Leadership laboratory is mandatory for AFROTC cadets to refining communication skills. and it complements this course by providing cadets with advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

**ANTHROPOLOGY COURSES (ANT)**

2200 Anthropology (3-3)
An examination of human, physical and cultural development using evidence from archaeology, paleontology, genetics, ecology, cultural anthropology and linguistics with emphasis on the historical, structural and symbolic aspects of human culture. This course is prerequisite for all 3300 and 4400 level courses in anthropology. This course does not count toward the 36 hour major.

3305 Introduction to Archaeology (3-3)
An examination of the methods and theory of traditional and contemporary approaches to archaeological research.

3310 Cultural Anthropology (3-3)
An anthropological examination of human cultural development and a survey of both contemporary and past human cultures. May be taken for sociology credit.

3311 Physical Anthropology (3-3)
An examination of human biological development from the beginning of mankind through the Pleistocene using evidence from archaeology, paleontology, biology, genetics and osteology.

3312 Field Techniques in Archaeology (3-3)
Instruction in survey and excavation methods and techniques used in the discipline of archaeology.

3313 Laboratory Techniques in Archaeology (3-3)
Instruction in the methods and techniques used in the curation and analysis of cultural materials recovered from archaeological investigations.

3320 Prehistory of North American Indians (3-3)
An examination of the aboriginal cultures of North American prior to the period of European contact upon archaeological evidence.

3321 North American Indians Since Contact (3-3)
An examination of aboriginal cultures of North America from the period of European exploration, colonization, and settlement to present using archaeological, ethnographic, and ethnomethodological studies.

3325 Selected Topics in Anthropology (3-3)
Anthropological examination of a designated topic of special and/or current interest and importance, which is generally not covered in regularly offered courses in the department.

3340 Language in Culture and Society (3-3)
A sociological and anthropological examination of language from a descriptive, historical and social perspective.
3360 Magic, Witchcraft and Religion (3-3)
An anthropological examination of the role of religion and the supernatural among traditional peoples.

3370 Native American Religions (3-3)
An introduction to Native American religions. Focused on basic concepts of Native religions, the course familiarizes students with various aspects of religion and world views drastically different from their own. Special attention is paid to religious movements among Native groups which resulted from contact with Europeans and Africans.

4400 Southeastern Archaeology (3-3)
An in-depth study of the history of archaeology in the southeastern United States and the prehistoric and early historic cultures that inhabited the region for the last 12,000 years.

4401 Native American Cultures of the Southwestern U.S. (3-3)
An anthropological examination of the prehistory and early history of the southwestern U.S. native cultures. Includes classroom lecture and on site observation.

4410 High Civilizations of the Old World (3-3)
An anthropological examination of the sociocultural systems that formed the foundations of preindustrial high civilizations of the Old World and a survey of past cultures that achieved this degree of development.

4411 High Civilizations of the New World (3-3)
An anthropological examination of the sociocultural systems that formed the foundations of preindustrial high civilizations of the New World and a survey of past cultures that achieved this degree of development.

4420 Forensic Osteology (3-3)
A survey of the methods used in recovering human osteological remains from field sites. It includes methods used in identifying, preserving, and recording data from human osteological remains, and the methods used in determining the cause of death, age, sex, race, and stature of individuals from human osteological remains.

4493-4494 Guided Independent Study (1 to 3 credit hours per course per semester)
Supervised study through field and laboratory projects, guided readings, creative endeavors or achievement of specific skills. Prerequisites: Junior or senior status, with a minimum overall GPA of 3.0, permission of guiding professor, approval of department chair or dean. A written request is to be submitted to the department chairperson at least two weeks in advance of the term in which the study is to be undertaken. May not be used to repeat a course for which a grade of “D” or less has been earned. Application forms are available in the office of University Records. Guided independent research may be taken only in the applicant’s major or minor field.

ART COURSE (ART)

3302 History of the Arts (3)
An analysis of examples of art from diverse periods with an emphasis on trends and patterns and the interactions of art with various aspects of social, political, and intellectual developments.

BIOLOGY COURSES (BIO)

1100 Principles of Biology (3)
Biological principles including chemistry of life, cell structure and function, bioenergetics, cell reproduction, heredity, and ecology. Credit for this course cannot be applied toward any curriculum in biology. Corequisite: BIO L100.

L100 Principles of Biology Lab (1-2)
Measurements, microscopy, ecology, cell structure, bioenergetics, cell reproduction, and heredity. Corequisite: BIO L110.

1101 Organismal Biology (3)
Biological concepts and life processes of protists, fungi, plants, and animals. Prerequisites: BIO 1100, L100. Corequisite: BIO L101.

L101 Organismal Biology Lab (1-2)
Survey of organisms from selected phyla, including anatomy, phylogeny, and life histories. Prerequisites: BIO 1100, L100. Corequisite: BIO 1101.

1110 Survey of the Human Body (3)
Biological principles related to the role of humans in an ecosystem, with emphasis on the structure and function of the human body. Credit for this course cannot be applied toward any curriculum in biology. Corequisite: BIO L110.

L110 Survey of the Human Body Lab (1-2)
Human physiology and the role that humans play in the biosphere. Credit for this course cannot be applied toward any curriculum in biology. Corequisite: BIO L110.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
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<tbody>
<tr>
<td>3320</td>
<td>Genetics (3)</td>
<td>Principles of heredity, from basic Mendelian concepts through molecular genetics. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143, MTH 1112 or equivalent and MTH 2210 or equivalent, or permission of chair. Corequisite: BIO L320.</td>
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<tr>
<td>L320</td>
<td>Genetics Lab (1-3)</td>
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</tbody>
</table>
knowns, and biochemical tests. Prerequisites: BIO 1100, L100 or 1110, L110 and CHM 1142, L142 or 1115, L115. Corequisite: BIO 3372.

3382 Immunology (3)

L382 Immunology Lab (1-3)

3386 Hematology (3)
The study of blood cells and blood forming organs under normal and diseased states. Prerequisites: BIO 3320, L320, 3372, L372, CHM 3342, L342. Corequisite: BIO L386.

L386 Hematology Lab (1-3)

4402 Spring Flora (4-7)
Survey of vascular plants from different habitats in southeast Alabama. Principles of plant taxonomy, including history and systems of classification and nomenclature, the use of dichotomous keys, and general herbarium techniques. Emphasis is placed on plant identification and habitat types. Prerequisites: BIO 1101, L101, 2229, L229.

4405 Entomology (3)
Orders of insects with the emphasis on morphology, taxonomy, and life cycles. Prerequisites: BIO 1101, L101. Corequisite: BIO L405.

L405 Entomology Lab (1-3)

4410 Animal Behavior (3)
Classical and current concepts of animal behavior including individual and social behavioral patterns. Prerequisites: BIO 3320, L320. Corequisite: BIO L410.

L410 Animal Behavior Lab (1-3)
Experimental and observational techniques in behavior. Prerequisites: BIO 3320, L320. Corequisite: BIO 4410.

4413 Limnology (3)
The physical, chemical, geological, and biological aspects of freshwater ecosystems as influenced by activities in surrounding watersheds. Prerequisites: BIO 2229, L229, CHM 1143, L143. Corequisite: BIO L413.

4414 Limnology Lab (1-3)
Field and laboratory exercises in lake and stream science, including instrumentation, measurement, sampling, and analysis. Prerequisites: BIO 2229, L229, CHM 1143, L143. Corequisite: BIO 4413.

L413 Limnology Lab (1-3)
Corequisite: BIO 4413.

Food Microbiology (3)

Food Microbiology Lab (1-3)
Advanced microbiological laboratory techniques including enumeration and analysis of bacteria in food, water, and dairy products. Prerequisites: BIO 3372, L372, CHM 3342, L342. Corequisite: BIO 4414.

Environmental Microbiology (3)
The taxonomy, diversity, and ecology of microbial populations in ecosystems, with the emphasis on the roles that they play in biogeochemical cycles, their contributions to metabolic diversity, their interactions with animals and plants, their niches and bioremediation. Prerequisites: BIO 3372, L372, CHM 3342, L342. Corequisite: BIO L416.

Environmental Microbiology Lab (1-3)
Environmental microbiological laboratory techniques including isolation, identification, and enumeration of microorganisms from aquatic and terrestrial environments. Prerequisites: BIO 3372, L372, CHM 3342, L342. Corequisite: BIO 4416.

4420 Field Vertebrate Zoology (4-7)
The basics of vertebrate identification, with emphasis on phylogeny, anatomy, morphology, life histories, habitats, distributions, and conservation. Prerequisites: BIO 1101, L101, CHM 1143, L143.

Population Ecology (3)
Animal and plant populations, food supply, competition, disease, fecundity, distribution, and other environmental factors. Management of endangered species and protected ecosystems are included. Prerequisites: BIO 2229, L229, 3320, L320, CHM 1143, L143, and MTH 2210. Corequisite: BIO L421.

Population Ecology Lab (1-3)
Field exercises in identifying ecological problems, formulating and testing hypotheses, and evaluating data using standard statistical methods. Prerequisites: BIO 2229, L229, 3320, L320, CHM 1143, L143, and MTH 2210. Corequisite: BIO 4421.

Fall Flora (4-7)
Survey of vascular plants from different habitats in southeast Alabama. Principles of plant taxonomy, including history and systems of classification and nomenclature, the use of dichotomous keys, and general herbarium techniques. Emphasis is placed on plant identification and habitat types. Prerequisites: BIO 1101, L101, 2229, L229.

Environmental Pollution & Control (3)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Corequisite</th>
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<tbody>
<tr>
<td>L428</td>
<td>Environmental Pollution &amp; Control Lab (1-3)</td>
<td>Prerequisites: BIO 2202, L202, 2229, L229, CHM 1143, L143. Corequisite: BIO L428.</td>
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<tr>
<td>4432</td>
<td>Comparative Vertebrate Anatomy (3)</td>
<td>Prerequisites: Any 3000-level BIO lecture and lab. Corequisite: BIO L432.</td>
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<tr>
<td>L432</td>
<td>Comparative Vertebrate Anatomy Lab (1-3)</td>
<td>Prerequisites: Any 3000-level BIO lecture and lab. Corequisite: BIO L432.</td>
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</tr>
<tr>
<td>4446</td>
<td>Herpetology (3)</td>
<td>Prerequisites: BIO 1101, L101, 2229, L229. Corequisite: BIO L446.</td>
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<tr>
<td>L446</td>
<td>Herpetology Lab (1-3)</td>
<td>Prerequisites: BIO 1101, L101, 2229, L229. Corequisite: BIO L446.</td>
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<tr>
<td>4447</td>
<td>Ornithology (3)</td>
<td>Prerequisites: BIO 1101, L101, 2229, L229. Corequisite: BIO L447.</td>
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<tr>
<td>L448</td>
<td>Mammalogy Lab (1-3)</td>
<td>Prerequisites: BIO 1101, L101, 2229, L229. Corequisite: BIO L448.</td>
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<tr>
<td>4451</td>
<td>Toxicology (3)</td>
<td>Prerequisites: CHM 3342, L342. Corequisite: BIO L451.</td>
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<tr>
<td>4452</td>
<td>Industrial Hygiene (3)</td>
<td>Prerequisites: CHM 3343, L343. Corequisite: BIO L452.</td>
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</tr>
<tr>
<td>L452</td>
<td>Industrial Hygiene Lab (1-3)</td>
<td>Prerequisites: CHM 3343, L343. Corequisite: BIO L452.</td>
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<tr>
<td>4471</td>
<td>Parazitology (3)</td>
<td>Prerequisites: Any 3000-level BIO lecture and lab. Corequisite: BIO L471.</td>
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<tr>
<td>L471</td>
<td>Parazitology Lab (1-3)</td>
<td>Prerequisites: Any 3000-level BIO lecture and lab. Corequisite: BIO L471.</td>
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</tr>
<tr>
<td>4476</td>
<td>Special Topics in Biology (1 to 4 credit hours per course per semester)</td>
<td>Prerequisites: Any 3000-level BIO lecture and lab. Corequisite: BIO L471.</td>
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</tr>
</tbody>
</table>
4478 Cell Biology (3)
Cell structure and function with the emphasis on biochemical and molecular mechanisms. Topics include cell division, movement, differentiation, and recognition. **Prerequisites:** BIO 3320, L320, 3372, L372, CHM 3343, L343. **Corequisite:** BIO L478.

L478 Cell Biology Lab (1-3)
Experimental approaches for studying cells at the biochemical and molecular levels. **Prerequisites:** BIO 3320, L320, 3372, L372, CHM 3343, L343. **Corequisite:** BIO L478.

4479 Environmental Assessment (3)
An examination of theory and practices required in performing stream environmental assessment as currently practiced by state and federal agencies in their attempt to preserve biological integrity. Sustainable management of natural resources and a systems approach to environmental problem solving will be emphasized. Topics covered include water quality, habitat assessment, indicator species used in ecological inventory with a concentration on macroinvertebrate and fish assemblages, and the index of biological integrity. **Prerequisites:** BIO 1101, L101; 2202, L202 or 2229, L229. **Corequisite:** BIO L479.

L479 Environmental Assessment Lab (1-3)
Laboratory instruction and hands-on field training regarding stream environmental assessment as currently practiced by state agencies in their attempt to preserve biological integrity. Topics covered include measurement of water quality, habitat, and practice sampling techniques, with a concentration on fish and macroinvertebrate assemblages. In addition, students will learn the use of the index of biological integrity using their own collections of fish assemblages. **Prerequisites:** BIO 1101, L101; 2202, L202 or 2229, L229. **Corequisite:** BIO 4479.

4480 Histology (3)
Microscopic anatomy and function of cell types and tissues of mammalian organs. **Prerequisites:** BIO 1101, L101. **Corequisite:** BIO L480.

L480 Histology Lab (1-3)
Microscopic anatomy of cell types and tissues of mammalian organs. **Prerequisites:** BIO 1101, L101. **Corequisite:** BIO 4480.

4481 Methods and Materials for the Secondary Teacher (4)
A survey of teaching methods and materials appropriate for teaching in the content areas for grades 6-12. Topics addressed will include teacher evaluation in the public schools, collaboration with special education teachers, and lesson planning formats. In addition, teaching methods, selections organization and use of biology/science materials for grades 6-12 will be covered in detail. A professional laboratory experience is included in this course.

