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University of Alabama in Huntsville

Catalog
2013-2014

University of Alabama in Huntsville

2013-2014 Catalog

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2013-2014 Undergraduate Catalog

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The University of Alabama in Huntsville is committed to equal opportunity in employment and education. Pursuant to that commitment, University policy prohibits, and the University does not engage in, unlawful discrimination in any program or activity on the basis of race, color, national origin, religion, sex (including marital or parental status), pregnancy, sexual orientation, age, disability, citizenship status, genetic information, or covered veteran status. This non-discrimination policy encompasses unlawful harassment, including sexual harassment and sexual violence, an extreme form of hostile environment sexual harassment.

Although this catalog intends to reflect currently any policies or rules of The Board of Trustees of The University of Alabama referred to or incorporated herein, users are cautioned that changes or additions to such policies and rules, including those relating to tuition and/or fees, may have become effective since the publication of this material. In the event of such a conflict, the current statements of Board policy contained in the official minutes and manual of rules, by-laws, and guidelines shall prevail.

The University of Alabama in Huntsville also reserves the right in its sole discretion and at any time to modify any policy, procedure, benefit, or program described or set forth in this catalog and to make any other changes it deems necessary and appropriate. Students enrolling in the University are subject to current policies and rules as contained herein and as subsequently stated or modified by official institutional action.

Equal Opportunity and Affirmative Action Policy

The University of Alabama in Huntsville is committed to making employment opportunities available to qualified applicants and employees and does not unlawfully discriminate on the basis of race, color, national origin, religion, sex (including marital or parental status), pregnancy, sexual orientation, age, disability, citizenship, genetic information, or status as a disabled veteran, Armed Forces service medal veteran, recently separated veteran, or any other protected veteran (all referred to herein as “covered veterans”). All personnel actions and programs shall be administered in accordance with this equal opportunity (EO) policy. These actions and programs include recruitment; selection; assignment; classification; promotion; demotion; transfer; layoff and recall; termination; determination of wages, conditions and benefits of employment; etc. It is the intent of the University that, in all aspects of employment, individuals shall be treated without unlawful discrimination on any of the foregoing bases, and that employment decisions shall instead be premised upon a person’s ability, experience, and other job-related qualifications.

Additionally, the University is an affirmative action employer of women, minorities, individuals with a disability, and covered veterans. It is committed to making sustained, diligent efforts to identify and consider such individuals for employment and for opportunities arising during employment.

The University is also committed to equal educational opportunity for all qualified students and does not unlawfully discriminate in its educational policies, practices, programs, or activities on the basis of race, color, national origin, religion, sex (including marital or parental status), pregnancy, sexual orientation, age, disability, citizenship, genetic information, or covered veteran status. Its admissions, financial aid, athletics, student services, and other programs are administered in accordance with this policy.

Discrimination, under this policy, shall be understood to include harassment carried out through unwelcome verbal, written, visual, or physical conduct directed at one or more individuals on the basis of race, color, national origin, religion, sex, pregnancy, sexual orientation, age, disability, citizenship, genetic information or status as a covered veteran. To be unlawful in an employment context, enduring such harassment must become a condition of continued employment or the conduct must be sufficiently severe or pervasive to create a working environment that is intimidating, hostile, or abusive. Offensive jokes, objects, or pictures; slurs and epithets; physical threats and assaults; intimidation; insults; etc. are among the actions that may constitute harassment. Potential violations of this policy will be evaluated from the perspective of a reasonable person in the victim’s situation, taking into account all the circumstances. The University may consider harassment activities occurring off-campus as a violation of this policy, when the effects of such harassment may affect the campus educational or work environment.

With regard to students, such harassment is unlawful when it unreasonably interferes with or limits the student’s ability to participate in or benefit from services, activities, or privileges provided by the educational institution. A violation also occurs when, through such harassment, an educational institution has created or is responsible for a hostile learning environment so severe, pervasive, or persistent that it adversely affects the student’s ability to participate in or benefit from the institution’s educational program.

Sexual harassment, in addition and more specifically, includes sexual advances, requests for sexual favors, and other conduct of a

sexual nature that is unwelcome and is directed toward a person on the basis of that person's sex. It may take one of two generally recognized forms. First, the employee's or student's submission to such conduct is made a condition, explicitly or implicitly, of access to an employment or academic opportunity; or the employee's or student's submission to or rejection of such conduct is used as the basis for employment or academic decisions affecting the individual, such as, for example, a salary or grade determination, respectively. This kind of harassment is sometimes referred to as "quid pro quo" ("something for something") or, alternatively, harassment that results in "tangible employment action." Secondly, hostile environment harassment occurs when the conduct is so severe, persistent, or pervasive that it unreasonably interferes with an individual's performance as an employee or student or creates an intimidating, hostile, or offensive working/learning environment. Examples of actions that might be deemed to create a hostile environment based on sex could include flirtation, vulgar language, sexually suggestive jokes, touching of a sexual nature, displaying or distributing sexually explicit materials, etc. Sexual violence is also a form of sexual harassment. It refers to physical acts perpetrated against a person's will or carried out where the person is incapable of giving consent due to the victim's use of drugs or alcohol or the victim's disability. It includes acts such as rape, sexual assault or battery, etc.

The University also prohibits retaliation against employees or students who engage in protected activities. Protected activities include making, in good faith, a complaint of discrimination or harassment, assisting others in making a complaint, otherwise opposing such acts or practices, or participating in an investigation, proceeding, or lawsuit. Threats, intimidation, reprisals, and/or other adverse actions related to one's employment or academic status constitute retaliation if they may dissuade a reasonable employee or student from exercising his/her right to complain about perceived discrimination or harassment.

In these respects, the University affirms its desire to create a work environment for all employees and a learning environment for all students that is fair, humane, and responsible - an environment that supports and rewards career and educational goals on the basis of such relevant factors as ability and employment or academic performance. A University employee or student who is found, under established University procedures, to have been guilty of discriminatory or retaliatory conduct with respect to another member of the campus community in violation of these policies will be subject to discipline, up to and including possible dismissal or expulsion, by the University.

These commitments are designed to meet nondiscrimination/affirmative action requirements imposed by the following federal and state sources of legal obligation, as amended: Title VI and VII, Civil Rights Act of 1964; Executive Order 11246 (E.O. 11246); Title IX, Education Amendments of 1972 (Title IX); the Rehabilitation Act of 1973; the Americans with Disabilities Act of 1990 (ADA); the Equal Pay Act of 1963; the Age Discrimination in Employment Act of 1967; the Age Discrimination Act of 1975; the Vietnam Era Veterans' Readjustment Assistance Act of 1974 (VEVRA); the Immigration Reform and Control Act of 1986; the Genetic Information Nondiscrimination Act of 2008; the Immigration Reform and Control Act of 1986; the U.S. Constitution; contract and grant agreements with government agencies; the Alabama Age Discrimination Act of 1997; and the Alabama Constitution of 1901. The University's equal opportunity policies pertaining to its employees and students include specific administrative procedures and implementing measures designed to carry out these pledges and to ensure compliance with the foregoing laws.

Inquiries or complaints concerning the application of this policy and these federal requirements should be directed to one of the following persons:

Vice President for Diversity
Senior Equal Opportunity (EO) Coordinator; EO Coordinator/Faculty
For Title IX, E.O. 11246, Rehabilitation Act/ADA, VEVRA
Shelbie King Hall 341
The University of Alabama in Huntsville
256-824-4600
smithdh@uah.edu

Assistant Vice President, Human Relations
Deputy EO Coordinator/Staff and Third Parties
For Title IX, E.O. 11246, Rehabilitation Act/ADA, VEVRA
Shelbie King Hall 114
The University of Alabama in Huntsville
256-824-6545
longl@uah.edu

Dean of Students
Deputy EO Coordinator/Students
For Title IX, Rehabilitation Act/ADA
University Center 114
The University of Alabama in Huntsville
256-824-6700
regina.hyatt@uah.edu

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Academic Calendar 2013-2014

Academic Calendar 2013/2014

Fall Semester 2013

August 19	New Faculty Orientation
August 20	Convocation
August 21	Classes Begin
August 24	First Saturday Class
September 2	Labor Day Holiday (University Closed)
October 3 - 5	Fall Break
November 27	No Classes
November 28 – 30	Thanksgiving Holiday (University Closed)
December 2	Last MWF class
December 2	Last MW class
December 3	Last TR class
December 3	Last T only class
December 4	Last W only class
December 5	Last R only class
December 6	Last F only class
December 5 – 11	Final Examinations (Thursday – Wednesday)
December 7	Last S only class
December 9	Last M only class/final exam
December 14	Fall Commencement
December 24 – 31	Winter Break – No classes (University Closed)

Spring Semester 2014

January 1	Winter Break - No Classes (University Closed)
January 2	University Re-opens
January 8	Classes Begin
January 11	First Saturday class
January 20	MLK Jr. Holiday (University Closed)

March 24 – 28	Spring Break (No Classes)
March 28	Staff Spring Break Holiday (University Closed)
April 1	Honors Day – No Classes
April 21	Last MWF class
April 23	Last MW class
April 23	Last W only class
April 24	Last TR only
April 24	Last R only class
April 25	Last F only class
April 26	Last S only class
April 28	Last M only class
April 29	Last T only class
April 28 - May 2	Final Examinations (Monday - Friday)
May 3	Spring Commencement

Summer Semester 2014

May 19	Classes Begin 10 week
May 19	Classes Begin 1st 5 week
May 26	Memorial Day Holiday - No Classes (University Closed)
June 18	Last MTWRF 1st 5 week class
June 18	Last MTWR 1st 5 week class
June 19	Study Day 1st 5 week classes
June 20 - 23	Final Examinations 1st 5 week classes
June 25	Classes Begin 2nd 5 week classes
July 4	Independence Day Holiday - No Classes (University Closed)
July 17	Last TR 10 week classes
July 21	Last MWF 10 week classes
July 21	Last MW 10 week classes
July 22	Study Day 10 week classes
July 23 - 25	Exams 10 week classes
July 24	Last MTWR 2nd 5 week classes
July 25	Last MTWRF 2nd 5 week classes
July 28 – 29	Final Examinations 2nd 5 week classes

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Mission of the University of Alabama in Huntsville

The University of Alabama in Huntsville is a research-intensive, internationally recognized technological university serving Alabama and beyond. Our mission is to explore, discover, create, and communicate knowledge, while educating individuals in leadership, innovation, critical thinking, and civic responsibility and inspiring a passion for learning.

