
pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of
attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required.
Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531
Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be
repeated 2 times. This course is repeatable for a total of 4 hours.

**PHPR 6509 - Advanced Pharmacy Practice Experience - 9**

*4 Credits*

Full-time experiential program emphasizing delivery of pharmaceutical care in primary, secondary and
tertiary patient care settings, as well as a means of integrating facts and principles received from
antecedent courses. The process will occur in both institutional and ambulatory settings. At each
practice setting, the student is expected to become a functioning component of the ongoing
pharmaceutical care services through faculty instruction, self-learning, and by observing the modeling of
attendant faculty members. Completion of all BSPC and PHPR coursework with a C or better is required.
Prerequisite(s): PHPR 5461 Minimum Grade of C and PHPR 5501 Minimum Grade of C and PHPR 5531
Minimum Grade of C. Must be enrolled in one of the following Colleges: Pharmacy. This course may be
repeated 2 times. This course is repeatable for a total of 4 hours.
**FFAS 2191 - Economics and Public Policy Issues**  
*3 Credits*  
The purpose of this course is to teach you how to apply the economic way of thinking to analyze public policy issues. Emphasis will be placed on providing you with tools that have a wide applicability to thinking about a range of policy issues rather than extensive details about different issues. Part I of the class reviews basic economic concepts and the market economy. Part II introduces public choice and analyzes various policy issues by using economics to compare the operation of markets and polities.  
Course Attributes:  
Requires Instructor Approval

**FFAS 2411 - Public Affairs Seminar Internship**  
*6 Credits*  
This six credit course is designed to give students a practitioner's understanding of presidential-congressional relations in an era of polarized politics. Its topics include: the dynamics of the legislative process; divided government; how presidents attempt to achieve their goals in a system of “separated institutions, sharing powers”; the dynamics of the legislative process; and the causes and consequences of polarized politics. Students registered in the seminar must intern 14-16 hours per week in either the legislative, judicial or executive branch or in a public, research or political organization involved in the national policy-making process.  
Course Attributes:  
Requires Instructor Approval

**FFAS 4081 - Theories of Constitutional Interpretation**  
*3 Credits*  
The U.S. Constitution sought to set up a government powerful enough to attain public ends and constrained enough to protect individual rights and liberty. It achieves this constraint by imposing the rule of law on the government and by dividing power among various offices and institutions. Yet this constitution - and any constitution - must be interpreted to be enforced. This course will look closely at the text of the U.S. Constitution, at what it meant for those who wrote it on behalf of their generation and those who came after.  
Course Attributes:  
Requires Instructor Approval