4482 Molecular Biology (3)
Fundamental principles of chromosomal organization and gene expression, with emphasis on the structure and function of nucleic acids and proteins. **Prerequisites:** BIO 3320, L320, 3372, L372, CHM 3343, L343. **Corequisite:** BIO L482.

L482 Molecular Biology Lab (1-3)
Experimental approaches in molecular analyses of nucleic acids and proteins, with the emphasis placed on common techniques utilized in clinical and research settings. **Prerequisites:** BIO 3320, L320, 3372, L372, CHM 3343, L343. **Corequisite:** BIO 4482.

4488 Internship in Environmental Science (1 to 3 credit hours per BIO 4489 course per semester)
BIO 4490 Supervised work experience in a governmental agency, business or industry, public service organization, or other working environment in which a student will apply knowledge of environmental science. **Prerequisites:** Approval of the student's academic advisor and department chair.

4491 Guided Independent Research (1 to 4 credit hours per course per BIO 4492 semester)
Additional information is indexed under “Guided Independent Research and Study.”

4493 Guided Independent Study (1 to 4 credit hours per course per BIO 4494 semester)
Additional information is indexed under “Guided Independent Research and Study.”

CHEMISTRY COURSES (CHM)

Unless otherwise noted, all courses are offered only on the Troy and Dothan campuses.

(GS) designates a course meeting a general studies requirement

1115 Survey of Chemistry (3 - 3)
The course will provide an overview of some of the basic concepts and principles of chemistry. Starting with the structure of the atom the course will proceed on to basic chemical reactions, the formation of ions, states of matter, chemical equilibrium, chemical bonding, and will incorporate examples from the biological sciences. **Only offered at Montgomery. Corequisite:** CHM L115

L115 Survey of Chemistry Lab (1 - 2)
The laboratory sessions will provide an overview of some of the basic concepts and techniques of general chemistry experiments. The students will conduct experiments which illustrate the concepts and principles learned in the Survey of Chemistry course lectures. **Only offered at Montgomery. Corequisite:** CHM L115

1142 (GS) General Chemistry I (3 - 3) F, Sp, Su
Emphasis is placed on the periodic table and stoichiometry, including chemical properties, physical states, and structure. **Prerequisite:** Pass MTH 1112 with at least a C (or a score of 0, 1, or 5 on the math placement exam). **Offered at Troy, Dothan, and Montgomery. Corequisite:** CHM L142

L142 (GS) General Chemistry I Laboratory (1 - 3) F, Sp, Su
Experiments dealing with the periodic table, atomic structure, the gas laws, and stoichiometry. Offered at Troy, Dothan, and Montgomery. Corequisite: CHM 1142.

1143 General Chemistry II (3 - 3) F, Sp, Su
Acid-base theory, solutions, chemical equilibria, thermodynamics, kinetics, and electrochemistry. Prerequisites: CHM 1142 and L142. Corequisite: CHM L143.

L143 General Chemistry II Laboratory (1 - 3) F, Sp, Su

2242 Analytical Chemistry (3 - 3) F, even years

L242 Analytical Chemistry Laboratory (1 - 3) F, even years
The practice of modern quantitative wet-chemical techniques in analytical chemistry. Corequisite: CHM 2242.

3342 Organic Chemistry I (3 - 3) F, Sp, Su
An introduction to the chemistry of carbon compounds which develops the theoretical principles underlying organic materials. Prerequisites: CHM 1143 and L143. Corequisite: CHM L342.

L342 Organic Chemistry I Laboratory (1 - 3) F, Sp, Su
Experimental techniques and skills for preparing, manipulating, and reacting organic molecules. Corequisite: CHM 3342.

3343 Organic Chemistry II (3 - 3) F, Sp, Su
A continued of CHM 3342 with emphasis on modern organic synthesis. Prerequisites: CHM 3342 and L342. Corequisite: CHM L343.

L343 Organic Chemistry II Laboratory (1 - 3) F, Sp, Su
Experimental techniques and skills for preparing, manipulating, and reacting organic molecules. Corequisite: CHM 3343.

3350 Principles of Physical Chemistry (3 - 3) F, odd years, on demand
An introduction to the principles of chemical thermodynamics, reaction kinetics and chemical equilibrium. Prerequisites: CHM 3343; PHY 2253 and PHY L253, or PHY 2263 and PHY L263. Corequisite: CHM L350.

L350 Principles of Physical Chemistry Laboratory (1 - 3) F, odd years, on demand
Practical applications of thermochemistry, colligative properties, and reaction kinetics. Corequisite: CHM 3350.

3357 Biochemistry I (3 - 3) F
Physical and chemical properties of proteins, nucleic acids, fatty acids, and carbohydrates with emphasis on the relationship between chemical structure and biological function. Prerequisite: CHM 3343. Corequisite: CHM L357.

L357 Biochemistry Laboratory (1 - 3) F
Laboratory experiments emphasizing the biochemical techniques used in isolation and characterization of macromolecules. Corequisite: CHM 3357.

3358 Biochemistry II (3 - 3) Sp, even years
Catabolism and anabolism of carbohydrates, fatty acids, and amino acids with emphasis on regulation and the major metabolic pathways, including glycolysis, citric acid cycle, electron transport, gluconeogenesis, and pentose phosphate. Prerequisite: CHM 3357.

3381 Physical Chemistry I (3 - 3) F, odd years
Theory and applications of thermodynamics, reaction kinetics, and transport properties with an emphasis on the description of ideal/non-ideal gases and solutions. Prerequisite: CHM 3343; PHY 2253 and L253 or PHY 2263 and L263; MTH 1126. Corequisite: CHM L452.

L381 Physical Chemistry I Laboratory (1 - 3) F, odd years
Introduction to methods and techniques used in the physical chemistry laboratory, including experiments in calorimetry, phase equilibria, reaction kinetics, and transport properties. Corequisite: CHM 3381.

3382 Physical Chemistry II (3 - 3) Sp, even years
A continuation of CHM 3381 with an introduction to surface phenomena, quantum chemistry, and spectroscopy with an emphasis on properties of surfaces, atomic and molecular structure, molecular orbital theory, and photochemistry. Prerequisite: CHM 3381.

L382 Physical Chemistry II Laboratory (1-3) Sp, even years
A continuation of CHM L381 with an introduction to methods and techniques in computational chemistry and spectroscopy. Corequisite or pre-requisite: CHM 3382.

4400 Special Topics in Chemistry (3 - 3)
A study of topics of special interest, such as advanced physical chemistry, advanced analytical chemistry, advanced organic, group theory, surface chemistry, and colloid chemistry. Prerequisites: CHM 2242 and CHM 3343.

4403 Advanced Organic Chemistry (3 - 3)
A more in-depth study of many of the topics studied in Organic Chemistry I and II. Topics include reaction mechanisms, synthetic methods, structure determination using spectroscopic techniques, and stereochemistry. Offered only at Dothan. Prerequisites: CHM 3343 and L343.

4444 Advanced Inorganic Chemistry (3 - 3) Sp, odd years
Spectroscopy of inorganic molecules, detailed molecular orbital applications, descriptive chemistry of the trans-
tion elements, including organometallic and bioinorganic compounds. **Prerequisites:** CHM 2242 and 3381.

L444 Advanced Inorganic Laboratory (1 - 3) Sp, odd years
Preparation and characterization of inorganic compounds. Experience will be provided in techniques such as using a tube furnace and handling air-sensitive compounds with a glove box and Schlenk line. **Corequisite or pre-requisite:** CHM 4444.

4445 Instrumental Analysis (3 - 3) Sp, even academic years
The operating principles of modern analytical instrumentation for determining composition and concentration. **Prerequisites:** CHM 2242, CHM 3343; PHY 2253 and L253 or PHY 2263 and L263. **Corequisite:** CHM L445.

L445 Instrumental Analysis Laboratory (1 - 3) Sp, even academic years
The practical application of select modern analytical instruments to qualitative and quantitative examination of matter. Considerable attention is given to the instrument and elementary electronics involved in each. **Corequisite:** CHM 4445.

4481 Methods and Materials for the Secondary Teacher (4)

4491/2 Guided Independent Research (1 - 3 credit hours per course per semester).
Additional information is listed under “Guided Independent Research and Study” in the section on Academic Regulations.

4493/4 Guided Independent Study (1 - 3 credit hours per course per semester).
Additional information is listed under “Guided Independent Research and Study” in the section on Academic Regulations.

4499 Senior Seminar (1 - 3) F
Principles of preparing and presenting an oral presentation on a selected chemical topic in the current literature.

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**CLASSICS COURSES (CLA)**

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2260 Classical Mythology (3-3)
Myths of the Greeks and Romans and their influence. F, Sp

3311 Civilization of Greece (3-3)
Historical and cultural achievements of the Greeks and their legacy to the modern world. Note: May be taken for credit as an elective in the Department of History. F

3312 Civilization of Rome (3-3)
Historical and cultural achievements of the Romans and their legacy to the modern world. Note: May be taken for credit as an elective in the Department of History. Sp

3330 Classical Epic (3-3)
Homer’s Iliad and Odyssey, Virgil’s Aeneid, and the epic tradition. F

3350 Classical Drama (3-3) The ancient theatre and its influence with selected plays by Greek and Roman playwrights. Sp

4400 Selected Topics in Classics (3-3)
Selected topics in classical studies generally not covered in other courses. Note: May be repeated once for credit. On demand.

4491 Guided Independent Research (1 to 3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

4492 Guided Independent Research (1 to 3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

4493 Guided Independent Study (1 to 3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

4494 Guided Independent Study (1 to 3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

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**COMPUTER SCIENCE COURSES (CS)**

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2244 Computer Science I (3)
An introduction to a programming language. Programming fundamentals include program structure, assignment, data types, repetition, input/output, flow of control, and functions. Program design development and testing is emphasized. **Prerequisite:** MTH 1112.

2248 Business Systems Programming (3)
The study and application of a business oriented programming language. Students apply a structured, multi-phase program development process that features a series of steps involving understanding of problems, formal problem definition, design methodologies, program specification, breakdown, and files. Topics include file processing, data validation, table handling, calculations, input/output techniques, and report writing as practiced in the application of computers to business data processing. **Prerequisite:** CS 2260.

2260 Computer Science II
A continuation of Computer Science I to include advanced programming techniques including application of arrays and advanced input/output. Students design, implement, and test a number of moderately large programs. **Prerequisite:** CS 2244, MTH 1125.

2261 Foundations of Computer Science concepts (3)
A broad perspective of computer science concepts intended as preparation for more in-depth coverage in higher-level courses. Topics include machine and assembly language programming, computer system organization and operation, logic circuits, finite-state diagrams and programming language grammar. Prerequisite: CS 2244.

3323 Data Structures (3)
A survey of data structures that includes lists, ordered lists, linked lists, stacks, queues and trees. Also included are measurement of program performance and how program performance is affected by alternative data structures. These concepts are presented within an object-oriented framework. Programming labs are included. Prerequisite: CS 2260, MTH 2215.

3329 Analysis of Algorithms (3)
Alternative techniques to solve computer science problems are presented. Problems include sorting, searching, and graph traversal, lists, ordered lists, linked lists, stacks, queues, and trees. These concepts are presented within an object-oriented framework. Prerequisite: CS 3323

3330 Data Structures and Algorithms (3)
A course in fundamental data structures concepts and alternative techniques for solving real-world problems in computer science. Concepts and application covered include analysis of data representation and associated algorithms, including linked lists, queues, stacks, arrays, graphs, trees, searching, sorting, string matching, and the application of recursive techniques. The course will place an emphasis on the implementation of various algorithms and data structures. Prerequisite: CS 2260 and MTH 2215.

3331 Fundamentals of AI (3)
Approaches to the definition of artificial intelligence and to the design and implementation of intelligent computer systems. Topics include the Turing Test, Sourly’s Chinese Room, blackboard systems, logic programming, knowledge based systems, scripts and schemas, and heuristic search techniques. Prerequisite: CS 3329 or CS 3330

3332 Software Engineering I (3)
Topics are presented that focus on the design and development techniques for large high quality software systems. They include project management issues, analysis and design methods, and approaches to testing. Prerequisite: CS 3323 or CS 3330.

3339 Fundamentals of Object-Oriented Programming (3)
The conceptual framework for object-oriented programming and systems. Topics include classes, data hiding, modularity, inheritance, and reusable code. They are presented through the use of some object-oriented language. Prerequisite: CS 3323.
4445 Data Communication and Networking (3)
An overview of local-area and wide-area systems. Issues discussed include standards, topologies, management, and security. Prerequisite: CS 3329 or CS 3330.

4447 Systems Analysis and Design (3)
Study of the analysis and of computer-based information systems. Emphasis is placed on analysis, specifications development, design, and development of information systems, including the software and databases that support the business needs of organizations. Both data-oriented and process-oriented design methods are covered. Topics include the systems analyst, the systems development life cycle, methodologies, development technology, systems planning, project management, systems analysis, systems design, systems implementation, and systems support. Prerequisite: CS 3323 or CS 3330.

4448 Operating Systems (3)
An overview of operating system functions and components. Issues include process definition, scheduling, and memory management. Various modern operating systems are compared. Prerequisite: CS 4445 and CS 3329 or CS 3330.

4449 Applied Networking (3)
Computer networks and the use of computer networks in industry environments. Topics covered include client-server networks, network hardware and software, distributed computing, user requirements, considerations in physical media and topology, selection of Network Operating Systems (NOS), computing platforms, network administration, applications software, internetworking components, and key issues in network management. Prerequisite: CS 4445. CS 4448 recommended.

4451 Computer Security (3)
Basic security concepts and principles applied to real-world applications. Introduces the major elements that go into a security implementation, including encryption, authentication, access control lists, execution control lists, vulnerability of operating systems, auditing, performing vulnerability analysis and risk assessment, developing a security plan and protecting data, systems and infrastructure. This course also builds on the fundamentals of reliability and safety engineering, which includes software reliability, growth models, testing and stopping-rules, safety methods and redundancy. Prerequisite: CS 3329 or CS 3330. CS 4448 recommended.