History

The University of Alabama in Huntsville (UA Huntsville) is a part of the University of Alabama System. In June 1969, the University of Alabama Board of Trustees established the University of Alabama System with three independent, autonomous campuses at Huntsville, Birmingham, and Tuscaloosa. Each campus has a separate president who reports to the Board of Trustees through the chancellor of the system.

Academic programs were initiated in Huntsville in 1950; in 1963 degree opportunities at the master's level were provided and in 1964, at the baccalaureate level. The first master's degree based on work begun and completed in Huntsville was awarded in 1964 and the first undergraduate degrees in 1968. Doctoral programs were initiated in physics and engineering in 1971, and the School of Nursing was established the same year. In 1974, in a component of the Alabama School of Medicine, the first full-time medical students began their core clinical experience in Huntsville. (These programs were transferred to direct UAB management in 1995.) In the two decades of the 1970s and 1980s, UA Huntsville implemented a broad range of undergraduate degree programs; established master's programs in the liberal arts, nursing, and administrative science; initiated professional degree programs at both the graduate and undergraduate levels; and inaugurated selected Ph.D. programs in high-technology fields in the sciences and engineering.

UA Huntsville is focused to meet the specific needs of scientific and technological enterprises and the cultural and intellectual needs of a rapidly expanding region. It is UA Huntsville's intention to be innovative, even experimental, to explore what is new, to evaluate existing programs continually, to develop and establish curricula and pedagogical techniques calculated to help students live and perform well in a complicated environment.

Accreditation

The University of Alabama in Huntsville is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (SACS) to award bachelor's, master's, and doctoral degrees. SACS (1866 Southern Lane, Decatur, GA. 30033-4097; telephone: 404-679-4501) should be contacted only for information about UA Huntsville accreditation. Several UA Huntsville programs are accredited by their respective accrediting agencies. Academic programs in chemistry are accredited by the American Chemical Society. Eight undergraduate engineering programs (aerospace engineering option in mechanical, chemical, civil, computer, electrical, industrial and systems, optical, and mechanical) are accredited by the ABET, Inc. Both undergraduate and graduate programs in nursing are accredited by the Commission on Collegiate Nursing Education. Computer science holds accreditation from the Computing Accreditation Commission of ABET, Inc. All programs, both undergraduate and graduate, in the College of Administrative Science are accredited by the American Assembly of Collegiate Schools of Business-The Association to Advance Collegiate Schools of Business. In addition, the University of Alabama in Huntsville is an accredited institutional member of the National Association of Schools of Art and Design (NASAD) and the National Association of Schools of Music (NASM). Teacher education programs are approved by the Alabama State Board of Education, according to standards of the National Association of the State Directors of Teacher Education and Certification (NASDTEC), for the issuance of appropriate professional certificates for service in public schools, and the Department of Education at The University of Alabama in Huntsville is accredited by the National Council for Accreditation of Teacher Education (NCATE).

Facilities

The 393-acre UAHuntsville campus is situated in Cummings Research Park, which is located in northwest Huntsville. The University has 30 major buildings, all of which have been constructed since 1960. The buildings contain modern equipment and exemplify modern functional design.

Student housing consists of **Frank Franz Hall, North Campus Residence Hall, Central Campus Residence Hall**, **Charger Village, Fraternity and Sorority Housing,** and the nine-building **Southeast Campus Housing Complex**. The five fraternity and sorority houses were completed in 2006 giving the organizations a more prominent place with communal living and gathering spaces for their members. Four of the other housing facilities were completed after 2002, providing for comfortable and modern living options.

Morton Hall, the oldest building on campus, houses classrooms, computer laboratories, and offices for the dean and several of the departments in the College of Liberal Arts, the Honors Program, and the Writing Center. Morton Hall is also home to Suite 106, a black box theater that operates as a venue for more experimental and avant-garde productions in an intimate setting.

Wilson Hall contains the Department of Art and Art History, the College of Nursing, the Division of Professional and Continuing Studies, the Osher Lifelong Learning Institute at UAH, and Instructional and Testing Services.

The Kenneth E. Johnson Research Center contains research laboratories and offices for that Center, the Alabama Solar Energy Center, and the Propulsion Research Center.

Madison Hall houses the offices of Graduate Studies, Graduate Admissions, the Student Success Center, International Programs, and General College Advisement; it also accommodates Multicultural Affairs.

Shelbie King Hall is the home of the executive administrative offices; the Offices of Human Resources, Accounting and Finance, Accounts Payable, Alumni Relations, University Advancement, University Development, University Relations, University Counsel, and the Institute for Science Education.

Von Braun Research Hall contains offices for Research Administration, offices and research laboratories for the Center for Microgravity & Materials Research, and the Center for Automation and Robotics. Additionally, it houses the University's mainframe computer facility.

The Engineering Building contains classrooms, computer laboratories, instructional and research laboratories, and Office of Admissions and Recruiting as well as offices for the dean and some of the engineering departments of the College of Engineering.

The Materials Science Building contains offices, classrooms, and state of the art research laboratories for programs in chemistry and materials science, as well as administrative offices for the dean of the College of Science and the dean of the School of Graduate Studies. It also has a 350-seat auditorium/lecture hall.

The Optics Building is a four-story building designed and constructed for research and graduate studies in the field of applied optics. The building contains research laboratories, classrooms, meeting rooms, and offices for the Center for Applied Optics and the Department of Physics.

The University Center provides students a "one stop shop" experience including Enrollment Services' Charger Central, the Charger Cafe, Barnes & Noble Bookstore, Charger Brew serving Starbucks Coffee, and Sandella's Flatbread Cafe. The Dean of Students Office, the Student Government Association, Association for Campus Entertainment, the ***Charger Times,*** Records, Student Financial Services, Student Activities, Student Health Services, Charger Card, and the Bursar. The UC has facilities for dining, assemblies, meetings, dramatic presentations, and recreational activities.

The **Frances C. Roberts Hall**, a two-unit complex, contains classrooms, and offices for the history and music departments in the College of Liberal Arts, as well as art studios. The Humanities Center is located here, and there is a large auditorium/lecture room for varied university programs.

The **Nursing Building** is a contemporary triangular structure that houses the College of Nursing. Its four levels contain administration and faculty offices, classrooms, an auditorium, laboratories and service areas, and a large and well-equipped Learning Resources Center.

The **Business Administration Building** contains classrooms, computer laboratories, and offices for the dean and the departments of the College of Administrative Science. This well-designed teaching facility also has a large auditorium/lecture hall (Chan Auditorium) and several student lounge areas.

Marion Beirne Spragins Hall has classrooms and offices for Health and Physical Education and Athletics, a gymnasium with a seating capacity of 2,800, racquetball courts, and other physical education, recreational, athletic training facilities, and the faculty/staff clinic.

The central mail room and the office and storage facility for shipping and receiving are housed in the Central Receiving Building.

The **Physical Plant Building** contains offices, shops, and storage areas for the Department of Facilities and Operations' administrative offices, custodial services, facilities maintenance, grounds management services, stockroom, and fleet services, emergency planning, and environmental health and safety.

In addition to providing parking, the new **Intermodal Parking Facility** also houses the UAH Police Department and acts as a transit

stop for Huntsville city busses on their routes to Madison Square Mall, Research Park, Bridge Street Towne Center, and Wal-Mart.

The **Tom Bevill Center** has 100 hotel rooms, a restaurant, offices for the U.S. Army Corps of Engineers Training Division, meeting rooms, and computer laboratories. It also has sophisticated audio-visual systems, computer networking, links to Huntsville's super computer.

The **WLRH Radio Station** facility is located on the south end of the University campus and houses public radio station WLRH-FM. The University leases the facility to the Alabama Educational Television Commission but has no involvement in the operation of the radio station.

The **Business Services Building** houses administrative offices of the Department of Business Services including procurement services, telecommunications, and the Copy Center.

Olin B. King Technology Hall is located on the west side of Sparkman Drive and contains offices, classrooms, specially equipped distance-learning classrooms, a 119 fixed-seating seminar room, computer classrooms and laboratories, and instructional and research laboratories for several of the departments in the College of Engineering as well as in computer science. It also houses the Center for Space Plasma and Aeronomic Research (CSPAR), the Propulsion Research Center, and the Information Technology & Systems Center.

The **Robert "Bud" Cramer Research Hall** which houses the National Space Science & Technology Center or NSSTC is also located on the west side of Sparkman Drive and contains offices for atmospheric science, research laboratories, meeting rooms, and the Global Hydrology Resource Center computer laboratory to support the extensive ongoing research between NASA, UAHuntsville, and University Space Research Association. All three organizations have employees housed in the building.

The **University Fitness Center** provides facilities for student recreation and physical education activities. It contains three basketball courts, weight training area, aerobic area, cardiovascular fitness area, elevated running/walking track, swimming pool, locker rooms, offices, and support areas. The facility serves UAHuntsville students and employees as well as the general public through external memberships.

Charger Union will be added to the building inventory beginning January 2014. This facility is designed for enhanced student use space, housing food operations of WOW (World of Wings) and Dunkin Donuts, along with an information desk, Barnes & Noble bookstore, multiple lounge spaces, 350-seat theater, multiple meeting rooms, gaming rooms, general purpose student organization suite, student life business area, storage, loading dock and support spaces.

The **Shelby Center** for Science and Technology provides state-of-the-art laboratory and economic development facilities as well as teaching and resource facilities for chemistry, physics, biology, and mathematical sciences. It serves to make the campus more modern in facilities and design by helping to create a technology quadrangle that consolidates engineering, math, and science.

The **M. Louis Salmon Library** includes a high-tech wing with an information arcade, computer labs including a math tutorial lab, a liberal arts lab, and a nursing lab in addition to several general-purpose teaching labs. Over 250 work stations are supported in the facility. A media/distance learning support center is located in the library, and the library also houses the Technical Assistance Group (TAG) which is the customer service/help desk branch of i.t. Solutions. Charger Brew serving Starbucks Coffee occupies an area in the library where students can enjoy food and beverages while they study. An art gallery near the cafe displays work by students and visiting artists. For students in science, engineering, and technology, research at UAHuntsville is supported through Interlibrary Loan agreements by the Redstone Scientific Information Center (RSIC) located on Redstone Arsenal. UAHuntsville subscribes to numerous full-text and bibliographical databases many of which support specific colleges: liberal arts, nursing, business administration and science. For additional information visit the Library's home page: http://lib.uah.edu.

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- First Year Students (Freshman)
- Early Start Program
- Dual Enrollment/Dual Credit Program
- Listener's License Program
- Transfer Students
- International Students
- Special Students Status
- UAHuntsville Resident/Non-Resident Tuition Fee Guidelines

The University of Alabama in Huntsville welcomes and encourages inquiries and applications from those interested in furthering their educations regardless of gender, culture, religion, ethnic background, age, marital status, or disability. While most new students enroll in the Fall, UAHuntsville admits new students every semester, including the summer term. Prospective students are encouraged to apply well in advance of the date of their desired entrance but no more than one year. Application forms, detailed application instructions, important deadlines and information brochures can be obtained from the Office of Admissions by calling (256) 824-2773 or 1-800-UAH-CALL. Complete admissions information and forms can be accessed on the internet at admissions.UAH.edu. Applications can be submitted electronically by following the "APPLY ONLINE" link at admissions.uah.edu.

An important part of the college selection process is a campus visit. UAHuntsville welcomes visitors to the campus any day the campus is open for business. Campus tours on an individual or group basis may be arranged by calling the Office of Admissions at 256-824-2773 or by visiting admissions.uah.edu. Faculty members and academic advisors are eager to confer with prospective students to discuss their educational goals if given appropriate notice of the prospective student's visit.

Conditions of Admission

The Office of Admissions will notify the applicants of the admission decision. Admission to the University is often contingent upon the subsequent receipt of satisfactory and official college, university, or high school transcripts; verification of associate of arts or baccalaureate degrees; and verification of high school graduation. Failure to submit such documents before the end of the second week of class of the initial academic semester may result in the cancellation of admission.

Ownership of Submitted Documents

All credentials and documents submitted become the property of the University of Alabama in Huntsville. The originals or copies of the originals will not be returned to the applicant or forwarded to another institution, agency, or person.

Fraudulent Records

If it is found that an applicant has made a false or fraudulent statement or an omission on the application for admission, the residency statement, or any other accompanying documents or statements, the applicant may be denied admission. If the student is already enrolled when the fraud is discovered, the case will be adjudicated using the procedures specified for violations of the Student Code of Conduct and may result in the student's admission being rescinded and the student being dismissed from the University.

Credentials and Documentation

Credentials and documentation required for admission vary by type of application. See the appropriate section below and the Office of Admissions web site at admissions.UAH.edu/ for more specific details. Admission to the University does not guarantee admission to a specific degree program. The Colleges of Business, Nursing and Engineering, and programs in Teacher Education and Music may have additional requirements. See the appropriate college or program section for more details. A one-time non-refundable $30 application fee must accompany the admission application.

First Year Students (Freshmen)

Requirements for High School Graduates

This information pertains to applicants who desire admission as beginning freshman students after graduation from high school and who have not attended an accredited postsecondary institution. International students should refer to the section on International Student Admissions in addition to this section.

Required Documents

Application for Admission

The application for admission and a nonrefundable $30 fee payable to the University of Alabama in Huntsville should be submitted as soon as possible after the beginning of the senior year. The $30.00 application fee must be in U.S. currency, drawn on a U.S. bank. This fee may also be paid via MasterCard, Visa, or American Express while applying online.

The preferred time for receipt of applications for the fall semester is the preceding October through February. The fee may be waived for applicants who can document that they have received a fee waiver because of economic need as determined by the College Board (SAT) or the American College Testing Program (ACT). It is the policy of the University not to defer or waive other application fees.

Secondary School Record

An official high school transcript (sent by the high school directly to the Office of Admissions) reflecting work completed from the beginning of the 9th grade through the 11th grade is required.

College Transcripts

Students who have registered for course work at community colleges, four-year colleges, or universities through dual enrollment or non-degree student status must submit official transcripts from postsecondary institutions. Transcripts are considered official when they are sent from a college or university directly to the Office of Admissions and contain an official seal and signature. Transcripts bearing the statement, "Issued to Student," or transcripts faxed or submitted by applicants are not considered official.

Test Scores

The examination offered by the American College Testing Program (ACT) or the Scholastic Assessment Test (SAT) administered by the College Entrance Examination Board is required of all applicants for freshman admission. Either one or both of these tests should be taken no later than the January testing date of the senior year. Students should feel free to repeat a test, since the highest score will be considered for admission.

Priority Deadlines for Applications and Supporting Documents

Fall Semester	June 30
Spring Semester	November 1
Summer Semester	April 1

Admission Requirements

Admission to the University of Alabama in Huntsville requires graduation from regionally accredited high schools or completion of the General Education Diploma (GED), certain high school academic units, a cumulative high school grade point average in those academic units, and test scores as outlined below.

Required High School Course Units

Applicants should have earned four units (an academic unit is a non-remedial yearlong course) of English (at least three with substantial writing requirements); three units of mathematics, including Algebra I, Algebra II and Geometry (Trigonometry is also required by the College of Engineering and recommended by all other colleges); three units of natural science (biology, chemistry and physics are recommended); four units of social studies/social sciences (includes history, civics, political science, economics, sociology, psychology, and geography), and four units of electives (preferably including 2 units of a foreign language). Electives include liberal arts including fine and performing arts.

Academic Qualifications

Applicants for admission who have satisfactory high school records, including at least a 3.00 high school GPA and the required high school course units, and have the appropriate ACT (20 composite, no remedial sub-scores) or SAT (970 math and critical reading with neither score below a 440) scores are academically eligible for admission consideration.

Applicants who have less than a 3.0 average in the required academic units described above must present a combination of high school GPA and test scores as indicated in the list below. The test scores do not include the writing score for either the ACT or SAT.

If the high school GPA in the required academic courses is:	Then the test score must equal or exceed the corresponding entry in this column:	
	SAT	ACT
2.0	1,140	25
2.1	1,140	25
2.2	1,130	25
2.3	1,100	24
2.4	1,060	23
2.5	1,060	23
2.6	1,030	22
2.7	1,030	22
2.8	990	21
2.9	970	20

Home Schooled Applicants

High school students who are home schooled are reviewed for admission and for scholarships at UAHuntsville following the same criteria used for students from public and private high schools including the required test scores stated above. The official high school record of courses completed should contain the titles of courses in each subject area, beginning with grade nine. This record should contain annotation of the general content in the academic courses and the textbooks used. The teaching credentials of the home school teacher should be included.

General Education Development (GED) Recipients

Persons who have not graduated from high school may be admitted on the basis of a satisfactory score on the GED test. A score of 500 or higher is required for regular admission status. The applicant must also take the ACT or SAT and have an official score report sent to the UAHuntsville Admissions Office. An official transcript of completed high school courses is also required. UAHuntsville is a testing center for the GED program. Anyone seeking additional information or wishing to take the GED examination should contact the Office of Instructional and Testing Services at (256) 824-6725.

Conditional Admission for High School Graduates

An individual who has applied for regular admission and who does not meet the admission criteria may be considered for admission on a conditional basis in certain circumstances. The Director of Admissions is authorized to offer conditional admission based on an evaluation of the student's previous academic credentials and evidence of serious commitment to academic pursuits. Conditionally admitted students are normally limited to a maximum of a 9 semester hour course load until a total of 15 semester hours of work is completed with at least an overall C (2.0 GPA) average. Upon satisfactory completion of 15 or more hours of course work at UAHuntsville, with at least a 2.0 GPA on all UAHuntsville coursework, the conditional classification will be changed to regular student status. Credits earned while on conditional status are recorded on the student's permanent record and may count, if applicable, in a regular undergraduate degree program.

A student enrolled on conditional status is subject to the same periodic review of his or her academic record as a regular student and is subject to the University's regulations regarding scholastic probation and suspension. (See Academic Information.) If a student becomes subject to academic suspension, the suspension is for a minimum of one semester, and the student must petition the Admissions and Scholastic Affairs Committee for approval to re-enroll.

Early Start Program

UAHuntsville welcomes academically talented high school juniors and seniors who wish to earn college credits while still enrolled in high school. Students who have an ACT of 26 or an SAT of 1180, and a high school GPA of 3.5 may apply for admission into the Early Start Program. This option may be appropriate for students whose high schools do not participate in the Dual Credit program or students who have completed all high school graduation requirements but have not yet graduated from high school. Applicants must submit the Early Start application form, a $30 non-refundable application fee, official transcripts showing high school and any college level work, official ACT or SAT scores, written approval from school officials and written approval from the student's parent or guardian. Students enrolled in the Early Start program may register for a maximum of two courses per semester.

Dual Enrollment/Dual Credit Program

Several local school systems have an agreement with UAHuntsville permitting high school juniors and seniors to take classes at UAHuntsville that may count for both high school credit toward graduation and college credit toward a degree at the University. High school juniors and seniors who meet regular UAHuntsville admission requirements and have at least a 3.0 high school academic GPA may, with the approval of their school officials, take classes at UAHuntsville and receive credit at both the high school and college level for UAHuntsville classes approved by the school system.

Applying for the Dual Credit program at UAHuntsville requires: a completed Dual Credit application; the $30 non-refundable application fee; an official transcript of high school work; official ACT or SAT scores; written approval from high school officials; and written approval

from the student's parent or guardian. Students enrolled in the Dual Credit program may register for a maximum of two courses per semester.

Listener's License Program

The Listener's License Program is intended to provide personal enrichment opportunities for members of the local community. Any course, with the exception of courses offered through Continuing and Professional Studies or laboratory/studio courses, may be taken as part of the Listener's License Program on a space available basis. No academic or Continuing Education Units (CEU) of credit is awarded, and a course taken as a Listener's License Program participant may not be petitioned for credit by examination. Listeners do not take tests and are not required to satisfy attendance requirements. Participants pay a $130 course fee, and purchase a campus parking decal (https://parking.uah.edu/). Listeners have library privileges while participating in the program. Students currently enrolled at The University of Alabama in Huntsville or students under disciplinary or academic suspension from any college or university are ineligible to register as Listeners. For more information, please contact the Registrar at registrar@uah.edu or 256-824-7777.