4461 Software Engineering II (3)
This course is a continuation of Software Engineering I. With additional topics that include software quality assurance, testing techniques. Students will design, implement and test a large project. Prerequisite: CS 3329 or CS 3330.

4462 Special Topics Object-Oriented Programming (3)
This course is a continuation of CS3339. It presents the conceptual framework for the design of object-oriented systems. Topics that include re-factoring designs and design patterns are discussed. They are presented through the use of some object-oriented language. Prerequisite: CS 3339.

4495 Special Topics in Computer Science (3)
Topics in computer science that are not included in regular course offerings. Specific contents are announced in the course schedule for a given term. Prerequisites: senior standing or consent of instructor.

CRIMINAL JUSTICE COURSES (CJ)

1101 Introduction Criminal Justice (3-3)
Agencies and processes involved in the administration of criminal justice. This course is a prerequisite for all 3000- and 4000-level courses unless waived by student's adviser.

2221 Survey of Law Enforcement (3-3)
A survey of policing, covering developmental history, the system of law enforcement organizations in the U.S., personnel administration, police roles and behavior, operations, and major issues such as discretion, civil liability, risk, and excessive force.

2231 Survey of Corrections (3-3)
Philosophy, theory, and practices involved in the treatment of convicted law violators, the examination, and the appraisal of the effects of correctional treatment upon post-correctional behavior.

2241 Survey of Law and Criminal Procedure (3-3)
An examination of the American legal system with emphasis on the analysis and processing of criminal offenses, including an examination of constitutional criminal procedure concerning arrest, pre-trial and trial processes.

3302 Criminal Justice Administration (3-3)
A survey of public administration as it applies to criminal justice organizations. The major dimensions of criminal justice organizations examined include organizational theory, organizational design, leadership and decision making, interpersonal and organizational communication, human resource management, legal aspects of administration, financial management, and organizational change.

3310 Psychology for Criminal Justice Officials (3-3)
Behavior of subjects and police officers in normal and unusual conditions, arrest, interrogation, detention, incarceration, protest, demonstrations, riots, public calamities, reactions of special interest groups, minorities, and specialized tests.

3325 Juvenile Justice (3-3)
To provide a basic overview of the American juvenile justice system, beginning with the development of the juvenile court, and addressing the jurisdiction, role, responsibilities, administration, and organization of the juvenile justice system. Also examined are the interfaces between police, schools, and the court, the issues of child abuse, and the operation of treatment programs.
3335 Private and Public Security Administration (3-3)
An introduction to the administration of private security, the analog to the police in the public sector. Issues in private security concerning ethics, law, and policy, as well as administration, are considered.

3345 Criminology (3-3)
An examination of crime, overall and by category, and an examination of theories of crime causation, their research support and their impact on social policy, categories of crime, etc. The criminological theories covered will be classical, biological, sociological, psychological, economic, and multidisciplinary.

3352 Constitutional Law in Criminal Justice (3-3)
Constitutional provisions which are relevant to criminal law and procedure, their construction and development through court interpretation, and their application in criminal proceedings.

3365 Victims of Crime (3-3)
This course provides an opportunity for the student to gain an understanding of the crime victim’s position and issues with the criminal justice system. Specifically, trends, applied responses to victimization, offender-victim relationships, typologies, measuring victimization, and prevention are examined.

3367 History of Criminal Justice (3-3)
Upon completion of the course the student must have demonstrated his/her knowledge of criminal justice systems from approximately 1700 BC to the present. With that knowledge and comprehension, the student should be able to analyze and apply lessons learned from that historical context to current situations in the United States Criminal Justice System.

3375 Introduction to Social Scientific Inquiry (3-3)
Principles of pure and applied research for the social sciences. Special emphasis is given to the types of research methods employed by social scientists including survey techniques, field research, quasi-experimental designs and analytical procedures currently used in the social sciences. Prerequisite: General Studies math

3376 Application of Social Scientific Inquiry (3-3)
A detailed description of what social scientists do with the information they gather. Particular attention is given to descriptive and inferential statistics, the relationship between research and policy, evaluation research, and research ethics. Prerequisite: General Studies math

4415 Correctional Systems and Practices (3-3)
An examination of the day to day operations and practices in modern correctional facilities in the local, state, and federal systems.

4420 Comparative Criminal Justice (3-3)
A comparative examination of criminal justice systems throughout the world with specific attention given to legal and political systems, organization and methods of law enforcement, jurisprudence, correctional policies, and practices. Theoretical frameworks, models, and propositions addressing crime across various societies are also considered.

4421 Ethics in Criminal Justice (3-3)
An introduction to concepts of ethics and an examination of contemporary ethical issues in the field of criminal justice.

4430 Selected Topics in Criminal Justice (3-3)
An examination of a criminal justice topic chosen for its current or special interest and importance and that is not given in-depth coverage in other courses; selection topics will vary with each course offering (although a particular topic may be offered more than once.)

4435 Grant Writing (3-3)
A detailed examination of how to apply to governmental and private entities for funding of various programs and projects in the field of criminal justice.

4440 Terrorism (3-3)
A critical examination and analysis of major issues, definitions, and controversies associated with the development of terrorism in the modern world. Historical, religious, an psychological and sociological aspects and explanations of terrorism will be covered, along with the characteristic means and methods terrorist groups employ.

4442 Criminal Investigation and Evidence (3-3)
A detailed examination of what is necessary to solve criminal cases and prove guilt beyond a reasonable doubt in court. Emphasis on leadership and management actions taken to enhance investigative efforts in law enforcement operation.

4445 Current Issues in Law Enforcement Operations and Administration (3-3)
A detailed examination of applied concepts of leadership and problem solving in law enforcement operations and administrations. Special emphasis is attached to current problems surfacing in law enforcement.

4446 Current Issues in Correctional Operations and Administration (3-3)
A detailed examination of applied concepts of leadership and problem solving in corrections and administration. Special emphasis is attached to current problems surfacing in corrections.

4447 Current Issues in Legal Systems Operation and Administration (3-3)
A study of the critical issues and concepts involved in modern court administration, including the law governing the presentation of evidence in the trial of criminal cases, analysis of the role of law and the courts in American Society.

4462 Polygraph: History and Investigative Applications (3-3)
An historical perspective of polygraph and an overview of legal issues concerning clinical polygraph examina-
Homeland Security (3-3)
An examination of the political and social complexities and dilemmas associated with state and local law enforcement and federal agencies roles in the defense of our nation subsequent to September 11, 2001.

Cyber Crime (3-3)
This course will introduce the topics of computer crime and computer forensics. Students will be required to learn different aspects of computer crime and ways in which to uncover, protect, and exploit digital evidence. Students will be exposed to different types of tools, both software and hardware, and an exploration of the legal issues affected by on-line and computer-related criminal conduct. The course will examine the evolution of criminal law relative to the development of new technology.

Internship in a Criminal Justice Agency (3-3)
Experience in a selected criminal justice agency, working in groups or individually. Supervised application and observation of concepts, principles, skills, operation and functions of knowledge acquired by the student in previous or current course work and studies. Problems will be identified with attendant solutions in the areas of police work, the correctional agencies, or the court systems as appropriate to the student’s program of study.

Guided Independent Research (1 to 3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

Guided Independent Study (1 to 3 credit hours per course semester)
Additional information is indexed under “Guided Independent Research and Study.”

Senior Seminar in Criminal Justice (3-3)
This is a capstone course designed to: (1) help seniors integrate the knowledge gained from their other required criminal justice courses, (2) assist them in developing analytical thinking skills through focusing on selected topics using a seminar approach, and (3) to support them in gaining a better understanding of the criminal justice profession and the role they may play in it.

1101 Introductory French I (3-3)
Introduction to the French language and culture. F

1102 Introductory French II (3-3)
Introduction to the French language and culture. Sp

2201 Intermediate French I (3-3)
Reinforcement of fundamental skills, study of sophisticated language structures and reading of simple French prose and poetry. Prerequisite: FRN 1102 or equivalent. F

2202 Intermediate French II (3-3)
Reinforcement of grammatical skills, reading of simple French prose and poetry, composition and conversation. Prerequisite: FRN 2201 or equivalent. Sp

3301 Advanced French I (3-3)
Advanced-level reading, intensive work on composition, comprehensive treatment of French phonetics. Prerequisite: FRN 2202 or equivalent. F

3302 Advanced French II (3-3)
Advanced-level reading, intensive work on composition, aural comprehension, and practical conversation facility. Prerequisite: FRN 2202 or equivalent. Sp

3303 French Culture and Civilization (3-3)
A survey of the geography, history, cultural achievements, institutions and daily life of the French. Prerequisite: FRN 3301 or equivalent. F

3310 French Culture on Location I (3-TBA)
An in-depth presentation of French culture combining lectures, readings, films, audiotapes, discussions and intensive language practice on the TSU main campus with on-site visit of a Francophone environment. Prerequisite: Permission of the instructor. Su

3311 French Culture on Location II (3-TBA)
An in-depth presentation of French culture combining lectures, readings, films, audiotapes, discussions and intensive language practice on the TSU main campus with on-site visit of a Francophone environment. Prerequisite: Permission of the instructor. Su

4401 French Literature I (3-3)
French literature from the Middle Ages through the Revolution of 1789. Prerequisite: FRN 3301 or 3302. F

4402 French Literature II (3-3)
French literature of the 19th and 20th centuries. Prerequisite: FRN 3301 or 3302. Sp

4491-4492 Guided Independent Research (1-3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

4493-4494 Guided Independent Study (1-3 credit hours per course semester)
Additional information is indexed under “Guided Independent Research and Study.”

FRENCH COURSES (FRN)

Note: For additional information, see “Placement in Foreign Language Courses.”
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>2210</td>
<td>World Regional Geography (3-3)</td>
<td>Physical and cultural features, economy, and populations of the geographic regions of the world.</td>
</tr>
<tr>
<td>3300</td>
<td>Principles of Physical Geography (3-3)</td>
<td>Earth geography including climate, soils, natural vegetation, water resources, rocks, minerals, and surface structures.</td>
</tr>
<tr>
<td>3301</td>
<td>Principles of Cultural Geography (3-3)</td>
<td>Interrelationship of geographical elements in various world situations.</td>
</tr>
<tr>
<td>3307</td>
<td>Geography of Europe</td>
<td>Selected topic studies in the physical and cultural environment, resource distribution, economy, and population characteristics of the European-Slavic land areas. Special attention will be devoted to the study of the geopolitical influence of this area or least developed nations and the U.S.</td>
</tr>
<tr>
<td>3312</td>
<td>Geography of Latin American (3-3)</td>
<td>An analysis of the major physical and cultural aspects of Middle and South America. Prerequisites: 9 hrs social science.</td>
</tr>
<tr>
<td>3326</td>
<td>Geography of the Russian Realm (3-3)</td>
<td>An analysis of the physical and cultural aspects of Russia and the other former republics of the Soviet Union. Prerequisites: 6 hrs social science.</td>
</tr>
<tr>
<td>3331</td>
<td>Geography of the Middle East and North Africa (3-3)</td>
<td>Physical setting, resource distribution, economy, population characteristics, and geopolitical importance of the region.</td>
</tr>
<tr>
<td>3350</td>
<td>Weather and Climate (3-3)</td>
<td>A study of the physical properties of weather and climate. Prerequisites: 12 hrs of science or social science.</td>
</tr>
<tr>
<td>4402</td>
<td>Political Geography (3-3)</td>
<td>Analysis of the reciprocal effects of geography and political organization on the behavior of states including: boundaries and frontiers, national resources, spatial strategy, and maritime power.</td>
</tr>
<tr>
<td>4403</td>
<td>Conservation (3-3)</td>
<td>The conservation of natural and human resources with emphasis on population expansion as the major element in changing ecology.</td>
</tr>
<tr>
<td>4404</td>
<td>Economic Geography (3-3)</td>
<td>Spatial patterns of economic activities including production, distribution, consumption, and the environmental consequences of these activities. Prerequisites: 12 hrs social science.</td>
</tr>
<tr>
<td>4406</td>
<td>Urbanism (3-3)</td>
<td>Historical, physical, economic, and societal evolution of the urban area. American metropolitan problems and implications for policy and planning. NOTE: One field trip required at student’s expense. This course may be taken for sociology credit.</td>
</tr>
<tr>
<td>4408</td>
<td>Rural America: Past and Present (3-3)</td>
<td>A study of rural society, its organization, agencies, institutions, population trends and composition, patterns of settlement, social processes, and change in character. Prerequisites: 12 hrs social science.</td>
</tr>
<tr>
<td>4411</td>
<td>Demography (3-3)</td>
<td>Population growth, stabilization, decline, and structures in the context of societal change. This course may be taken for sociology credit.</td>
</tr>
<tr>
<td>4415</td>
<td>North American Geography (3-3)</td>
<td>Survey of agricultural, industrial, and commercial development of Anglo-America. Covers physical and cultural environment, resource distribution, economy, and population characteristics.</td>
</tr>
<tr>
<td>4435</td>
<td>Historical Geography of North America (3-3)</td>
<td>An analysis of the physical and cultural factors in the development of North America from early European settlement to the present. Prerequisites: 12 hrs geography or history.</td>
</tr>
<tr>
<td>4491-4492</td>
<td>Guided Independent Research (1 to 3 credit hours per course per semester)</td>
<td>Undergraduate research with attention to critical evaluation of research techniques, methods and procedures. Prerequisites: Junior or senior status with a minimum overall GPA of 3.0, permission of guiding professor, approval of department chair or dean. A written request is to be submitted to the department chairperson at least two weeks in advance of the term in which the study is to be undertaken. May not be used to repeat a course for which a grade of “D” or less has been earned. Application forms are available in the office of University Records. Guided independent research may be taken only in the applicant’s major or minor field.</td>
</tr>
<tr>
<td>4493-4494</td>
<td>Guided Independent Study (1 to 3 credit hours per course per semester)</td>
<td>Supervised study through field and laboratory projects, guided readings, creative endeavors or achievement of specific skills. Prerequisites: Junior or senior status, with a minimum overall GPA of 3.0, permission of guiding professor, approval of department chair or dean. A written request is to be submitted to the department chairperson at least two weeks in advance of the term in which the study is to be undertaken. May not be used to repeat a course for which a grade of “D” or less has been earned. Application forms are available in the office of University Records. Guided independent research may be taken only in the applicant’s major or minor field.</td>
</tr>
<tr>
<td>4498</td>
<td>Honors Independent Study (1 to 3 credit hours)</td>
<td>Advanced research and study for outstanding students in their major field. Culminates in report to a department committee which includes invited faculty members in related fields.</td>
</tr>
</tbody>
</table>
GEOMATICS COURSES (GEM)

1100  Computer-Aided Drafting  (Fall/Spring, 1 Credit Hour)
This course provides students with the knowledge and skills necessary to create maps and plats. Topics of study include basic drafting principles, drawing set-up and scale, drawing commands, and orthographic projections. Corequisite:  GEM L110.