Transfer Students

Individuals who have completed 24 semester hours of transferable **academic** credit from regionally accredited colleges or universities with a 2.0 or better GPA may be admitted to UAHuntsville as transfer students without having to submit high school transcripts, ACT or SAT scores. Transfer students must submit official transcripts from all colleges previously attended. Transfer admissions decisions will be based on a full evaluation of transcripts from all colleges and universities attended with emphasis given to those courses in which the subject matter is acceptable and relevant to the desired UAHuntsville degree program. Applicants must be in good standing at their previous institutions and have a minimum overall 2.0 GPA as well as a minimum 2.0 GPA in all courses transferable to UAHuntsville to be considered for admission. An overall 2.5 GPA and a minimum 2.25 GPA in all courses transferable to UAHuntsville is highly recommended for individuals wishing to transfer to UAHuntsville.

Students who have already completed a bachelor's degree and wish to earn a second bachelor's degree at UAHuntsville must meet regular transfer admission requirements. A student who is currently on suspension or dismissal from another college or university is not eligible for admission until his or her suspension period has ended or until the student is otherwise eligible to return to the prior institution.

Admission to the upper division of the College of Nursing is an action independent from admission to the University. Students interested in pursuing the BSN should refer to the academic college section of this catalog for more information.

Evaluation of Transfer Credit

The University of Alabama in Huntsville follows the practices specified in Transfer Credit Practices of Selected Educational Institutions, published by the American Association of Collegiate Registrars and Admissions Officers, in evaluating college level courses from other recognized colleges and universities for the purpose of transfer of credit to UAHuntsville. Transfer credit evaluations will be completed as early as possible, but no later than the first semester of enrollment.

Credits from an institution that is not yet accredited but has acquired candidate status from a regional accrediting agency are provisionally eligible for transfer to UAHuntsville. In order to obtain full credit for courses accepted as provisional credits, students must complete 30 semester hours at UAHuntsville and earn a "C" or better in each course attempted. Transfer credit will not be posted until this requirement has been met. Students with provisional credits should contact the Registrar upon completion of 30 semester hours at UAHuntsville.

Courses completed at unaccredited and non-candidate institutions are normally not accepted for credit at UAHuntsville. The student may appeal or challenge credit for these courses through the dean of the college in which the course is offered. Credits for education completed in non-collegiate settings that have been evaluated and recommended for credit by the American Council on Education are accepted as transfer credit at UAHuntsville. As a member of Service Members Opportunity Colleges, UAHuntsville is committed to easing transfer of relevant course credits and crediting learning from appropriate military training and work experiences.

The completion of the Freshman Writing/Composition requirement at another regionally-accredited college or university will satisfy UAHuntsville's Freshman Composition 6 credit-hour requirement (Freshman Composition I and II). Note: The waiver does not grant the student UAHuntsville course credit. Students will be required to make up the waived credit(s) with additional courses at UAH to obtain the total credits required to graduate."

Acceptance of transfer credit by the Admissions Office and application of credits to a specific degree program by the academic department are two separate and distinct processes. Consult an academic advisor for degree applicability within the desired degree program.

Credits earned in quarter hours will be converted to semester hours on the basis of two-thirds of one semester hour for each quarter hour.

An individual who enrolls as a non-degree student and later decides to work toward a degree must apply for admission as a degree-seeking student and request an evaluation of transfer credits. The application of such accepted credits to a particular program of study

will be made and approved at the time of admission to the desired degree program.

Transfer Students from Alabama Junior/Community Colleges

A student transferring from an Alabama junior/community college may choose to fulfill the degree requirements of the UAHuntsville catalog which was in effect at the time of the student's initial enrollment at the Alabama junior/community college, provided that the date does not exceed the seven year limit. (See time limits section of the catalog.) This policy enables students enrolled at Alabama junior/community colleges to plan degree programs effectively and to be assured that degree requirements specified for UAHuntsville students will be equally applicable, within specified limits, to transfer students.

UAHuntsville participates in the Alabama Articulation Agreement. Students intending to transfer to UAHuntsville from Alabama junior or community colleges are encouraged to consult with their advisors, the UAHuntsville Office of Admissions, and obtain a STARS guide. This guide is also available via the Internet at http://www.UAH.edu or http://stars.troy.edu. When planning their programs of study, this guide will identify courses for their major and will show equivalencies for community college courses.

A maximum of 64 semester hours of credit from a junior, community or two-year college may be transferred to UAHuntsville and applied toward a degree program. Requests for exceptions must be in writing and approved by dean of the college in which the student is enrolled.

International Students

International students are defined as any applicant who is not a U.S. Citizen or Permanent Resident. International applicants must meet all established requirements for admission from secondary schools or from other colleges and universities. International applicants should apply for admission at least six months in advance of desired attendance date in order to facilitate timely admission and enrollment.

An undergraduate international applicant must submit:

1. Completed **undergraduate international application** form.
2. Non-refundable application fee of $30 USD.
3. Official copies of secondary school and college or university transcripts including English translations forwarded to The University of Alabama in Huntsville directly from the institution(s) attended or the approved accrediting agency. Personal copies are not accepted. English credits earned at international institutions will be evaluated by the Department of English at UAHuntsville after an admission decision is made.
4. Certificate of Foreign Credit Evaluation for all high school or college coursework done outside of the U.S. must be performed by an approved service. The evaluation should contain a course-by-course description and a grade point average from each institution attended. Applicants have the responsibility to contact the evaluation agency directly and have the evaluation agency send the official evaluation report to UAHuntsville - copies will not be accepted by UAHuntsville. Examples of acceptable evaluation services are:

Educational Credential Evaluators (EEE)
P.O. Box 514070
Milwaukee, WI 53203-3470
Ph: (414) 289-3400
Fax: (414) 289-3411
www.ece.org
eval@ece.org

International Education Evaluators (IEE)
P.O. Box 545863
Surfside FL 33154
Ph: (305) 503-9063
Fax: (305) 993-5550
www.iee-usa.com
info@iee-usa.com

Josef Silny & Associates, Inc.
International Education Consultants
7101 SW 102 Avenue
Miami, FL 33173
Ph: (305) 273-1616
Fax: (305) 273-1338
Translation Fax: (305) 273-1984
www.jsilny.com
info@jsilny.com

World Education Services, Inc.
P.O. Box 5087
Bowling Green Station
New York, NY 110274-5087
Ph: (212) 966-6311
Fax:(212) 739-6120
www.wes.org

1. Official American College Test (ACT) scores or SAT scores sent directly to UAHuntsville from the testing service headquarters. ACT/SAT is not required of an applicant who has earned more than 24 semester hours of college work with a 2.0 GPA.
2. Official Scores from the Test of English as a Foreign Language (TOEFL) sent directly to UAHuntsville from the Educational Testing Service. A minimum score of 500 (paper based) 173 (computer-based score) 62 (iBT) with iBT subsections: 13-W, 18-S, 15-R, and 16-L.
3. Students who will attend UAHuntsville in F or J student status are required to submit a certified affidavit of financial support and financial statements/bank records as evidence of sufficient finances to cover university and personal expenses while attending UAHuntsville.

Transferring From Another U.S. Institution

Individuals in the U.S. in F or J status who intend to transfer to UAHuntsville from a U.S. high school or college will receive, upon admission, a *transfer clearance* form that must be completed by the previous institution and sent to the UAHuntsville Office of Admissions in order to be eligible for enrollment. It is also the responsibility of the admitted F or J student to communicate with the previous school's international student advisor to ensure that the SEVIS I-20 or DS-2019 record is transferred from the previous school to UAHuntsville prior to the start of the semester of enrollment.

English Language Placement Test

The UAHuntsville English Language Placement Test (ELPT) is required of all international students whose native tongue is not American Standard English, regardless of nationality or prior English study. A student must complete any course work in English as a Second Language (ESL) that the test indicates is required.

Health and Immunization Policies

Student Health Insurance

International students are required to purchase the UAH student health insurance and will be assessed the insurance premium each semester upon enrollment in classes. Requests for a waiver from the mandatory policy must be made to the Student Health Center within 10 days of the start of class.

Immunizations

All students born after 1956 must show proof of 2 doses of measles (rubeola) vaccine. One dose must have been a Measles, Mumps, Rubella (MMR) vaccine. Students ages 30 and older may submit evidence of one MMR if the dose was received after 1980. A copy of a lab report showing proof of immunity from measles (rubeola), mumps, and rubella can be submitted in lieu of the vaccine. A meningitis vaccine within the past five (5) years is required for all first time freshmen and all students living in on-campus residence halls.

Tuberculosis Screening and Testing Policy

All new international students must complete tuberculosis screening through the Student Health Center. This screening process will be scheduled as a part of the orientation program and will be provided upon arrival on campus at the UAH Student Health Center.

Special Student Status

Non-degree Students

Eligibility

A general Non-Degree seeking student is one who is not currently enrolled in or pursuing a degree at another institution and who desires to enroll at UAHuntsville for one or more terms to take certain advanced coursework for personal or professional growth. Any adult who has completed high school or completed the GED with a minimum score of 500 at least two calendar years prior to the

application term may apply for admission as a non-degree student. Credits earned or courses audited as a non-degree student are recorded on the student's permanent record. As appropriate, credit courses will be applied toward a regular undergraduate degree program when the individual qualifies for admission as a regular student. A student enrolled as a non-degree student must satisfy course prerequisites for each course taken and may be required to submit official transcripts from any prior collegiate institutions attended to show satisfactory completion of prerequisites. International students attending UAHuntsville on a student visa are not eligible for non-degree status.

Exceptions

Several factors are considered when determining eligibility as a Non-Degree Student. Students may be more appropriately classified in other admission categories as outlined below:

- Students who have not yet graduated from high school must apply for admission via Dual Enrollment or Early Start.
- A student who has completed high school or earned at least a 500 on the GED, but has not yet enrolled in college coursework must apply as a degree seeking first year/freshman student, or have graduated from high school or earned a GED at least two calendar years prior to term of application for non-degree admission.
- Students currently enrolled at another institution who wish to take classes as a visiting student with the intention of returning to the primary institution should apply as a Transient student.
- Students who have earned a bachelor's degree previously should apply as a Post-Baccalaureate student, which is a special category of Non-degree seeking students.

Enrollment

Non-Degree seeking students who have attended another college or university must have an official transcript from the last school attended sent to the Office of Admissions. The student must be in good academic standing at the last institution attended, if the application is submitted within one year of last enrollment. Applicants who have not attended another college or university must submit an official high school transcript, including graduation date, or an official GED test report to the Office of Admissions.

Once admitted as a non-degree student, the student may only register for a maximum of 12 semester credit hours per term. Only 12 credit hours earned as a Non-Degree seeking student can be used toward an undergraduate degree at UAHuntsville. Please note that admission as a Non-Degree seeking student does not imply admission to an undergraduate or graduate degree program.

Non-Degree seeking students are generally considered casual course takers and as such have the lowest priority in class registration. Enrollment in courses will be on a space-available basis, and degree-seeking students shall have priority should there be a wait-list. If a course has prerequisites that the student has not met, permission must be granted by the instructor before enrollment in the course. Non-degree students may provide evidence of meeting course prerequisites by providing an unofficial transcript to the appropriate academic advisor or Charger Central staff.

A student enrolled in this category is subject to the same periodic review of his or her record as a regular student and is subject to the University's regulations regarding scholastic probation, dismissal, and reinstatement. (See Academic Policies and Procedures.)

Non-Degree students cannot become candidates for a degree, be eligible for honors or hold officer positions in student organizations unless and until they reapply and are admitted as regular degree seeking students. At such time, the student shall submit official transcripts from all institutions previously attended and meet regular admission standards.

Non-Degree students generally are not eligible for financial aid. It is recommended that applicants contact the Office of Student Financial Services at (256) 824-6241 for more information and to verify eligibility.

Transient Students

Students who are currently enrolled at other colleges may apply for admission to take credit classes that will count toward a degree at their home institution. A completed application, a non-refundable $30 application fee, and a "Letter of Good Standing" (LGS) from the current college are required. The LGS verifies eligibility to return to the student's home institution and verifies the home college will accept the UAHuntsville courses for degree requirements. Transient students should satisfy UAHuntsville course prerequisites for each course taken and may be required to submit official transcripts from the home institution showing satisfactory completion of prerequisites.

Concurrent Enrollment

This category permits a student to enroll concurrently at more than one higher education institution. One institution must be declared as the "home" institution. A student may enroll at UAHuntsville and concurrently at another regionally accredited higher education institution and earn credit toward a degree at UAHuntsville, provided that prior written permission has been obtained from the student's academic advisor and the UAHuntsville Registrar. The student pays regular tuition at both institutions.

Post-Baccalaureate

Eligibility

A Post-Baccalaureate student is one who has already earned a bachelor's degree and who desires to enroll at UAHuntsville for one or more terms to take certain advanced coursework for personal or professional growth. In addition to the application and non-refundable application fee, applicants must submit to the Office of Admissions an official transcript from the college or university from which the baccalaureate degree was earned.

Exceptions

Students who have already earned a bachelor's degree and wish to enroll as a degree seeking student should apply as Second Bachelor's applicant. These applicants must have a minimum cumulative grade point average of 2.0 and have all official transcripts of coursework attempted sent to UAHuntsville Office of Admissions.

Please note that admission as a Post-Baccalaureate student does not imply admission to an undergraduate or graduate degree program.

Enrollment

As with all Non-Degree seeking students, Post-Baccalaureate students are generally considered casual course takers and as such have the lowest priority in class registration. Enrollment in courses will be on a space-available basis, and degree-seeking students shall have priority should there be a wait-list. If a course has prerequisites that the student has not met, permission must be granted by the instructor before enrollment in the course. Non-Degree students may provide evidence of meeting course prerequisites by providing an unofficial transcript to the appropriate academic advisor or Charger Central staff.

Post-Baccalaureate students are limited to 12 semester credit hours each term. Additionally, a maximum of 24 credit hours earned as a Post-Baccalaureate student can be applied toward a second bachelor's degree should a student decide to apply as a degree seeking student.

A student enrolled in this category is subject to the same periodic review of his or her record as a regular student and is subject to the University's regulations regarding scholastic probation, dismissal, and reinstatement. (See Academic Policies and Procedures.)

Post-Baccalaureate students cannot become candidates for a degree, be eligible for honors or hold officer positions in student organizations unless and until they reapply and are admitted as regular degree seeking students under the Second Bachelor's application category. At such time, the student shall submit official transcripts from all institutions previously attended and meet regular admission standards, which includes a minimum cumulative 2.0 in all attempted coursework.

Post-Baccalaureate students generally are not eligible for financial aid. It is recommended that applicants contact the Office of Student Financial Services at (256) 824-6241 for more information and to verify eligibility.

Re-Entry

A student who has not attended UAHuntsville for one or more semesters and who wishes to return should consult with the Office of the Registrar in Charger Central to determine enrollment status and the conditions under which studies may be resumed.

Academic Common Market of the Southern Regional Education Board

The Academic Common Market (ACM) is an association of 16 states (AL, AR, DE, FL, GA, KY, LA, MD, MS, NC, OK, SC, TN, TX, VA, and WV) formed to permit out-of-state students to major in selected programs at participating institutions while paying in-state tuition rates. Each ACM state outside of Alabama typically allows its residents to participate in the University's programs through ACM.

When it has been determined that UAHuntsville offers the desired program through the Academic Common Market, applicants should initiate application procedures by contacting his/her home state's Commission on Higher Education (or the equivalent office) and requesting permission to pursue the desired program at UAHuntsville, Additional information and a listing of contacts by state may be obtained from the Southern Regional Education Board's website (http://www.SREB.org) under Academic Common Market.

UAHuntsville Resident/Non-Resident Tuition Fee Guidelines

A. Introduction.

All students registering at The University of Alabama in Huntsville (UAHuntsville) who do not demonstrate, by presenting satisfactory evidence, that they are "resident students" will pay a "non-resident student" tuition. "Non-resident student" tuition will be at least twice the amount of "resident student" tuition. Classification of students as "non-resident students" or "resident students" will be made at the time of their initial registration and will continue unchanged through all subsequent registrations until satisfactory evidence to the contrary is submitted at the time of any subsequent registration. An application for Reclassification of Residence must be submitted to

the Office of the Associate Vice President for Enrollment Services prior to the first day of classes for the term requested.

B. Demonstrating Alabama Residency.

A resident student, for the purposes of this policy, is one who has established residency in Alabama and has maintained that status for at least one year immediately prior to registration. The policy of the Board of Trustees of The University of Alabama on non-resident tuition states that "residence" refers to that "single location at which a person resides with the intent of remaining there indefinitely as evidenced by more substantial connections with that place than with any other place." Students seeking to demonstrate that they are Alabama residents must certify to three facts: 1) that an address or location within Alabama is their residence, 2) that they intend to remain there indefinitely, and 3) that they have "more substantial connections" with Alabama than with any other state. Though satisfying the location and statement of intent requirements are essential, demonstrating residency will depend upon the University's evaluation of the student's connections with the State. No single connection or combination will automatically result in a finding of residency. Moreover, even if one or more connections with Alabama exist, a person who is in Alabama primarily for the purpose of obtaining an education will be considered a non-resident. The Board policy lists the following as connections that may be considered:

1. Payment of Alabama state income taxes as a resident
2. Ownership of a residence or other real property in the state and payment of state ad valorem taxes thereon.
3. Full-time employment in the state
4. Residence in the state of a spouse, parents, or children
5. Previous periods of residency in the state continuing for one year or more
6. Voter registration and voting in the state
7. Possession of state or local licenses to do business or practice a profession in the state
8. Ownership of personal property (e.g., automobile, boat, etc.) in the state and payment of state taxes thereon; possession of state license plates
9. Continuous physical presence in the state for a purpose other than attending school and except for temporary absences for travel, military service, temporary employment, etc.
10. Membership in religious, professional, business, civic, or social organizations in the state
11. Maintenance in the state of checking and savings accounts, safe deposit boxes, investment accounts, etc.
12. In-state address shown on selective service registration, driver's license, automobile title registration, hunting and fishing licenses, insurance policies, stock and bond registrations, last will and testament, annuities, retirement plans, etc.

As stated above, a student will be classified as an Alabama resident only if the student is able to show that he/she became a resident one year or more prior to the date of registration by identifying then existing, sufficient connections with Alabama.

C. Demonstrating Alabama Residency - Alternative Approach.

A student who does not qualify for classification as a resident student under the foregoing requirements may possibly qualify if he/she (or his/her supporting person in the case of a minor) meets any one of the following requirements at the time of registration:

1. Is a full-time, non-temporary employee at UAHuntsville or is the spouse of such an employee
2. Is employed by UAHuntsville as a graduate student or fellow on at least a 0.5 FTE (half-time) basis
3. Is a full-time, non-temporary employee of some other employer within the state of Alabama, or is the spouse of such employee, where the employment will begin no later than 90 days after registration.
4. Is a member or the spouse of a member of the U.S. military on full-time active duty stationed in Alabama under orders for duties other than attending school.
5. Is a resident of Bedford, Coffee, Franklin, Giles, Lawrence, Lincoln, Marion, Marshall, or Moore County in Tennessee and has been a resident of that County for at least one year preceding the date of registration. The requirements for a student to demonstrate that he/she is a "resident" of one of the foregoing counties shall be the same as set forth above with regard to demonstrating Alabama residency.

As used in these Guidelines, a "minor" refers to an individual who, because of age, lacks the capacity to contract under Alabama law. Under current law, this means a single individual under age 19 and a married individual under age 18. A "supporting person" refers to either or both of the parents of a student, if they are living together, or, if the parents are divorced or living separately, then the parent providing the greater amount of financial support of the two (normally, the parent having legal custody). **"Non-temporary" employment means employment that is on-going and not seasonal or for a specific period of time or for the express purpose of financing the student's college education**.

D. Appeal.

The Assistant Provost for Enrollment Services will make the initial decision on an application for reclassification to resident student status. A student who believes that decision is in error may appeal to the Residence Status Review Committee. This Committee is made up of a representative appointed by the Vice President for Academic Affairs, the Vice President for Student Affairs, and the President of the Student Government Association. Notice of appeal must be in writing and must be delivered to the Office of the Vice

President for Academic Affairs no later than fourteen (14) days after the date of the initial decision of the Assistant Provost for Enrollment Services. The decision of this Committee may be appealed to the President of the University, whose decision shall be final.