L110  Computer-Aided Drafting Lab (Fall/Spring, 2 Credit Hours)
The Lab provides the opportunity for students to use computer-aided drafting software to complete project drawings under the direct supervision of a CAD professional.

2220  Basics of Cartography and Surveying  (Fall, 3 Credit Hours)
This course provides each student an introduction to measurement theory, instrumentation, measurement systems, measurement computations, data accuracy and precision. The structure of the field of geomatics is explored. Major components of the course are survey statistics, traverse computations, coordinate systems and datums, elevations, and mapping. The use of computer-aided drafting software to produce maps and plats is required. Prerequisite:  MTH 1115. Corequisite:  GEM L220.

L310  Boundary Retracement Seminar  (Spring or Summer, 1 Credit Hour)
The student gains practical field experience in an off-campus field boundary retracement project provided as a joint effort of Troy University, the Alabama Society of Professional Land Surveyors, and the Federal Bureau of Land Management. Prerequisite:  GEM 3310.

3330  Advanced Measurement Analysis  (Spring, 3 Credit Hours)
Survey equipment calibration, survey astronomy, topographic mapping, control leveling, instrumentation error, and the propagation of error through survey calculations. This course is the second course of a one-year study of survey fundamentals. Prerequisite:  GEM 2220. Corequisite:  GEM L330.

L330  Advanced Measurement Analysis Lab  (Spring, 1 Credit Hour)
Field laboratory experience gaining astronomic observations for azimuth, using EDMI calibration baselines, conducting topographic mapping projects and control level loops, and testing for instrument errors. The student is introduced to the field use of data collectors.

3366  Photogrammetry and Remote Sensing  (Fall, 3 Credit Hours)
Introduction to metrical photogrammetry, interpretative photogrammetry, and remote sensing. Focuses on the theory, instrumentation, and practical application of photogrammetry to the problem of mapping the earth’s surface. Remote sensing concepts, principles, sensors, and specific satellite platforms are covered in the course. Prerequisite:  MTH 1115. Corequisite:  GEM L366.

L366  Photogrammetry and Remote Sensing Lab  (Fall, 1 Credit Hour)
Use computer software to view and enhance photographs, to form stereomodels, to create digital elevation models, and produce orthophotos. The opportunity to use a soft-copy photogrammetric workstation to generate map compilation products is provided to the student.

3370  Geodesy and Geodetics  (Spring, 3 Credit Hours)
The study of the underlying theory necessary to understand the use of the Global Positioning System (GPS). Focuses on mathematical models of the earth, the earth’s gravity field, and the use of near-earth satellites to measure the earth’s surface. Important concepts developed in this course include coordinate systems, datums, map projections, coordinate transformations, and GPS network design. Prerequisites:  MTH 1125, GEM 3379/L379. Recommended completion of PHY 2253 or the equivalent. Corequisite:  GEM L370.
L370  Geodesy and Geodetics Lab  (Spring, 1 Credit Hour)
Practice performing geodetic computations using the ellipsoid of revolution as a reference surface. A major laboratory component is static GPS network design and the use of dual-frequency survey-grade GPS equipment to extend survey control to the project site.

L371  Measurements for GIS  (Spring, 1 Credit Hour)
The laboratory provides the Geomatics/GIS student valuable hands-on field experience using instrumentation necessary to provide data for GIS Projects. Data will be acquired using the digitizer, mapping grade GPS receivers, and survey grade GPS receivers in the real-time kinematic mode. Prerequisites: GEM 2220/L220.

L379  Introduction to Least Squares Adjustment  (Fall, 3 Credit Hours)
The application of the principles of least squares adjustment to compute optimized solutions to problems involving redundant data and the theory of error propagation. Prerequisite: MTH 1125 and MTH 2210 Applied Statistics or equivalent. Corequisite: GEM L379.

L379  Introduction to Least Squares Adjustment Lab  (Fall, 1 Credit Hour)
The use of the software program, Matlab, to solve data adjustment problems and to analyze spatial data. Practical application of the theory of least squares adjustment and general error propagation to typical problems in geomatics.

L390  Introduction to GIS Lab  (Fall, 1 Credit Hour)
The laboratory provides the student the opportunity to learn ArcView GIS software in order to produce GIS products using existing databases.

3391  Applications of Geographic Information Systems  (Spring, 3 Credit Hours)
This course provides a study of common applications of GIS with an emphasis on land information systems and land management. The course also provides further study in database design, digital base map analysis and testing, and spatial analysis. Prerequisite: GEM 3390 or consent of the instructor.

L391  Applications of GIS Lab  (Spring, 1 Credit Hour)
This laboratory provides the student the opportunity to learn and use ArcInfo GIS to accomplish a full range of GIS applications.

4405  Route and Construction Surveying  (Spring, 2 Credit Hours)
Explores the theoretical foundations of route and construction surveying. Course topics are coordinate geometry (COGO), horizontal and vertical curve models, spirals, alignments, stationing, cross sections, areas, volumes, and route design elements. Prerequisites: GEM 1100 or the equivalent, and GEM 3330. Corequisite: GEM L405.

L405  Route and Construction Surveying Lab  (Spring, 1 Credit Hour)
This field laboratory applies the principles of route and construction surveying, the use of civil design software, and the use of data collectors for practical design and field layout.

L407  Subdivision Design Practice  (Spring, 1 Credit Hour)
This computer laboratory provides the student the opportunity to design and create those drawings necessary for local government approval of the typical subdivision.

L409  Hydrology Lab  (Fall, 1 Credit Hour)
Explores several models used to compute runoff estimates based on particular rainfall events. Course topics are the hydrologic cycle, rainfall intensity, runoff models, hydrographs, storm sewer design, culvert design, open channel flows, watershed delineation, water detention, and retention structures, and onsite sewage disposal systems. Prerequisite: GEM 1100 or the equivalent, MTH 1115. Corequisite: GEM L409. Recommended completion of PHY 2253 or the equivalent.

4407  Land Development  (Spring, 1 Credit Hour)
Explores the concepts and problems associated with the design and construction of subdivisions and related infrastructure. Prerequisites: GEM 1100 or the equivalent, and GEM 4409. Corequisite: GEM L407.

Hydrology  (Fall, 3 Credit Hours)
Explores several models used to compute runoff estimates based on particular rainfall events. Course topics are the hydrologic cycle, rainfall intensity, runoff models, hydrographs, storm sewer design, culvert design, open channel flows, watershed delineation, water detention, and retention structures, and onsite sewage disposal systems. Prerequisite: GEM 1100 or the equivalent, MTH 1115. Corequisite: GEM L409. Recommended completion of PHY 2253 or the equivalent.

4409  Cooperative Work Experience Program  (Fall, Spring, Summer, 2 Credit Hours)
The geomatics student may register for GEM 4495 after being hired by an eligible employer participating in the Cooperative Work Experience Program. After completion of the semester the student is expected to submit a written report to the Geomatics Program Coordinator detailing the work experience, and present a brief oral report to his/her peers in the following semester in a scheduled geomatics class. Prerequisites: Completion of GEM 2220, maintenance of a 2.0 grade point average, and approval of the Geomatics Program Coordinator.

L407  Cooperative Work Experience II  (Fall, Spring, Summer, 2 Credit Hours)
The geomatics student may register for GEM 4496 for the second semester of cooperative work experience. The student must be in residence at Troy University for a minimum of one semester after completion of GEM 4495 before leaving for cooperative work experience under GEM 4496. Prerequisites: Completion of GEM 4495 and approval of the Geomatics Program Coordinator.
Geomatics/GIS Projects (Spring, 2 Credit Hours.)
This course offers the geomatics/GIS student with senior standing the opportunity to apply the fundamental principles and concepts learned in the study of geomatics/GIS to a particular problem or project. The student will state the problem, design an experiment to test a hypothesis concerning the problem statement, take the measurements, array the data, analyze the data, state conclusions, and place the study into a final report. Prerequisite: IS 2240 and senior standing or consent of the geomatics program coordinator.

GERMAN COURSES (GER)

Note: For additional information, see “Placement in Foreign Language Courses.”

1121 Introductory German I (3-3)
Introduction to the German language and culture. F, on demand

1122 Introductory German II (3-3)
Introduction to the German language and culture. Sp, on demand

2221 Intermediate German I (3-3)
Emphasis on basic language skills and knowledge of German culture. Prerequisite: GER 1122 or equivalent. F, on demand

2222 Intermediate German II (3-3)
Emphasis on basic language skills and knowledge of German culture. Prerequisite: GER 2221 or equivalent. Sp, on demand

4493-4494 Guided Independent Study (1-3 credit hours per course per semester)
Additional information is indexed under “Guided Independent Research and Study.”

GREEK COURSES (GRK)

Note: For additional information, see “Placement in Foreign Language Courses.”

1111 Introductory Greek I (3-3)
Introduction to the ancient Greek language with emphasis on pronunciation, basic vocabulary, fundamentals of grammar, and graded readings. F, on demand.

1112 Introductory Greek II (3-3)
Continuation of GRK 1111. Prerequisite: GRK 1111. Sp, on demand

Note: The study of Greek may be continued under the headings of CLA 4400 Special Topics in Classics and CLA 4493-4494 Guided Independent Study.

HISTORY COURSES (HIS)

1101 WESTERN CIVILIZATION I (3)
Survey of developments in Western history from the prehistoric era to early modern times, including classical antiquity, Middle Ages, and Renaissance and Reforma-

1102 WESTERN CIVILIZATION II (3)
Survey of developments in Western history from modern times to the contemporary era, including the Scientific Revolution, Enlightenment, French Revolution and Napoleon, nationalism, imperialism, two world wars, and the postwar era.

1103 HONORS WESTERN CIVILIZATION I (3)
Chronological coverage same as HIS 1101. Enrollment restricted to superior students. Prereq: Permission of department chair.

1104 HONORS WESTERN CIVILIZATION II (3)
Chronological coverage same as HIS 1102. Enrollment restricted to superior students. Prerequisite: Permission of department chair.

1111 U.S. TO 1877 (3)
Survey of American history from the colonial period through Reconstruction, including the Revolution, Constitution, National Era, Sectional problems, and the Civil War.

1112 U.S. SINCE 1877 (3)
Survey of American history from post-Reconstruction to the contemporary era, including industrialization, emergence as a world power, World War I, Great Depression, World War II, Cold War, the expanding role of government, and global issues in the post-Communist era.

1113 HONORS U.S. TO 1877 (3)
Chronological coverage same as HIS 1111. Enrollment restricted to superior students. Prerequisite: Permission of department chair.

1114 HONORS U.S. SINCE 1877 (3)
Chronological coverage same as HIS 1112. Enrollment restricted to superior students. Prerequisite: Permission of department chair.

1122 World History to 1500 (3)
This course surveys the origins, development, and character of the major centers of civilizations and their relationships to one another from the earliest civilizations to 1500.

1123 World History from 1500 (3)
This course surveys the growth, development, and character of the major centers of civilizations from 1500 to the present. The course focuses on the growing interconnections among societies around the globe in politics, economics, culture, and technology and examines the wide processes leading to the emergence of the present world.
3302  HISTORY OF RELIGION IN THE UNITED STATES (3)  
A study of the development of religion in the United States, including denominations, beliefs, church life, and the relationship of religious beliefs to other beliefs and institutions. Prerequisite: His 1111 and 1112 or permission of instructor.  [Troy]

3304  MILITARY HISTORY OF THE UNITED STATES (3)  
A study of war in United States history from the Colonial period through the Vietnam War, with emphasis on role of warfare in United States history and the relationship of the military to the civilian. Prereq: His 1111 and 1112 or permission of instructor.  [Troy]

3306  AFRICAN AMERICAN HISTORY (3)  
An introduction to the history of African Americans from the 17th Century to the present, including slavery, Civil War and emancipation, legalized discrimination, and the struggles for equality in present day American society. Prerequisite: His 1111 and 1112 or permission of instructor. [Troy]

3309  ENGLAND TO 1688 (3)  
A survey of English history from the Anglo-Saxons to the Glorious Revolution, emphasizing the interaction of geographical, political, economic, and cultural forces which shaped England as a monarchy. Prerequisite: His 1102 and 1102 or permission of instructor.

3310  ENGLAND SINCE 1688 (3)  
The final evolution of the English political system from the reign of William and Mary to the contemporary era, including social and economic transformations, the British Empire, the two world wars, the welfare state, and current issues. Prerequisite: His 1101 and 1102 or permission of instructor.

3320  THE VIETNAM WAR (3)  
A study of the period 1946 to 1975 in Indochina with emphasis on the American involvement during and after the French colonial period, escalating involvement of the Kennedy and Johnson administrations, and Vietnamization and withdrawal under President Nixon. Prerequisite: HIS 1111 and 1112 or permission of instructor.  
*May be used for Political Science credit.

3316  HISTORY OF ALABAMA (3)  
A study of the demographic, political, social, economic, and religious aspects of Alabama's history, emphasizing the role of the state within the nation. Prerequisite: HIS 1111 and 1112 or permission of instructor.

3318  HISTORY OF AMERICAN WOMEN (3)  
An introduction to the history of women in America from the 17th century to the present, exploring the major economic, religious, social, and political ideas and developments which have shaped their status and role in American history. Prerequisite: His 1111 and 1112 or permission of instructor.