The foregoing Guidelines are a summary of the provisions of Rule 202 of The Board of Trustees of The University of Alabama ("Nonresident Tuition Policy"). This Rule constitutes the full statement of policy applicable to the residency classification of UAHuntsville students.

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P H

- Tuition and Fees
- 2013-14 Housing Rates
- 2013-14 Meal Plan Rates
- Financial Aid
- Types of Financial Aid

Tuition and Fees

The following tuition and fees are based on the 2012-2013 academic year fee structure. The University reserves the right to change its tuition, fees, charges, rules and regulations at the beginning of any semester and without prior notice. Generally, the Board of Trustees of the University of Alabama System considers proposals for changes in fee structure at its May or June meeting. These fees do not apply to any shortterm, off-campus, or noncredit offering. For additional information on these courses, see section on Division of Professional and Continuing Studies. Current fees are available on the web at www.uah.edu.

Undergraduate Hours	Resident	Non-Resident
1	406.00	989.00
2	720.00	1738.00
3	1034.00	2487.00
4	1348.00	3236.00
5	1662.00	3985.00
6	1976.00	4734.00
7	2290.00	5483.00
8	2604.00	6232.00
9	2918.00	6981.00
10	3232.00	7730.00
11	3546.00	8479.00
12	3860.00	9228.00
13	4039.00	9670.00
14	4218.00	10112.00
15	4397.00	10554.00
16	4576.00	10996.00
17	4755.00	11438.00
18	4934.00	11880.00
19	5113.00	12322.00
20	5292.00	12764.00

Each additional hour is $179.00 for in-state students and $442.00 for out-of-state students.

Graduate Hours	Resident	Non-Resident
1	606.00	1427.00
2	1103.00	2616.00
3	1600.00	3805.00
4	2097.00	4994.00
5	2594.00	6183.00

6	3091.00	7372.00
7	3480.00	8312.00
8	3869.00	9252.00
9	4528.00	10192.00
10	4647.00	11132.00
11	5036.00	12072.00
12	5425.00	13012.00

Each additional hour is $389.00 for in-state students and $940.00 for out-of-state students.

The University reserves the right to change its fees, charges, rules and regulations at the beginning of any semester and without prior notice.

College Laboratory and Instruction Fees Per Credit Hour

College of Business $16.50
College of Engineering $38.00
College of Liberal Arts $11.00
College of Nursing $41.00
College of Science $17.00

Health and Physical Education $12

Cooperative Education Fees

Parallel Work Semester is $40
Alternating Work Semester is $80

Orientation Fees

A one-time orientation fee of $150 is charged to all freshmen entering the university in the fall semester.

Transfer students and new students entering in the Spring and Summer terms are charged a $50 orientation fee.

Charger Card Fee

All newly admitted students will incur a one-time fee of $10.00 for an identification card with photograph. In addition to its official proof of your affiliation with UAHuntsville, the Charger card can provide security access to buildings on campus and declining balance account privileges.

Acceptable Forms of Payment

Payment can be made in cash, by check or money order, or can be charged to a VISA, MasterCard, American Express, or Discover charge card. Sponsoring agencies, faculty/staff or University tuition assistance supported by written documentation, or anticipated financial aid verified by the Office of Student Financial Services are also valid payment forms. Awards may be applied directly to a student's account for charges incurred.

Billing and Payment Procedure

Tuition and fees should be paid in full by the first official day of the semester. Payments may be charged to VISA, MasterCard, American express, or Discover by paying on the Web or calling (256) 824-2732. Students who do not pay bills in full by the first day of classes are assessed a $50.00 late fee. Students who do not pay bills in full by the end of the second week of classes for fall and spring semesters may be dropped from class rolls and enrollment will be canceled. The University assumes no responsibility for students who attend classes without official enrollment. For summer sessions, please check dates in the Schedule of Classes and on the UAHuntsville Website. Send payments to The University of Alabama in Huntsville, Cashier's Office, University Center Room 213, Huntsville, AL 35899-5050.

Installment Plans

Students enrolling for at least three semester hours of credit are eligible for the installment plans. These plans enable total tuition, housing and other current charges to be divided into two or four payments each semester.

> **Two Payment Plan:** The first payment of at least half of the total amount of current charges after financial aid is due by the first day of the semester. The second payment of the remaining balance is due the end of the sixth week of the semester. There is a $20.00 non-refundable administration fee that must accompany the installment agreement form.
>
> **Four Payment Plan:** The first payment of at least 25% of the total amount of current charges after financial aid is due by the

first day of the semester with monthly payments thereafter. There is a $50.00 nonrefundable administration fee that must accompany the installment agreement form.

Installment agreement forms are available in the Bursar's Office (UC 214), Bursar's Office website (bursar.uah.edu) and Charger Central (UC118). After completion, the installment agreement form should be presented to the Cashier's Office. The installment payment plans are only offered for the Fall and Spring Semesters and an installment agreement form must be completed each semester. International student insurance and international student fees are not deferrable.

Balances

Past due balances are a debt owed the State of Alabama and appropriate action will be taken to collect all balances. Holds will be placed on all students' accounts that have past due balances. This hold will prevent them from receiving grades, transcripts or registering for another semester at UAHuntsville. To the extent permitted by the laws of the State of Alabama, any costs to collect a past due account, to include collection agency charges and attorney fees, will be charged back to the student who shall be liable for payment of those charges.

Other Charges

Credit by examination or validation	$ 10.00/semester hour
Replacement of I.D. card	$ 25.00
Transcript	$ 4.00
Graduation Application fee (non refundable)	$ 50.00
Duplicate Diploma	$ 10.00
Thesis and Dissertation binding	$ 55.00
Vehicle registration	$120.00
Summer only	$ 40.00
Nursing Badge	$ 5.00

College of Nursing

Liability Insurance (per year)	variable
College of Nursing Pin (graduation)	$ 50.00 - $ 150.00
Annual health examinations	variable

Refunds

Students may drop a class through the second week of classes (fall and spring) and receive a 100% tuition refund. Please check UAHuntsville website for summer dates. A student desiring to drop one or more classes must complete a drop request form at Charger Central, University Center Room 118. The date of the drop request is the date the written request is received at the Office of Student Records.

2013-14 Housing Rates

Central Campus Residence Hall (CCRH)

Available for 1st Year Students Only/Academic Year Rate (Fall & Spring Semesters)	
Private Bedroom in 4-person suite	$ 5,520

Frank Franz Hall (FFH)

Available for Living Communities/Academic Year Rate	
Private bedroom in 4-person suite	$ 5,650

North Campus Residence Hall (NCRH)

Available for 2nd year and Upper-class Students/9 Month Housing	
Private bedroom in a 4-person suite	$5,860
Studio Suite (one-bedroom suite)	$6,270

Charger Village (CV)

Available for 2nd year and Upper-class Students/9 Month Housing	
Private Bedroom in 4-person suite	$5,950
Private Bedroom in 2-person suite	$6,110

Southeast Campus Housing (SECH)

Available for Upper-class and Graduate Students/9-Month Housing	
Private Bedroom in 3-bedroom suite	$ 4,910

Fraternity and Sorority Houses (FRSO)

Available for 2nd year and Upper-class Students/9-Month Housing	
Private Bedroom in 10-bedroom house	$ 5,580

Apartments

Available for Graduate Students & Student Families/12 Month Housing	
One-bedroom unfurnished	$7,320

Note: All Housing rates include basic utilities, Internet access, and basic television cable for each suite.

Withdrawal during the first week of the academic semester	80% refund
Withdrawal during the second week	60% refund
Withdrawal during the third week	40% refund
Withdrawal during the fourth week	20% refund
Withdrawal after the fourth week	no refund

2013-14 Meal Plan Rates

Academic Year Rates (Fall & Spring Semesters)

1st Year On-Campus Residents	$2,680
2nd Year and Upper-Class On-Campus Residents	$824
SECH, FRSO, and Commuter	$450

Additional amounts may be added to the Declining Balance Card at any time.
These rates are effective beginning Fall Semester, 2013.
The University reserves the right to adjust housing and meal plan rates at any time.

Financial Aid

Students who are receiving financial aid are responsible for completing the necessary paperwork far enough in advance to assure the proper credits to their accounts. For further information, please check with Student Financial Services, University Center, Room 212, or the Cashier's Office, Room 213.

Undergraduate Student Aid

UAHuntsville has several programs to assist students in financing their college education. Comprehensive, updated information on all financial aid offered through the Office of Student Financial Services is available in a booklet published annually. It includes detailed information about kinds of aid, eligibility guidelines, application procedures, criteria for awards, disbursement methods and regulations, and institutional policy followed in administration of aid. These booklets and necessary forms are available in the Office of Student Financial Services.

Students of academic promise who can demonstrate financial need are encouraged to apply for assistance. Realistic financial planning is an essential part of college preparation. UAHuntsville helps qualified students find employment, scholarships, and loans as its resources permit. In planning a program of financial assistance, consideration should be given to the advisability of combining scholarships, loans, and part-time employment since one kind of aid alone is inadequate in most cases.

Students should make financial plans well in advance of entering the University. There are two important priority dates for student aid—December 1 for scholarships and April 1 for federal aid. The priority dates are the dates by which completed applications are certain to be included in the first round of review.

Applicants are advised to write the Office of Student Financial Services requesting a copy of the financial aid booklet at the time of application to the University. Applications for student aid should be filed at the Office of Student Financial Services before the priority date of April 1, for the following school year. A new application must be submitted by this priority date each year.

Types of Financial Aid

Scholarships

(See Web for Scholarships)

Loans

UAHuntsville participates in the William D. Ford Federal Direct Stafford Loan program. Student loan funds are made available directly from the U.S. Department of Education without the necessity of secondary marketers such as private lending institutions. Although it is sometimes necessary to borrow money to finance an education, caution is advised. Generally, a student should not rely primarily on loans and is advised not to borrow more than half of what is needed to meet expenses. Additional information regarding eligibility amounts, loan limits, application procedures and suggested application timelines is published in the brochure "Making College Affordable." This and other valuable information regarding the financial aid process are available in the Office of Student Financial Services as well as Charger Central.