3330  HISTORICAL ARCHAEOLOGY (3)  
An examination of the historical research methods and archaeological techniques used to investigate and interpret archaeological sites dating from the prehistoric period. [Troy]

3341  MEDIEVAL EUROPE (3)  
Western Europe from the fall of Rome to the Renaissance, including religious and intellectual traditions and the revival of governmental institutions. Prerequisite: His 1101 and 1102 or permission of instructor.

3342  RENAISSANCE AND REFORMATION (3)  
Historical review of the transitional centuries bridging the medieval and the modern eras, including the rebirth of art and literature, the Protestant and Catholic reform movements, and the role of kings and states. Prerequisite: His 1101 and 1102 or permission of instructor.

3343  AGE OF ABSOLUTISM (3)  
Survey of political and religious controversies that shaped affairs in Europe during the 16th and 17th centuries, emphasizing the flowering of monarchy and aristocracy. Prerequisite: His 1101 and 1102 or permission of instructor.

3344  AGE OF REASON (3)  
Survey of European history in the 18th century, emphasizing the cataclysmic developments in scientific, political, humanitarian, and economic thought that prepared the way for the rise of democracy in both the old and the new world. Prerequisite: His 1101 and 1102 or permission of instructor.

3352  HISTORY OF AFRICA (3)  
A survey of 19th and 20th century political, social, and cultural history of the region, including the partition of Africa by European powers and decolonization. Prerequisite: His 1101 and 1102 or permission of instructor.

3356  HISTORY OF THE MIDDLE EAST (3)  
Background information on Islam, the Ottoman Empire, and Western influence sets the scene for a detailed study of political, economic, and social developments since World War II. Prerequisite: His 1101 and 1102 or permission of instructor.

3375  RESEARCH AND METHODOLOGY (3)  
A course designed to acquaint students with research methods and computer skills as related to the history profession. The principal requirement is the successful completion of a formal research paper in which students will demonstrate proficiency in research, writing, and basic computer skills. NOTE: It is strongly recommended that history majors complete this course during the first term of their junior year. Prerequisite: Nine semester hours of history, including one of the freshman/sophomore level series. (Students must receive a grade of “C” or better for credit toward completion of degree requirements.)

4401  FRENCH REVOLUTION AND NAPOLEON (3)  
A study of the absolutist-aristocratic France challenged by democratic-egalitarian ideals and revolution. The role of Napoleon as conqueror of Europe and as propagator and destroyer of the French Revolution is also studied. Prerequisite: His 1101 and 1102 or permission of instructor.
EUROPE FROM 1815-1900 (3)
A study of Europe from the Congress of Vienna to 1900, including political, social, and economic developments in various countries, the rise of nationalism and unification movements, and imperialism. Prerequisite: His 1101 and 1102 or permission of instructor. Prerequisite: His 1101 and 1102 or permission of instructor.

CONTEMPORARY EUROPE (3)
Traces European developments in the 20th century, including domestic developments, World War I, Great Depression, rise of totalitarianism, World War II, European integration, the Cold War, and the post-Cold War era. Prerequisite: His 1101 and 1102 or permission of instructor.

OLD SOUTH (3)
An examination of the cultural, political, religious, and economic trends that shaped the colonial and antebellum south and the Civil War which ended that era. Prerequisite: His 1111 and 1112 or permission of instructor.

NEW SOUTH (3)
An examination of the political, social, racial and religious trends and policies that defined the New South. Topics include reconstruction, redemtion, agrarian unrest, Jim Crow, industrialization, Progressive Movement, World War I, the Great Depression, World War II, and the Civil Rights Movement. Prerequisite: His 1111 and 1112 or permission of instructor.

COLONIAL AMERICA (3)
Study of the colonial period from European discovery to the end of the French and Indian War, with emphasis on the political, economic, and social developments that set the stage for the American Revolution. Prerequisite: His 1111 and 1112 or permission of instructor.

THE AMERICAN REVOLUTION AND THE NEW NATION, 1763-1815 (3)
Ideas and institutions which led to American independence, the creation of the American union, and the development of a distinctive American culture in the early national period. Prerequisite: His 1111 and 1112 or permission of instructor.

ANTEBELLUM, CIVIL WAR AND RECONSTRUCTION, 1815-1877 (3)
Nationalism, Jacksonian democracy, territorial expansion, slavery and sectional strife, and the resulting Civil War and Reconstruction are included. Prerequisite: His 1111 and 1112 or permission of instructor.

EMERGENCE OF MODERN AMERICA, 1877-1919 (3)
Agricultural decline and crisis, industrialization and urbanization, Progressive reform era, World War I, and America as a world power are discussed. Prerequisite: His 1111 and 1112 or permission of instructor.

CONTEMPORARY AMERICA (3)
America in the Great Depression, World War II and the Cold War, Civil Rights Movement, Johnson’s Great Soci-ety, and America as a super power are topics which are included. Prerequisite: His 1111 and 1112 or permission of instructor.

HISTORY OF AMERICAN MINORITIES (3)
Study of selected ethnic, racial, cultural, social, and religious minorities, their treatment within and their contributions to American society, with special emphasis on classroom participation in topical discussions. Prerequisite: His 1111 and 1112 or permission of instructor.

U.S. FOREIGN POLICY TO 1920 (3)
A study of the factors, forces, and functions in the making of American foreign policy from the 1760’s to 1920. May be used for political science credit. Prerequisite: His 1111 and 1112 or permission of instructor.

CIVIL RIGHTS MOVEMENT (3)
Study of the origins of the Civil Rights Movement in the late nineteenth and twentieth centuries, beginnings of change in the 1930s and the World War II era, and the movement itself as defined by legal, political, and social conflict and change from the latter 1940s to the present. Prerequisite: His 4414 and 4415 or permission of instructor.

RUSSIA TO 1861 (3)
A study of the history of the Eastern Slavic people from the prehistoric period, through the Kievan, Appanage, Muscovite, and Imperial periods from Peter the Great to the emancipation of the serfs in 1861. Prerequisite: His 1101 and 1102 or permission of instructor.

RUSSIA SINCE 1861 (3)
The development of the revolutionary movements and tsarist reform attempts, World War I, revolutions of 1917 and Bolshevik victory, establishment of the Stalinist state, World War II, Cold War, Soviet domestic problems, and the disintegration of the USSR. Prerequisite: His 1101 and 1102 or permission of instructor.

MAJOR PERSONALITIES IN THE DEVELOPMENT OF CIVIL RIGHTS IN AMERICA (3)
Study of important civil rights personages and their writings from Frederick Douglas and other pre-Civil War activists and thinkers to the present. Prerequisite: His 4430.

HISTORICAL GEOGRAPHY OF NORTH AMERICA (3)
An analysis of the physical and cultural factors in the development of North America from early European settlement to the present. May be used as geography credit. Prerequisite: His 1111 and 1112 or permission of instructor.

CIVIL RIGHTS IN ALABAMA (3)
Study of the history of civil rights in Alabama with the Reconstruction period and progressing through central events and developments up to the present. Course emphasis also will include legal developments and important personalities. Prerequisite: His 4430.

AMERICAN CONSTITUTIONAL DEVELOPMENT
(3) American constitutional system with emphasis upon its origin and evolution via amendments and Supreme Court decisions. Note: May be used for political science credit. Prerequisite: His 1111 and 1112 or permission of instructor.

4445 HISTORY OF MODERN GERMANY (3)
Survey of Germanic peoples from the Revolutions of 1848 to the present, emphasizing unification, two world wars, postwar division, and reunification. Prerequisite: His 1101 and 1102 or permission of instructor.

4448 THE WESTWARD MOVEMENT (3)
Study of the history of American expansionism and westward movement and its impact on political, economic, and social institutions. Prerequisite: His 1111 and 1112 or permission of instructor.

4450 ENVIRONMENTAL HISTORY OF THE U.S. (3)
An introduction to environmental history of the United States from the 18th century to the late 20th century, emphasizing the post World War II period. The course will focus on the historical development of the science of ecology, the origins of environmental problems, and solutions attempted by government and experts, as well as responses by grassroots activists over time. Prerequisite: His 1111 and 1112 or permission of instructor.

4451 THE FAR EAST (3)
Study of the development and interaction of Chinese, Japanese, and Korean civilizations, the impact of Western cultures, twentieth century conflicts, resolutions and accommodations. Prerequisite: His 1101 and 1102 or permission of instructor.

4454 WESTERN THOUGHT SINCE THE 17TH CENTURY (3)
Principal ideas and political thinking from the Age of the Enlightenment to the present. Prerequisite: His 1101 and 1102 or permission of instructor.
* This is no longer accepted as political science.

4470 ORAL HISTORY (3)
An introduction to the methods and practice of oral history.

4471 LOCAL HISTORY (3)
An exploration of history, historiographic issues, and methodology of local history in the United States. Provides opportunities to become familiar with sources used in studying local history and to gain practical experience in conducting local history research.

4472 RECORDS MANAGEMENT (3)
An introduction to the scope of managing records in an organization and to the practical tasks associated with establishing a records management program in a business, office of government, or non-profit organization. Note: Credit in Archival Minor only.

4473 ARCHIVES PRACTICUM (3)
Provides students with an opportunity to apply their knowledge of archival and records management theory and practice. Students will be assigned to work on projects at an archival repository chosen in cooperation with instructor. May be repeated once as an elective. Note: Credit in Archival Minor only.

4481 METHODS AND MATERIALS FOR THE SECONDARY TEACHER (4)
A survey of teaching methods and materials appropriate for teaching in the content areas for grades 6-12. Topics addressed will include teacher evaluation in the public schools, collaboration with special education teacher evaluation in the public schools, collaboration with special education teachers, and lesson planning formats. In addition, teaching methods, selections organization and use of history/social science materials for grades 6-12 will be covered in detail. A professional laboratory experience is included in this course.

4482 HISPANIC AMERICAN BEGINNINGS (3)
Colonial systems of Spain and Portugal in the Americas from the 16th to 19th centuries, with emphasis on revolt and the establishment of the Latin American republics and religious and economic institutions. Prerequisite: His 1111 and 1112 or permission of instructor.

4483 LATIN AMERICAN STATES (3)
Cultural, social, political, and economic development in 19th and 20th centuries and international and U.S. relations. Prereq: His 1111 and 1112 or permission of instructor.

4490 SENIOR SEMINAR IN HISTORY (3)
The capstone course for history majors which synthesizes students’ course work through research, historiography, writing, speaking, and reading comprehension. Prerequisite: senior status at all institutions and HIS 3375 at TSUD.

4491-4492 GUIDED INDEPENDENT RESEARCH (1-3)
Additional information is indexed under “Guided Independent Research and Study.”

4493-4494 GUIDED INDEPENDENT STUDY (1-3)
Additional information is indexed under “Guided Independent Research and Study.”

4495 SELECTED TOPICS IN HISTORY (3)
Historical examination of a designed topic of special and/or current interest and importance, which is generally not covered in regularly offered courses by the department. Prerequisite: applicable survey courses and permission of instructor.

4496 SECONDARY EDUCATION INTERNSHIP-HISTORY (9)
Additional information is indexed under “The Professional Internship Program.”

4499 INTERNSHIP IN HISTORY (1-3)
Supervised work in an agency that can provide practical experience in the field of study. Prerequisite: Senior standing, at least 2.5 GPA, 12 hours in upper-division courses in the field, permission of supervising instructor.
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LATIN COURSES (LAT)

Note: For additional information, see “Placement in Foreign Language Courses.”

1131 Introductory Latin I (3-3)
Introduction to the Latin language with emphasis on pronunciation, basic vocabulary, fundamentals of grammar, and graded readings. F

1132 Introductory Latin II (3-3)
Continuation of LAT 1131. Prerequisite: LAT 1131. Sp

2231 Intermediate Latin I (3-3)
Continuation of LAT 1131-1132. Prerequisite: LAT 1132. F

2232 Intermediate Latin II (3-3)
Continuation of LAT 2231, culminating in the reading of authentic passages from selected Latin authors. Prerequisite: LAT 2231. Sp

3331 Readings in Latin Literature (3-3)
Readings in a selected author, period, or genre. Note: May be repeated for credit. Prerequisite: LAT 2232. F, Sp

LEADERSHIP COURSES (LDR)

1100 Introduction to Leadership (3-3)
A survey of leadership theory, practice, and research. The course includes an investigation of leadership through studies of great leaders and thinkers. Learning about leadership is reinforced through practical exercises and experience in leadership.

4400 Leadership Seminar (3-3)
A capstone course designed to synthesize leadership planning and experience and to orient developing leaders to the practical and ethical challenges awaiting them.

MARINE BIOLOGY COURSES (MB)

Offered at Dauphin Island Sea Lab (DISL) only

Courses are offered during the summer semester only. Since course offerings change, check current DISL summer bulletin for specific course offerings and descriptions.

3301 Marine Biology (4)
A general survey of marine plants, invertebrates, and vertebrates, the communities that they form and the physical and chemical factors that influence them. Prerequisites: BIO 1101, L101, CHM 1143, L143. Su

4402 Marine Invertebrate Zoology (4)
A study of the natural history, systematics, and morphology of marine invertebrates from a variety of habitats in the Gulf of Mexico. Participation in extended field trips is a required part of the course. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marine Vertebrate Zoology (4)
Biology of marine vertebrates emphasizing systematics, behavior, physiology, and ecology of local forms. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marine Botany (4)
A general survey of algae and vascular plants associated with the marine and estuarine environment. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marsh Ecology (4)
A study of the floral and faunal elements of various marine marsh communities. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Introduction to Oceanography (4)
A general introduction to the physics, chemistry, geology, and biology of the oceans. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marine Fish Diseases (4)
Introduction to aquatic animal diseases, specifically finfish and shellfish. Student will learn practical microbiological techniques for isolation and identification. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marine Behavioral Ecology (4)
Examination of how animal behavior is influenced by and interacts with its environment, and the ecological and evolutionary significance of these behaviors in a marine setting. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marine Technical Methods (2)
An introduction to the techniques, instrumentation and equipment necessary to perform marine research, emphasizing field methods. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Marine Ecology (4)
Lecture and laboratory studies of bioenergetics, community structure, population dynamics, predation, competition, and speciation in marine ecosystem. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Coastal Ornithology (4)
Study of coastal and pelagic birds with emphasis on ecology, taxonomy, and distribution. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Coastal Zone Management (2)
A review of ecological features and management policies for coastal communities, with a description of relevant state and federal programs. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

Dolphins and Whales (2)
Lectures, audiovisual presentations, and practical exer-
cises to guide students to further study of cetaceans. Pre-
requisites: BIO 1101, L101, 2229, L229, CHM 1143, L143, BIO 4432, L432 or MB 4403. Su

4434 Coastal Climatology (2)
A study of the geology of the ocean basins, with special emphasis on the continental shelves, their sediments, and the sedimentary processes at work there. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143, introductory geology and MTH 4423. Su

4435 Coastal Geomorphology (2)
An introduction to coastal sediment processes and applied geomorphology with emphasis on waves, tides, and sediments. Prerequisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

4437 Coastal Climatology (2)
Study of the controlling factors and features of the world’s climates, with particular attention to coastal areas and application and interpretation of climate data. Pre-
requisites: BIO 1101, L101, 2229, L229, CHM 1143, L143. Su

4460 Introduction to Neurobiology (4)
The study of the structure, development, physiology, and pharmacology of the nervous systems and sense organs. Prerequisites: BIO 4478, L478, PHY 2253, L253. Su

MATHEMATICS COURSES (MTH)

0096 Pre-Algebra (3)
Topics include operations with whole numbers, decimals, and fractions. Ratio, percent and equation solving will be emphasized. This course is for institutional credit and will not be used in meeting degree requirements. This course will not substitute for any general studies requirement.