Tax Credit

As part of the Taxpayer Relief Act of 1997, Congress has enacted legislation that allows taxpayers to take certain portions of tuition paid in the prior year as a direct tax credit. Students or those who pay tuition on behalf of students should consult a tax advisor for more detailed information. General information is also available from the U.S. Department of Education's web site at www.irs.gov, or by contacting the Internal Revenue Service at 1-800-829-1040.

Grants

A Federal Supplemental Educational Opportunity Grant provides aid to undergraduate students who would not otherwise be financially able to attend college. A student must be accepted for enrollment, show evidence of academic promise, and be capable of maintaining good standing in the chosen course of study. Grants may be renewed for the four years of undergraduate study, subject to the availability of funds, unless a major change in the family's financial condition causes the student to be ineligible. Grants are awarded in compliance with eligibility based on federal guidelines.

The Federal Pell Grant Program assists eligible students by providing help in meeting the cost of postsecondary education. To be eligible, a student must meet the following criteria: (1) establish financial need; (2) be enrolled in an eligible program; (3) be a U.S. citizen or in the U.S. for other than a temporary purpose and intend to become a permanent resident or be a permanent resident of the Trust Territories of the Pacific Islands.

The Alabama Student Assistance Program is a state/federal aid program designed to provide Alabama residents financial assistance for undergraduate postsecondary education. Grants are awarded for one year. The grants are renewable, but new applications must be made each year. All awards are determined by student eligibility requirements, available funds, and student need. Students should contact the Office of Student Financial Services for information regarding eligibility, application, selection, and awards procedures.

Federal Financial Aid Repayment

Federally funded student financial aid (Pell, SEOG, Stafford) awarded to a student who withdraws after registration but before the end of the refund period will be repaid to the respective program source. When withdrawal or reduction of class load occurs after the end of the refund period, full-tuition charges will be paid from the aid source. The unused portion of the aid will be repaid to the respective aid source. Specific regulations governing this policy may be found in Student Financial Aid, a brochure available in the Office of Student Financial Services.

Federal Work-Study Program

The College Work-Study Program provides employment for students who need financial assistance. A student works part-time while attending the University and during vacation periods. Students engaged in this program work on campus or in a non-profit agency. In determining eligibility, preference will be given to students with the greatest financial need.

Tuition Assistance

Some businesses and industries provide tuition assistance to employees attending UAHuntsville. An employed student should consult

the personnel office of his or her place of employment to determine its policy regarding tuition assistance.

Vocational Rehabilitation

Students with a physical disability may obtain grants-in-aid covering fees, books, and supplies through the Vocational Rehabilitation Service, which is supported by federal and state appropriations. For further information, write to: Alabama Vocational Rehabilitation Service, 2939 Johnson Rd Huntsville, Alabama 35805 or the Director of Vocational Rehabilitation, Room 416, State Office Building, Montgomery, Alabama 36104.

Veterans Affairs

UAHuntsville offers a full range of services to the student attending under the Veterans Administration Educational Assistance Program. These services include veterans' advisement, educational loans, and the Veteran Tutorial Program. Under the current Veterans Educational Assistance Programs, which affect most veterans, the veteran receives an allowance directly from the government. The veteran is responsible for paying fees directly to the University and meeting payment deadlines applicable for all students.

The Veterans Administration will make full payment only when the student carries a full academic load. To facilitate the prompt and accurate reporting of the student's status and course load, the veteran must complete a brief form every semester enrolled. This form must be turned in to the veterans affairs clerk in the Office of Student Financial Services, Room 212, University Center.

It is the student's responsibility to remain in good standing with the Veterans Administration and to respond to notification of changes in regulations. For additional information, write to: Veterans Administration Regional Office, 474 South Court Street, Montgomery, Alabama 36104. Many students who are children of veterans of World War I, World War II, or the Korean War may be eligible for benefits under the War Orphans Educational Assistance Act (PL 634). Write the nearest Veterans Administration Regional Office for additional information. The Alabama G.I. and Dependents Education Benefits Act grants tuition assistance to eligible veterans, their children, widows and wives. Tuition is paid directly to the school. For additional information, write to: Assistant to the Director, Department of Veteran's Affairs, P.O. Box 1509, Montgomery, Alabama 36102.

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Student Activities

The Office of Student Activities is part of the UAH Division of Student Affairs whose mission is to provide opportunities for students to engage in a diverse community of learners characterized by a supportive campus environment that encourages individual growth and development. This mission is accomplished through comprehensive programs and service focused on student learning and success.

Student Government Association (SGA)

Student Government Association at UAHuntsville provides a forum for the free and open expression of student ideas and opinions, is a liaison between the students and University administration, works to instill a sense of community on and off campus, and assists in creating an atmosphere conducive to academic achievement. The Student Government Association is comprised of elected senators and an executive branch who are active members of the UAHuntsville student body. The SGA promotes unity, diversity and is dedicated to the enrichment and positive development of each and every individual on campus.

Student Organizations

UAH is home to more than 120 registered student organizations (RSO). A complete listing of opportunities are available online by visiting: http://www.uah.edu/student-life/activities/student-organizations/registered-listing. The Office of Student Activities uses a classification system to better assist students in finding organizations of interests. The classification system is solely used as a resource to students and does not define the sole purpose of any organization:

- Academic: An organization representing a specific academic area or college
- Community Service: Service organizations are those that are primarily dedicated to providing improvement, aid or assistance to others on campus or in the community.
- Fraternity/Sorority: An organization in this classification must be a member of the collegiate chapter of the Interfraternity Council, National Pan-Hellenic Council, or Panhellenic Council
- Honor Society: An organization whose membership is based on academic achievement and whose purpose is to recognize such

- Leadership: An organization that offers training and development for aspiring leaders at UAH. Assists in identifying, and building confidence in, your leadership abilities while finding your niche at UAH through interactive leadership activities, guest speakers and service projects.
- Multicultural: An organization focused on providing support and fostering community within the various cultures, races, religions and orientations represented among the student body.
- Political: An organization that encourages expression, debate, and support of political issues, views and/or candidates.
- Recreational: An organization that encourages participation in and promotion of team sports, physical fitness, health and wellness, and leisure activities.
- Religious: An organization whose purpose is religious instruction and fellowship
- Special Interest: An organization whose chief purpose is to provide an opportunity for individuals to discuss and share information regarding a specific, non-academic related topic of interest

Fraternities and Sororities

Social/Service Societies

Interfraternity Council (IFC)

IFC serves as the governing body of member fraternities at UAHuntsville in order to develop cooperation and coordination of activities among the member fraternities and the university and to further mutual interests and aims of social fraternities. The four national social fraternities on campus are Alpha Tau Omega, Delta Chi, Pi Kappa Alpha, and Sigma Nu.

College Panhellenic Council (CPC)

The College Panhellenic Council is the organization which develops and maintains women's fraternity life and interfraternity relations at a high level of accomplishment for scholarship, social and moral standards, and community service at UAHuntsville. The three sororities available to young women at UAHuntsville are Alpha Omega Pi, Delta Zeta, and Kappa Delta.

National Pan-Hellenic Council (NPHC)

The National Pan-Hellenic Council unifies and strengthens Black Greek Letter Organizations and fosters cooperative action of its members in dealing with matters of mutual concern. To this end, the NPHC at the University of Alabama in Huntsville promotes the well-being of its affiliate fraternities and sororities, and facilitates the establishment and development of high standards and leadership programming. The fraternities include Alpha Phi Alpha Fraternity Inc. and Phi Beta Sigma Fraternity Inc. The sororities include Alpha Kappa Alpha Sorority Inc., Delta Sigma Theta Sorority Inc., and Zeta Phi Beta Sorority Inc.

Academic Honor Societies

Alpha Epsilon Delta (Pre-Medical)

The UAHuntsville chapter of Alpha Epsilon Delta, the national pre-health professional honor society, was established in the fall of 1978 and chartered in the spring of 1979. Membership is an honor bestowed in recognition of superior scholarly achievement, and affording the student an opportunity to develop initiative, leadership, and self-education by participating in the activities of the chapter.

Alpha Kappa Delta (Sociology)

The Epsilon of Alabama chapter of Alpha Kappa Delta was chartered by the national sociology honorary society in the spring of 1976. Membership in AKD is limited to

students who have maintained a high standard of excellence in their courses of study in sociology and who show serious interest in this academic field. The candidate for membership must complete at least 10 credit hours in sociology, with an overall GPA of 3.0, must maintain a B average in sociology. Must be in the upper 35% of the class.

Alpha Lambda Delta (Freshman)

The UAHuntsville chapter of Alpha Lambda Delta, national scholastic honor society for freshmen, was installed in the fall of 1974. The purposes of the society are to encourage superior scholarship among students in their first year in institutions of higher education, to promote a continued high standard of learning, and to assist students in recognizing and developing meaningful goals for their roles in society. To become a member, a student must earn a grade point average of 3.5 during the first year of enrollment.

Alpha Pi Mu (Industrial Engineering)

The national honor society for industrial engineers, Alpha Pi Mu was founded at the Georgia Institution of Technology in 1959 to recognize industrial engineering students of distinguished scholarship. The Constitution states that only those ranked in the upper one-fifth of the junior class or the upper one-third of the senior class can be considered for membership.

Beta Alpha Psi (Accounting)

The Iota Theta Chapter of Beta Alpha Psi was chartered in 1999. Beta Alpha Psi is the national honor society for students majoring in accounting, finance, or information systems at schools accredited by AACSB International - The Association to Advance Collegiate Schools of Business. The organization especially encourages and recognizes high academic achievement, as well as service to one's profession and to the public. Members have the opportunity to interact with professionals in the various areas of financial management.

Beta Gamma Sigma (Business or Management)

Membership in Beta Gamma Sigma is the highest recognition a business student anywhere in the world can receive. To be eligible for nomination, a student must be in a program accredited by AACSB International - The Association to Advance Collegiate Schools of Business and rank in the upper seven percent of the junior class, upper ten percent of the senior class, or upper twenty percent of the master's graduating class. Members are elected to membership. Beta Gamma Sigma encourages and honors high academic achievement and personal excellence in the study and practice of business.