1100 Fundamentals of Algebra (3)
Topics include integer and rational arithmetic, linear equations, inequalities, integer exponents, polynomials and factoring, rational expression. Prerequisite: Placement or a grade of C or better in MTH 096. Note: This course is for institutional credit and will not be used in meeting degree requirements. This course will not substitute for any general studies requirement.

1105 Intermediate Algebra (3)
Topics include real and complex numbers; polynomials and factoring; rational exponents; roots and radicals; linear equations and inequalities; quadratic equations; and graphing. Prerequisite: Placement or a grade of C or better in MTH 1100. This course will not substitute for any general studies requirement.

1110 Finite Mathematics (3)
Topics include a survey of logic, sets, counting, permutations, combinations, basic probability, an introduction to statistics, and matrices and their applications to Markov chains and decision theory. Prerequisite: Appropriate score on mathematics placement test, advanced placement, or a grade of C or better in MTH 1105. Note: Credit will not count toward a major or minor in mathematics.

1112 Pre-Calculus Algebra (3)
Topics include the algebra of functions, including polynomial, rational, exponential, and logarithmic functions. The course also contains systems of equations and inequalities, linear and quadratic equations and inequalities, graphs of polynomials, and the binomial theorem. Prerequisite: Appropriate score on mathematics placement test, advanced placement, or a grade of C or better in MTH 1105. Note: Credit will not count toward a major or minor in mathematics.

1114 Pre-Calculus Trigonometry (3)
This course covers trigonometric functions including definitions, identities, and trigonometric equations, applications as well as properties and graphs of trigonometric functions and their inverses. Also include are the law of sines, the law of cosines, polar coordinates, vectors, and conic sections. Prerequisite: MTH 1112 with a grade of C or better or advanced placement. Note: Credit will not count toward a major or minor in mathematics.

1115 Pre-Calculus Algebra and Trigonometry (4)
The course covers the algebra of functions, systems of equations and inequalities, quadratic inequalities, and the conic sections. It also includes the study of trigonometric and inverse trigonometric functions, trigonometric equations, vectors, complex numbers, polar coordinates, and DeMoivre’s Theorem. Prerequisite: MTH 1110 with a grade of C or better, appropriate score on the mathematics placement test, or advanced placement. Note: Credit will not count toward a major or minor in mathematics.

1125 Calculus I (4)
Topics include limits of functions, derivatives of algebraic, trigonometric, exponential and logarithmic functions and their inverses and the definite integral and its application to area problems. Applications of the derivative are covered in detail including approximations of error using differentials, maximum and minimum problems, and curve sketching using calculus. Prerequisite: MTH 1115 or 1114, or advanced placement.

1126 Calculus II (4)
Topics include vectors in the plane and in space, line and planes in space, applications of integration (such as volume, arc, length, work, and average value), techniques of integrations, indeterminate forms, infinite series, polar coordinates, and parametric equations. Prerequisite: a grade of C or better in MTH 1125 or advanced placement.

2201 Business Calculus (3)
An introduction to the basic ideas and techniques of differential and integral calculus, especially as they relate to problems involving maximum and minimum values of functions and marginal analysis. Prerequisite: MTH 1112 or 1115 with a grade of C or better, or advanced placement. Note: Credit will not count toward a major or minor in mathematics.

2210 Applied Statistics (3)
Applications of statistical techniques, such as experimen-
3318 Introduction to Advanced Mathematics (3)
Topics include set theory, equivalence relations and partitions, logic, number systems, functions, and proof writing techniques. **Prerequisites:** MTH 1126 or permission of instructor.

3325 College Geometry (3)
Axiomatic systems; incidence and separation properties of planes and space; metric and synthetic approaches; geometric inequalities; parallel postulate; area-theory; circles in a plane; models for hyperbolic and elliptic geometries; and constructions with a protractor and compass. **Prerequisites:** MTH 3318 or permission of instructor.

3331 Linear Algebra (3)
Matrices, systems of equations, determinants, eigenvalues and eigenvectors. **Prerequisites:** MTH 1126 or permission of instructor.

3364 Vector Calculus (3)
Differentiation in several variables. Line and surface integrals. Potential theory and differential forms. **Prerequisite:** MTH 2227.

4412 Discrete Mathematics (3)
Topics can include: counting, graph theory, partitions, principle of inclusion and exclusion, finite geometries, applications of group theory, recurrence relations, generating functions. **Prerequisites:** MTH 2227 and 3318.

4422 Numerical Analysis (3)
Topics include finite differences, interpolation, numerical integration and differentiation, solutions of equations of one variable, linear systems, and numerical solutions of ordinary differential equations. **Prerequisites:** MTH 2227 and 3331, or permission of instructor.

4424 Real Analysis I (3)
The real number system, completeness, limits, continuity, sequences, differentiation, and the Riemann integral. **Prerequisites:** MTH 2227 and 3318.

4425 Real Analysis II (3)
Sequences and series of functions, series, and a continuation of the integral to include the Fundamental Theorem of Calculus. **Prerequisites:** MTH 4424.

4426 Complex Analysis (3)
Complex numbers, elementary functions and their mappings, complex limits and power series, analytic functions, integrals, contour integral, and Cauchy integral formula. **Prerequisites:** MTH 2227 and 3318 or permission of instructor.

4436 Number Theory (3)
Divisibility, congruencies, prime numbers, Fermat’s theorem, Diophantine equations, number theoretic functions. **Prerequisites:** MTH 2227 and 3318.

4441 Abstract Algebra I (3)
Properties of the integers, modular arithmetic. Elementary theory of groups, finite groups, subgroups, cyclic groups, permutation groups. Group isomorphisms and homomorphisms. **Prerequisites:** MTH 2227, 3318, and
3331 or permission of instructor.

4442 Abstract Algebra II (3)

4451 Mathematical Statistics I (3)
Probability theory, sample spaces, random variables, mutual exclusion, independence, conditional probability, permutations and combinations, common discrete and continuous distributions, expected value, mean, variance, multivariate distributions, covariance, Central Limit Theorem. Prerequisite: MTH 2227 or permission of instructor.

4452 Mathematical Statistics II (3)
Fundamentals of the theory of statistics, the Central Limit Theorem, point estimation, sufficiency, consistency, hypothesis testing, sampling distributions, confidence intervals, linear regression models, interpretation of experimental results, Bayesian Estimation. Prerequisite: MTH 4451.

4460 Topology (3)
An introduction to metric and topological spaces and associated topics, separation axioms, compactness, and connectedness. Prerequisite: MTH 2227 and MTH 3318.

4481 Methods and Materials for the Secondary Teacher (4)
A survey of teaching methods and materials appropriate for teaching in the content areas for grades 6-12. Topics addressed will include teacher evaluation in the public schools, collaboration with special education teachers, and lesson planning formats. In addition, teaching methods, selections organization and use of mathematics materials for grades 6-12 will be covered in detail. A professional laboratory experience is included in this course.

4491/4492 Guided Independent Research (3)
Additional information is indexed under “Guided Independent Research and Study.”

4493/4494 Guided Independent Study (3)
Additional information is indexed under “Guided Independent Research and Study.”

MEDICAL TECHNOLOGY COURSES (MT)
(Offered in hospital internship only)

4400 Clinical Urinalysis (1)
The imparting of skills for performing and interpreting routine urinalyses as well as special urinalysis procedures.

4401 Clinical Urinalysis Lab (1)
This lab section includes specimen handling, procedure manual, audio-visual, quality control, record keeping, and reporting system.

4402 Clinical Microbiology (4)
This lecture course covers areas of bacteriology, mycology, and virology.

4403 Clinical Microbiology Lab (2)
This lab teaches identification methods, isolation methods, and current clinical techniques for working with bacteria, molds, viral, and rickettsial organisms.

4404 Clinical Parasitology (1)
Discussions concerning proper collection and handling of specimens for detection of parasites, techniques used to detect parasites and morphological features, and life cycles of important organisms.

4405 Clinical Parasitology Lab (1)
Use of the laboratory procedures and techniques for isolation and identification of parasitic organisms.

4406 Clinical Hematology (4)
Detailed studies of blood which include cell types, functions, number of cells, clotting mechanisms, coagulation disorders, platelet disorders, and other pertinent topics.

4407 Clinical Hematology Lab (2)
Special studies and training involving cell counts, hemoglobin and hematocrit determinations, and other special hematology procedures.

4408 Immunohematology (3)
This block involves blood banking, studies of the ABO blood group system, the Rh system, blood typing, antibody studies, and effects of transfusion.

4409 Immunohematology Lab (1)
Blood banking studies and techniques. Clinical applications of procedures under direct supervision.

4410 Clinical Serology (2)
Lectures emphasizing the principles and interpretations of immunological procedures. The study of the immune systems of the body. Antigen-antibody studies and techniques.

4411 Clinical Serology Lab (1)
In this lab, the student becomes proficient in running and interpreting serology (immunology) tests.

4412 Clinical Chemistry (6)
This lecture course focuses on the principles and interpretations of biochemical analytical methods, clinical calculations, and quality control.

4413 Clinical Chemistry Lab (4)
This lab rotation provides the practical experience of running biochemical tests and interpreting their results. Some prior experience with instrumentation is required in order to understand how to use and care for clinical instruments.
### MILITARY SCIENCE AND LEADERSHIP COURSES (MSL)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1101</td>
<td>Foundations of Officership (1)</td>
<td>This course features an introduction to life in the U.S. Army. Topics include leadership; the unique duties and responsibilities of officers; the organization and role of the Army; basic life skills pertaining to fitness and communication; and an analysis of Army values and expected ethical behavior. <em>Co requisite: MS 1104a.</em></td>
</tr>
<tr>
<td>1102</td>
<td>Basic Leadership (1)</td>
<td>This course provides students with a basic knowledge of common military skills and presents the fundamental leadership concepts and doctrine of the U.S. Army. Topics include the practice of basic skills that underlie effective problem solving; application of active listening and feedback skills; examination of factors that influence leader and group effectiveness; and an examination of the officer experience. <em>Co requisite: MS 1104b.</em></td>
</tr>
<tr>
<td>1104a</td>
<td>Leadership Lab (1)</td>
<td>Leadership lab is required for Army ROTC students. The student will receive training in drill and ceremonies, field craft, individual movement techniques, squad tactics, map reading and land navigation, first aid, and use and maintenance of the M16 Rifle. <em>Co requisite: MS 1104a.</em></td>
</tr>
<tr>
<td>1104b</td>
<td>Leadership Lab (1)</td>
<td>Leadership lab is required for Army ROTC students. The student will receive training in drill and ceremonies, field craft, individual movement techniques, squad tactics, map reading and land navigation, first aid, and use and maintenance of the M16 Rifle. <em>Co requisite: MS 1104b.</em></td>
</tr>
<tr>
<td>2201</td>
<td>Individual Leadership Studies (2)</td>
<td>This course develops the knowledge of self; self-confidence and individual leadership skills as well as develops problem solving and critical thinking skills and the application of communication, feedback, and conflict resolution. Areas to be trained include personal development, goal setting, communication, problem solving and decision-making, leadership, teamwork, the group process, stress management, and physical fitness. <em>Co requisite: MS 2204a.</em></td>
</tr>
<tr>
<td>2202</td>
<td>Leadership and Teamwork (2)</td>
<td>This course focuses on self-development guided by knowledge of self and group processes by focusing on challenging current beliefs, knowledge and skills. <em>Co requisite: MS 2204a.</em></td>
</tr>
<tr>
<td>2204a</td>
<td>Leadership Lab (1)</td>
<td>Leadership lab is required for Army ROTC students. The students will receive training in drill, physical training, rappelling, water survival, tactics, marksmanship, night operations, and land navigation. <em>Co requisite: MS 2204a.</em></td>
</tr>
<tr>
<td>2204b</td>
<td>Leadership Lab (1)</td>
<td>Leadership lab is required for Army ROTC students. The students will receive training in drill, physical training, rappelling, water survival, tactics, marksmanship, night operations, and land navigation. <em>Co requisite: MS 2204a.</em></td>
</tr>
<tr>
<td>3301</td>
<td>Leadership and Problem Solving (3)</td>
<td>This course examines the basic skills that underlie effective problem solving by analyzing the role officers played in the transition of the Army from Vietnam to the 21st Century, analysis of military missions and the planning of military operations, the features and execution of the Leadership Development Program, and the execution of squad battle drills. <em>Co requisite: 3304a.</em></td>
</tr>
<tr>
<td>3302</td>
<td>Leadership and Ethics (3)</td>
<td>This course probes leader responsibilities that foster an ethical command climate by developing cadet leadership competencies and applying principles and techniques of effective written and oral communication. Students are prepared for success at the ROTC National Advanced Leadership Course. <em>Co requisite: MS3304b.</em></td>
</tr>
<tr>
<td>3304a</td>
<td>Leadership Lab (1)</td>
<td>Leadership Lab is required for all Army ROTC students. The student will receive training in troop leading procedures, mission planning, squad tactics, land navigation, individual movement techniques, water survival and rappelling. <em>Co requisite: MS 3304a.</em></td>
</tr>
<tr>
<td>3304b</td>
<td>Leadership Lab (1)</td>
<td>Leadership Lab is required for all Army ROTC students. The student will receive training in troop leading procedures, mission planning, squad tactics, land navigation, individual movement techniques, water survival and rappelling. <em>Co requisite: MS 3304b.</em></td>
</tr>
<tr>
<td>4401</td>
<td>Leadership and Management (3)</td>
<td>This course builds on the experience gained at the National Advanced Leadership Course in order to solve organizational and staff problems and discusses staff organization and functions, analysis of counseling responsibilities and methods, the principles of subordinate motivation and organizational change. Students will apply leadership and problem solving principles to a case study and or simulation. <em>Co requisite: MS 4404a.</em></td>
</tr>
<tr>
<td>4402</td>
<td>Officership (3)</td>
<td>This course is designed to explore topics relevant to SecondLieutenants entering the U.S. Army and focuses on the legal aspects of decision making leadership, analyzing Army organization from the tactical to the strategic level, assessing administrative and logistical functions, performance of platoon leader actions, and an examination of leader responsibilities that foster an ethical command climate. <em>Co requisite: MS 4404a.</em></td>
</tr>
<tr>
<td>4404a</td>
<td>Leadership Lab (1)</td>
<td>Leadership lab is required for all Army ROTC students. The student will receive training in troop leading procedures, mission planning, squad tactics, land navigation, individual movement techniques, water survival and rappelling. <em>Co requisite: MS 4404a.</em></td>
</tr>
<tr>
<td>4404b</td>
<td>Leadership Lab (1)</td>
<td>Leadership lab is required for all Army ROTC students. The student will receive training in troop leading procedures, mission planning, squad tactics, land navigation, individual movement techniques, water survival and rappelling. <em>Co requisite: MS 4404a.</em></td>
</tr>
<tr>
<td>COURSE</td>
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<tr>
<td>PHILOSOPHY COURSES (PHI)</td>
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<tr>
<td><strong>2201</strong></td>
<td>Introduction to Political Philosophy (3)</td>
<td>Major Classical sources of political thought and the application of these sources to contemporary political issues.</td>
</tr>
<tr>
<td><strong>2203</strong></td>
<td>Introduction to Philosophy (3)</td>
<td>Brief history of philosophical ideas and the basics of Aristotelian logic.</td>
</tr>
<tr>
<td><strong>2204</strong></td>
<td>Ethics and the Modern World (3)</td>
<td>An introduction to basic ethics and to contemporary ethical issues.</td>
</tr>
<tr>
<td><strong>3301</strong></td>
<td>Western Philosophy (3)</td>
<td>Survey of philosophical ideas from the ancient Greeks through the 20th century.</td>
</tr>
<tr>
<td>RELIGION (REL)</td>
<td></td>
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</tr>
<tr>
<td><strong>2280</strong></td>
<td>World Religions (3)</td>
<td>Historical development and basic beliefs of the world's major religions.</td>
</tr>
<tr>
<td>PHYSICS COURSE DESCRIPTIONS (PHY)</td>
<td></td>
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<tr>
<td><strong>L252</strong></td>
<td>General Physics I Laboratory (1)</td>
<td>Laboratory work emphasizes basic principles of mechanics and thermodynamics, the use of measuring instruments, and the interpretation of data. Co-requisite: PHY 2252.</td>
</tr>
<tr>
<td><strong>L253</strong></td>
<td>General Physics II Laboratory (1)</td>
<td>Laboratory work emphasizes basic principles of electricity, magnetism and optics, the use of measuring instruments, and the interpretation of data. Co-requisite: PHY 2253.</td>
</tr>
<tr>
<td><strong>L262</strong></td>
<td>Physics I with Calculus Laboratory (1)</td>
<td>Laboratory work emphasizes basic principles of thermodynamics and mechanics, the use of measuring instruments, and the interpretation of data. Co-requisite: PHY 2262.</td>
</tr>
<tr>
<td><strong>L263</strong></td>
<td>Physics II with Calculus Laboratory (1)</td>
<td>Laboratory work emphasizes basic principles of electricity, magnetism and optics, the use of measuring instruments, and the interpretation of data. Co-requisite: PHY 2263.</td>
</tr>
<tr>
<td><strong>4410</strong></td>
<td>Modern Physics (3)</td>
<td>Special relativity, quantum mechanics, and many electron systems. Pre-requisite: MTH 1125, and PHY 2253, L253 OR PHY 2263, L263. Co-requisite: PHY L410.</td>
</tr>
<tr>
<td><strong>L410</strong></td>
<td>Modern Physics Laboratory (1)</td>
<td>Selected experiments in modern physics. Co-requisite: PHY 4410.</td>
</tr>
<tr>
<td><strong>4420</strong></td>
<td>Mechanics (3)</td>
<td>Kinematics and dynamics of particles and systems of particles. Pre-requisite: MTH 2227, and PHY 2253, L253 OR PHY 2263, L263.</td>
</tr>
<tr>
<td><strong>4430</strong></td>
<td>Electromagnetic Fields (3)</td>
<td>Vector fields, dielectric and magnetic media, fields in conductors, electric and magnetic circuit elements. Maxwell's equations and boundary condition problems in one, two and three dimensions. Pre-requisite: MTH 2227, and PHY 2253, L253 OR PHY 2263, L263.</td>
</tr>
<tr>
<td><strong>L459</strong></td>
<td>Optics Laboratory (1)</td>
<td>Selected experiments in geometric and physical optics. Laboratory work emphasizes the basic principles of optics, the use of measuring instruments, and the interpretation of data. Co-requisite: PHY 4459.</td>
</tr>
<tr>
<td><strong>4491-2</strong></td>
<td>Guided Independent Research (1-4)</td>
<td>A physics research project under the direction of a faculty member. The project must culminate in a written report with the results reported at a Department seminar. Pre-requisite: Senior standing or permission of Department Chair.</td>
</tr>
<tr>
<td><strong>Guided Independent Study (1-4)</strong></td>
<td></td>
<td>Independent study for advanced students under the direction of a faculty member. Pre-requisite: Permission of Department Chair.</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>2XXX</td>
<td>World Politics (3)</td>
<td>Topics in Physics (3) Focus on a topic of timely nature and/or special interest. Pre-requisites: PHY 2253 and L253 OR PHY 2263 and L263.</td>
</tr>
<tr>
<td>2240</td>
<td>Honors American National Government (3)</td>
<td>This course explores the stable political values that frame the US Constitution and have guided our societal environment for two hundred years. The course is intended for superior students and political science majors.</td>
</tr>
<tr>
<td>2241</td>
<td>American National Government (3)</td>
<td>A study of the Constitution, federalism, the Presidency, Congress, the courts, and politics on the national level.</td>
</tr>
<tr>
<td>3300</td>
<td>Foundations of Political Science (3)</td>
<td>An introduction to the discipline of political science, this course offers an overview of the sub-fields and methods within the discipline.</td>
</tr>
<tr>
<td>3315</td>
<td>The Vietnam War (3)</td>
<td>A study of the period 1946 to 1975 in Indochina with emphasis on the American involvement during and after the French colonial period, escalating involvement of the Kennedy and Johnson administrations, and Vietnamization and withdrawal under President Nixon. Prerequisite: His 1111 and 1112.</td>
</tr>
<tr>
<td>3330</td>
<td>Political Theory (3)</td>
<td>An examination of selected advanced sources of classical and modern political theory. Theoretical perspectives, which are prominent in contemporary political science are investigated.</td>
</tr>
<tr>
<td>3341</td>
<td>U.S. Government – Legislative Branch (3)</td>
<td>An analysis of the structure and dynamics of the U.S. Congress in the context of its relationships to the Constitution, the presidency, the judiciary, political processes and subordinate levels of government.</td>
</tr>
<tr>
<td>3342</td>
<td>U.S. Government – Judicial Branch (3)</td>
<td>An analysis of the American federal judiciary in the context of its relationships to the Constitution, American political processes, the legislative and executive branches, state governments, and public opinion.</td>
</tr>
<tr>
<td>3334</td>
<td>American Political Processes (3)</td>
<td>This course examines key topics in U.S. politics, specifically looking at national problems, actors and proposed solutions.</td>
</tr>
<tr>
<td>3351</td>
<td>International Relations (3)</td>
<td>This course provides a comprehensive investigation of thinking about the relationship of both state and non-state actors in the international arena. It offers a framework for the further analysis of the discipline of International Relations including: the principal schools of IR theory; the historical development of the contemporary international system; foreign policies of states, the search for state security, and the economic relationships between states within a global political context.</td>
</tr>
<tr>
<td>3360</td>
<td>Contemporary Political Thought (3)</td>
<td>This course examines recent areas of research in political theory, including current issues of debate on the state, democratic theory, liberalism, conservatism, and feminism.</td>
</tr>
<tr>
<td>3XXX</td>
<td>State and Local Politics (3)</td>
<td>An investigation of political processes and organization at the state and local level in the United States.</td>
</tr>
<tr>
<td>44XX</td>
<td>Intergovernmental Relations (3)</td>
<td>The administrative, fiscal, and legal factors that govern relations between the various government entities in the United States. The focus is on the political conflicts that occur and the strategies for resolution.</td>
</tr>
<tr>
<td>4410</td>
<td>International Political Economy (3)</td>
<td>An examination of the interrelationships between international politics and economics; states and markets, trade,</td>
</tr>
<tr>
<td>4411</td>
<td>Politics of Southeast Asia (3)</td>
<td>This course involves the study of politics in the Philippines, Indonesia, Vietnam, Laos, Kampuchea, Malaysia, Singapore, Brunei, Myanmar, and Thailand. It investigates the historical and cultural factors contributing to their political relationships within the region and internationally.</td>
</tr>
<tr>
<td>4402</td>
<td>Political Geography (3)</td>
<td>An analysis of the reciprocal effects of geography and political organization on the behavior of states, including boundaries, national resources, spatial strategies, and maritime power.</td>
</tr>
<tr>
<td>44XX</td>
<td>Administrative Law (3)</td>
<td>This course examines the legal environment in which government agencies function, including the powers and procedures that control administrative discretion, rule-making, investigations, prosecuting, negotiating, and settling; constitutional law, statutory law, common law, and agency-made law; the liability of governments and their officers; and selected court cases and decisions.</td>
</tr>
<tr>
<td>44XX</td>
<td>Terrorism and Political Violence (3)</td>
<td>This course is designed to introduce students to the origins and significance of contemporary political violence with an emphasis on the phenomenon of terrorism. It employs an interdisciplinary, case-study approach.</td>
</tr>
<tr>
<td>44XX</td>
<td>Politics of Southeast Asia (3)</td>
<td>This course involves the study of politics in the Philippines, Indonesia, Vietnam, Laos, Kampuchea, Malaysia, Singapore, Brunei, Myanmar, and Thailand. It investigates the historical and cultural factors contributing to their political relationships within the region and internationally.</td>
</tr>
</tbody>
</table>

POLITICAL SCIENCE COURSES (POL)
foreign investment, international monetary affairs, foreign aid, state development strategies, and globalization.

4415 **International Conflict (3)**  
This course provides a detailed examination of patterns of international conflict and methods employed to manage them; bases, emergence, escalation, de-escalation, negotiation, mediation, termination, and consequences. Specific episodes of international conflict will be investigated.

4420 **Constitutional Law (3)**  
A survey of the legal, political, and methodological problems in constitutional law.

4421 **Principles of Public Administration (3)**  
An introduction to the historical, institutional, and political context of the profession; current trends and issues; and the role of public administration in the larger governmental system.

4422 **Public Policy Making (3)**  
An introduction to the processes by which American public policy is formulated, implemented, and evaluated and to the roles of policy analysts in solving various public problems.

4423 **American Foreign Policy to 1920 (3)**  
A study of the factors, forces and functions in the making of American foreign policy from the 1760s to the end of World War I.

4424 **Contemporary American Foreign Policy (3)**  
This course examines the foreign policy processes of the United States; historical traditions, political institutions, economic and military capabilities, the Congress, the Presidency, interest groups, the media, and public opinion.

4425 **Latin American Politics (3)**  
An introduction to the social and political institutions of Latin America.

4426 **Public Personnel Administration (3)**  
A survey of the basic principles and functions of personnel administration in the public service and of the current strategies for managing recruitment, placement, salary and benefit strategies, training, retirement, and other personnel functions.

4427 **International Law (3)**  
This course examines the sources and development of international law from a historical, political, jurisprudential, and philosophical standpoint. It will include a comprehensive investigation of state sovereignty, jurisdiction, the role of the United Nations, the regulation of the use of force in world affairs, and international human rights law.

4428 **Bureaucratic Politics (3)**  
A study of the theories of organizations and their structures as they effect the policymaking environment, examining goals, resources, effectiveness, equilibrium, and change relating to organizations and their relationship to administration.

4429 **Intercultural Relations (3)**  
An analysis of the influence of culture on interstate relations including theories, concepts, and applications.

4430 **Politics of the Developing World (3)**  
This course examines the political and economic challenges faced by developing states. Theories and models of development will be analyzed in a variety of ways.

4431 **Middle Eastern Politics (3)**  
An introduction to the social and political institutions of the contemporary Middle East.

4432 **Comparative Public Policy (3)**  
This course examines the process of policy making in a cross-comparative framework that illustrates how different nation states, both in the developed and the developing worlds, formulate and implement public policy.

4433 **Comparative Government (3)**  
A comparative analysis of state governments in the world with an emphasis upon political cultures, governmental institutions and political processes that lead to differences and international tensions.

4434 **European Politics (3)**  
An introduction to the social and political institutions of contemporary Europe.

4435 **Internship in Political Science (1-3)**  
Supervised work in an agency that can provide practical experience in the field of study. **Prerequisite:** senior standing and approval of supervising instructor and the department chair.

4436 **Guided Independent Research (1-3 credit hours each)**  
Additional information is indexed under “Guided Independent Research and Study.”

4437 **Guided Independent Study (1-3 credit hours each)**  
Additional information is indexed under “Guided Independent Research and Study.”

4438 **Selected Topics in Political Science (3)**  
Examines selected topics of a timely nature and/or special
interest within the field of political science.

SOCIAL SCIENCE COURSES (SS)

3375 Introduction to Social Science Inquiry (3-3)
Principles of pure and applied research for the social sciences. Special emphasis is given to the types of research methods employed by social scientists including survey techniques, field research, quasi-experimental designs and analytical procedures currently used in the social sciences. Prerequisites: general studies math.

3376 Applications of Social Science Inquiry (3-3)
A detailed description of what social scientists do with the information they gather. Particular attention is given to descriptive and inferential statistics, the relationship between research and policy, evaluation research, and research ethics. Prerequisites: general studies math.

4481 Methods and Materials for the Secondary Teacher (4)
A survey of teaching methods and materials appropriate for teaching in the content areas for grades 6-12. Topics addressed will include teacher evaluation in the public schools, collaboration with special education teacher evaluation in the public schools, collaboration with special education teachers, and lesson planning formats. In addition, teaching methods, selection of organization and use of history/social science materials for grades 6-12 will be covered in detail. A professional laboratory experience is included in this course.

4498 Social Science Theory (3-3)
A survey of the major theorists in the social sciences, emphasizing those who made critical contributions influencing the several social science disciplines and contemporary theorists whose works have an interdisciplinary element.

4499 Senior Seminar (3-3)
In this course, the senior level social science student prepares for the transition to graduate school/career. The student explores himself/herself as a person and as a social scientist in an effort to choose a fulfilling career path. In addition to career exploration, students conduct a senior project in an area of interest consistent with their academic program.

SOCIOLOGY COURSES (SOC)

2230 Social Problems in Contemporary Society (3-3)
An examination of conditions that are harmful to society. Topics include problems with social institutions, inequality, deviance, and social change.

2275 Introduction to Sociology (3-3)
Survey of basic sociological concepts and the effect of social phenomena on individuals, groups and institutions.

2290 Sociology of Marriage (3-3)
The social, psychological, legal and practical aspects of marriage, emphasizing the sociological perspective in an examination of major issues relating to marital success.

2300 Social Institutions (3-3)
An analysis of several major social institutions, their structural components, processes, and resultant problems. Group interrelations and social change will be emphasized.

2301 Social Change (3-3)
An examination of social changes precipitated by the invention, discovery, and diffusion of products and technologies as society moves into the 21st century. Technology driven changes are explored within topics such as the restructuring of occupations and the workplace, threats to personal privacy, the emergence of virtual culture, the impact of the Internet on the concept of human interaction, ethical issues created by technological advancements, etc.

2302 Sociology of Small Groups (3-3)
An analysis of theory and research relating to the structure, functions, and processes of small groups. The course will explore group formation, structure, cohesion, conformity, power, leadership, and communication.

3310 Minorities in U. S. Social Structure (3-3)
An analysis of the role of racial and cultural minorities in American society. Contributions of anthropology, sociology, and psychology to theories of minority/majority group relations.

3320 Work, Family, and Changing Sex Roles (3-3)
Focuses on the overlapping worlds of work and family, emphasizing how the interaction of family-related issues, economic issues, and political issues influence and are influenced by the changing sex roles of women and men in American society.

3323 Juvenile Delinquency (3-3)
An examination of social, economic, psychological, and physiological determinants of young people’s behavior as it concerns family, community, and social worker.

3331 Family Relations (3-3)
Study of family, its origin, development, and problems affecting marital relations and happiness.

3332 Family Violence (3-3)
A course to provide students with an in-depth study of the problems of violence in families including spouse abuse, child abuse, elder abuse, and the dynamics and dangers of violent relationships. The study will examine the root causes of family violence and the devastation, multi-generational effects of violence on its victims and society. Students will study current societal responses to family violence including protection services, treatment programs, legal defense strategies, and current legislation.

3345 Criminology (3-3)
Study of crime and its causes and measurements. Topics include various explanations of criminal behavior, typology of crime, criminal justice system, and social relations to crime.
3350 Social Anthropology (3-3)  
An investigation of a major sub discipline of anthropology using primary readings from its founders and contemporary ethnographic research while using a social anthropological approach.

3356 Sociology of Aging (3-3)  
Sociological examination of global social changes precipitated by the demographic phenomenon of the aging of U. S. society and other societies. Addresses the heterogeneity of the older population, their locations, perceptions, and constraints. Issues such as housing, transportation, health care, and death and dying are explored.

3357 Sociological Aspects of Human Sexuality (3-3)  
An examination of the cultural and social components of sexuality including current perspectives on sexuality, sexual research and theory, cross-cultural perspectives and sexual diversity, gender issues, sexual relationships, sexual orientations, pregnancy and parenthood, sexually transmitted diseases, sexual victimization, sexuality across the life span, and recent social changes affecting sexuality in society.

3380 Social Behavior (3-3)  
Analysis of social behavior based on empirical research. Prerequisites: junior or senior standing and 6 hrs of Psychology, ENG 1102, or permission of instructor. NOTE: May be taken for Psychology or Sociology credit but not for both.

4406 Urbanism (3-3)  
Historical, physical, economic, and social evolutions of urbanized areas. Emphasis on contemporary urban problems with implications for policy and planning. Prerequisite: Twelve hours of social science.

4408 Rural America: Past and Present (3-3)  
A study of rural society, its organization, agencies, institutions, population trends and composition, patterns of settlement, social processes and change in character. Prerequisites: 12 hrs social science.

4409 Political Sociology (3-3)  
An overview of politics and political systems from earliest times to the present with some emphasis on democratic systems in the U. S. and other modern countries. Prerequisites: Junior standing.

4411 Demography and Population Analysis (3-3)  
Overview of sociological and demographic theories of the growth, decline, and movement of human populations. Focus is given to concepts, methods and techniques used in the social sciences to qualitatively and quantitatively examine the causes and consequences of global demographic change. This course may be taken for geography credit.

4412 Social Change (3-3)  
An in-depth analysis of social and cultural change from earliest times to the present with an exposition of the forces of both change and conservation, including technology. Prerequisite: Junior standing.

4415 Correctional Systems and Practices (3-3)  
An examination of the day to day operations and practices in modern correctional facilities in the local, state and federal systems.

4420 Sociological Theory (3-3)  
Survey of sociological theory with emphasis on theorists, their works and contributions to modern sociological theory.

4421 Social Stratification (3-3)  
This is an introduction to structures of social inequality. It surveys classical sociological theories of inequality and reviews current empirical data on stratification world wide. Students explore the impact of stratification on lifestyles, including such topics as family, educational opportunities, religious practices, status attainment, and social mobility.

4425 Intro to Survey Research (3-3)  
An introduction to the foundations of social research and the major types of research methods employed in sociology. Prerequisite: Twelve hours in the social sciences to include one course in statistics and one course in research.

4430 Sociology of Religion (3-3)  
Sociological analysis of religion, including the effect of religion on behavior and attitudes and the inter-institutional relationships between religion and other institutions within the U. S.

4433 The Community (3-3)  
A comparative view of the social organization of communities having widely different economic, spatial and cultural bases, analyzing the structure and interrelationship between the community and other social institutions and organizations. Prerequisites: 12 hrs of social science.

4435 The Sociology of Complex Societies (3-3)  
A history and analysis of complex organizations from early to modern times.

4436 Social Evolution: Anarchy to Democracy (3-3)  
Social analysis of human history from bands to modern societies. Prerequisites: 15 hrs of social science.

4440 Sociology and the Internet (3-3)  
Provides an overview of using the Internet for social science research and practice. Prerequisites: Nine hours in social sciences.

4441 The Sociology of Logic and Emotion (3-3)  
A study of the links between logic and emotions. Prerequisite: Nine hours of social science.

4456 Gerontology (3-3)  
A survey of the aged in America, with emphasis on the psychosocial aspects of aging.

4459 Medical Sociology (3-3)  
The sociological perspective applied to medicine. Topics include: changing ideas of disease causation, the role of practitioners and patients, the institutional setting; differ-
ential delivery of health services, differential patterns of morbidity and mortality, and the politics of health.

4490 Internship in Sociology (3 credit hours)
Applications of skills and knowledge of sociology in government agency, foundation, public service institution or similar situation under the supervision of a faculty member. Prerequisites: Approval of the student’s academic adviser and department chair.

4491-4492 Guided Independent Research (1 to 3 credit hours per course per semester)
Undergraduate research with attention to critical evaluation of research techniques, methods and procedures. Prerequisite: Junior or senior status with a minimum overall GPA of 3.0, permission of guiding professor, approval of department chair or dean. A written request is to be submitted to the department chairperson at least two weeks in advance of the term in which the study is to be undertaken. May not be used to repeat a course for which a grade of “D” or less has been earned. Application forms are available in the office of University Records. Guided independent research may be taken only in the applicant’s major or minor field.

4493-4494 Guided Independent Study (1 to 3 credit hours per course per semester)
Supervised study through field and laboratory projects, guided readings, creative endeavors or achievement of specific skills. Prerequisites: Junior or senior status, with a minimum overall GPA of 3.0, permission of guiding professor, approval of department chair or dean. A written request is to be submitted to the department chairperson at least two weeks in advance of the term in which the study is to be undertaken. May not be used to repeat a course for which a grade of “D” or less has been earned. Application forms are available in the office of University Records. Guided independent research may be taken only in the applicant’s major or minor field.

4495 Selected Topics (3-3)
Designed as a vehicle for the exploration of topics of current interest within the major discipline of sociology.

SPANISH COURSES (SPN)

Note: For additional information, see “Placement in Foreign Language Courses.”

1141 Introductory Spanish I (3-3)
Introduction to the Spanish language and Hispanic cultures. F

1142 Introductory Spanish II (3-3)
Introduction to the Spanish language and Hispanic cultures. Sp

2241 Intermediate Spanish I (3-3)
A review of grammar and readings in Spanish literature and civilization. Prerequisite: SPN 1142 or equivalent.

2242 Intermediate Spanish II (3-3)
Reinforcement of grammatical skills, reading of simple Spanish prose and poetry, composition and conversation. Prerequisite: SPN 2241 or equivalent. Sp

3332 Advanced Spanish I (3-3)
Advanced-level reading, intensive work on composition, comprehensive treatment of Spanish phonetics. Prerequisite: SPN 2242 or equivalent. F

3333 Advanced Spanish II (3-3)
Advanced-level reading, intensive work on aural comprehension and practical conversation facility, continued development of composition skills. Prerequisite: SPN 2242 or equivalent. Sp

3350 Hispanic Culture on Location I (3-TBA)
An in-depth presentation of Hispanic culture combining lectures, readings, films, audiotapes, discussions and intensive language practice on the TSU main campus with on-site visit of an Hispanic environment. Prerequisite: Permission of the instructor. Su

3357 Hispanic Culture on Location II (3-TBA)
An in-depth presentation of Hispanic culture combining lectures, readings, films, audiotapes, discussions and intensive language practice on the TSU main campus with on-site visit of an Hispanic environment. Prerequisite: Permission of the instructor. Su

4447 Readings in Hispanic Literature (3-3)
In-depth study of the works of a selected major author, period or genre in the literature of Spain or Spanish America. Prerequisite: SPN 2242 or equivalent. May be repeated for credit. Sp

4450 Hispanic Culture and Civilization (3-3)
A survey of the geography, history, cultural achievements, institutions and daily life of Spain and other Hispanic countries. Prerequisite: SPN 2242. F

4491-4492 Guided Independent Research (1-3 credit hours per course per semester)
Additional information is indexed under Guided Independent Research and Study.

4493-4494 Guided Independent Study (1-3 credit hours per course per semester)
Additional information is indexed under Guided Independent Research and Study.

READING COURSE (RED)

0098 READING I (3)
A course for those students who are deficient in basic reading skills such as word recognition, comprehension and study skills. A placement test will be required. NOTE: May not be audited. Institutional credit only.
SCIENCE COURSES (SCI)

2233  **Physical Science (3)**  
Basic chemistry and physics for non-science majors.  
*NOTE:* Credit does not count toward a major in any science curriculum.  
*Co-requisite: SCI L233.

L233  **Physical Science Laboratory (1)**  
Laboratory experiments in basic chemistry and physics.  
*Co-requisite: SCI 2233.

2234  **Earth and Space Science (3)**  
Basic astronomy and geology for non-science majors.  
*NOTE:* Credit does not count toward any major in the sciences.  
*Co-requisite: SCIL 234.

L 234  **Earth and Space Science Laboratory (1)**  
Laboratory experiments in basic astronomy and geology.  
*Co-requisite: SCI 2234.

3335  **Physical Geology (3)**  
Constructive and destructive processes which alter the earth.  
*Corequisite: SCI L335.

L335  **Physical Geology Lab (1-2)**  
Laboratory studies of constructive and destructive processes which alter the earth.  
*Corequisite: SCI 3335.

3336  **Principles of Astronomy (3)**  
Basic facts and theories related to astronomical phenomena.

L336  **Observational Astronomy Laboratory (1)**  
Star and constellation identification and observations using the telescope.  
*Co-requisite: SCI 3336.

3340  **Marine Science (3)**  
A study of the physical properties and organisms of the marine environment.  
*Corequisite: SCI L340.

L340  **Marine Science Laboratory (1-2)**  
Laboratory study of the physical properties and organisms of the marine environment.  
*Corequisite: SCI 3340.

3350  **Weather and Climate (3)**  
A study of the physical properties of weather and climate.  
*Corequisite: SCI L350.

L350  **Weather and Climate Laboratory (1-2)**  
Laboratory study of physical properties of weather and climate.  
*Corequisite: SCI 3350.

4403  **Conservation (3)**  
The conservation of natural and human resources with emphasis on population expansion as the major element in a changing ecology.

4481  **Methods and Materials for the Secondary Teacher (4)**  
A survey of teaching methods and materials appropriate for teaching in the content areas for grades 6-12.  
Topics addressed will include teacher evaluation in the public schools, collaboration with special education teachers, and lesson planning formats. In addition, teaching methods, selections organization and use of biology/science materials for grades 6-12 will be covered in detail. A professional laboratory experience is included in this course.