Kappa Delta Pi (Education)

Kappa Delta Pi, an international honor society, is dedicated to scholarship and excellence in education. The society as a community of scholars pledged to worthy ideals recognizes scholarship and excellence in education, promotes the development and dissemination of worthy educational ideas and practices, enhances the continuous growth and leadership of its diverse membership, fosters inquiry and reflection on significant educational issues, and maintains a high degree of professional fellowship. Scholarship criteria for undergraduate students: junior standing, admitted to the Teacher Education Program, and a 3.25 GPA. Kappa Delta Pi was chartered at UAHuntsville on November 2, 1997.

Kappa Pi

Kappa Pi is an international honorary art fraternity with the purpose of uniting artists who care about art in its role in life. This fraternity bonds conscientious artists together to form a unit which is influential in the art department as well as the community. The requirements for membership are the completion of 12 semester hours of art courses, a 3.0 GPA in art courses (on a 4.0 scale) and a 2.0 overall GPA.

Eta Kappa Nu (Electrical Engineering)

The Theta Eta Chapter of Eta Kappa Nu was chartered on April 29, 1978. The objectives of Eta Kappa Nu are to honor those students in electrical engineering who

have excelled in scholarship, leadership, and exemplary character, and to unify them with graduates and faculty who have attained prominence in the field of electrical engineering. Membership is by chapter invitation only to graduates, faculty, professionals, juniors in the top fourth of the electrical engineering class, and seniors in the top third of the electrical engineering class.

Omega Chi Epsilon (Chemical Engineering)

Omega Chi Epsilon is the Chemical Engineering Honor Society. OXE recognizes superior service and research by undergraduate and graduate majors in chemical engineering. UAHuntsville received its charter on April 17, 2001.

Omicron Delta Kappa (Leadership)

The purpose of the Omicron Delta Kappa Society is to recognize individuals who have attained a high degree of leadership in collegiate and related activities, to encourage them to continue along this line, and to inspire others to strive for similar conspicuous attainment; to bring together representative individuals in all phases of collegiate life and thus create an organization which will help mold the sentiment of the institution on questions of local and inter-collegiate interest; and to bring together members of the faculty and student body of the institution on a basis of mutual interest, understanding, and helpfulness.

Order of Omega (Greek)

Order of Omega is a leadership honor society for members of Greek organizations. Order of Omega recognizes juniors and seniors who have exemplified high standards in the areas of scholarship, leadership, involvement within their respective organization and within the Greek, campus, and local community. Members are selected from the top 3% of students at each institution.

Phi Alpha Theta (History)

UAHuntsville has a chapter of Phi Alpha Theta, international history honorary society. Membership is by invitation only to history students who have completed a minimum of 12 hours in history with a grade point average of 3.5 and an overall average of 3.0 in all courses.

Phi Kappa Phi (Multi-discipline)

The primary objective of the national honor society of Phi Kappa Phi is the recognition and encouragement of superior scholarship in all academic disciplines. The society is convinced that in recognizing and honoring those persons of good character who have excelled in scholarship in any field, it will stimulate others to espouse excellence. The society promotes an atmosphere conducive to academic excellence.

Phi Sigma Iota (Foreign Language)

Phi Sigma Iota recognizes outstanding ability and high standards in the field of foreign languages, literatures, and cultures, including classics, linguistics, philology, comparative literature, bilingual education, and other related areas. It promotes international communication and understanding, and a sentiment of amity among nations. Membership is open by nomination to any student who is at least a junior with a B average overall, as well as in foreign languages; has completed at least one foreign language course at the 300-level; is enrolled at UAHuntsville at the time of being offered membership; and who plans to take at least two 300- level courses in foreign languages.

Pi Sigma Alpha (Political Science)

Pi Sigma Alpha is the national honorary society for political science students of junior standing with a minimum of ten semester hours and a B average or higher in political science courses.

Pi Tau Sigma (Mechanical Engineering)

Pi Tau Sigma is the national mechanical engineering honor society. Its purposes are to foster the high ideals of the engineering profession, to stimulate interest in departmental activities, to promote the mutual professional welfare of its members, and to develop in students of mechanical engineering the attributes necessary for effective leadership. Membership is open to those students in the top quarter of juniors and the top third of seniors in mechanical engineering.

Psi Chi (Psychology)

Psi Chi is an international honor society for students in the field of psychology. Its purposes are to encourage, stimulate, and maintain scholarship of the individual members in all fields, particularly in psychology, and to advance the science of psychology. To achieve these goals Psi Chi offers a wide range of programs at the local, regional, and national levels. Membership is open to students with a 3.0 overall grade point average and a 3.0 in psychology having completed 12 hours of psychology courses toward a minor or 15 hours toward a major.

Sigma Alpha Pi (National Society of Leadership and Success)

Sigma Alpha Pi is an organization that helps people discover and achieve their goals. It offers life-changing lectures from the nation's leading presenters and a community where like-minded success oriented individuals come together and help one another succeed. The Society also serves as a powerful force of good in the greater community by encouraging and organizing action to better the world

Sigma Pi Sigma (Physics)

The Sigma Pi Sigma honorary society operates within the Society of Physics. Student membership is based on general scholarship. An overall GPA of 2.75 and a GPA of 3.2 in at least five courses in physics are required for membership.

Sigma Tau Delta (English)

The UAHuntsville chapter of Sigma Tau Delta, a national English honorary society, is Upsilon Mu. Its purposes are to assist in developing, maintaining, and promoting literary and educational activities for students and alumni of the chapter, as well as the entire university and civic community. Membership is open by invitation only to English majors and minors of junior standing who have a 3.0 grade point average.

Sigma Theta Tau (Nursing)

Sigma Theta Tau is the international honor society for nursing. Its purposes include the recognition of superior achievement and leadership qualities, the fostering of high professional standards and creative work, and the strengthening of the individual's commitment to the ideals and purposes of the nursing profession. Invitation to membership may be extended to junior and senior undergraduate nursing students who have completed at least one-half of the professional nursing curriculum, who are in the upper 35 percent of their class and who have a grade point average of 3.0. Graduate students in nursing who have completed at least one-fourth of their required nursing course work and have a grade point average of 3.5 may be invited for membership.

Society of Sigma XI (Science Research)

Sigma Xi, founded in 1886, is a scientific honor society which was organized to reward excellence in scientific research by graduates, undergraduates, and faculty researchers and to encourage a sense of cooperation among scientists in all fields. Election to membership is open to all undergraduates, graduate students, and faculty in scientific and engineering disciplines who have evidence of notable achievement in research.

Tau Beta Pi (Engineering)

The Tau Beta Pi Association was founded at Lehigh University in 1885 to mark in a fitting manner those who have conferred honor upon their alma mater by distinguished scholarship and exemplary character as students in engineering, or by their attainments as alumni in the field of engineering, and to foster a spirit of liberal culture in engineering colleges. Membership is by invitation to those whose class standing is in the top eighth of the junior class or the top fifth of the senior class who have demonstrated exemplary character.

Upsilon Pi Epsilon (Computer Science)

The Computer Science Honor Society is for both graduates and undergraduates.

Social and Cultural Activities

Association for Campus Entertainment (ACE)

The Association for Campus Entertainment (ACE) provides a variety of educational, social, recreational, and cultural programs to the student body in the form of afternoon, evening, late night and weekend programming. Its members are dedicated to the University and work hard to present diverse activities for the campus community to enjoy.

Art Programs and Exhibitions

The Department of Art and Art History sponsors exhibitions and activities throughout the year, which are important to the cultural growth and enrichment of campus life at UAHuntsville. Students and faculty are welcomed and encouraged to participate in and contribute to these worthwhile opportunities.

The UAHuntsville Galleries of Art

The Art Department organizes exhibitions and events in three galleries on the UAHuntsville campus. The Union Grove Gallery and Meeting Hall, located just west of the University Center, the Salmon Library Gallery and the Wilson Hall Gallery provide opportunities for the University and Huntsville communities to view the work of local, regional, and nationally recognized artists. The exhibitions change monthly and offer a wide range of artistic perspectives.

The Annual Student Exhibition

Each spring the Art Department sponsors an exhibition, juried by a prominent regional artist, dedicated solely to showcasing the work and talents of UAHuntsville students. Any student enrolled in the University is eligible to participate.

The Visiting Artist Program

This program offers opportunities for the public to meet, listen, and talk with the artists exhibiting their work in the UAHuntsville galleries. Presentations by distinguished artists visiting the campus often include studio and classroom sessions as well as public lectures.

Music Organizations

Musical organizations are open to all students, –music and non-music majors. Students should be able to make a place for themselves in some performing group, regardless of musical background and tastes. Credit is offered for most ensemble experience, and participation may be repeated with approval of the conductor.

UAHuntsville Choral Organizations

The Concert Choir, the Chamber Choir, and the Tenor-Bass Chorale perform choral literature of the great masters of music history as well as folk music of various countries. Admission is by audition with the conductor and attendance at all rehearsals and performances is required.

UAHuntsville Jazz Ensemble

This is a group designed to give the beginning through advanced jazz musician exposure to a variety of jazz literature and styles. Additionally, the members will develop a basic understanding of jazz improvisation, and, if interested, will be encouraged to explore jazz arranging. Attendance at all rehearsals and performances is required.

An audition with the instructor is also required.

UAHuntsville Wind Ensemble

The Wind Ensemble is a select group of experienced musicians who perform the best available music literature for wind ensemble and concert band. Attendance at all rehearsals and concerts is required. An audition with the conductor is also required.

UAHuntsville Pep Band

The Pep Band is a musical organization of students that promotes spirit and enthusiasm at a variety of athletic events. Members and scholarship recipients are chosen by audition.

Drama

Theatre at UAHuntsville began in the Fall of 2005 with a successful season consisting of two full length plays, two one acts, two ten minute play festivals and an outdoor event. The drama program is both curricular and co-curricular and interested students are urged to get involved either through the Drama Club or course work. Contact Mr. David Harwell (MH 325A, 824-6909) at harweld@uah.edu.

Leadership Programs

Leadership development programs are offered for students at UAHuntsville, including: class specific experiences, our annual Student Leadership Conference, Student Leadership Awards Celebration and our L.E.A.P mentoring program. The ASPIRE program, specifically for freshmen, introduces and explores the ample leadership opportunities that exist on campus and in the community. The EMPOWER program, geared towards sophomores, develops a group of young collegians into emerging leaders through community service and participation in campus activities. The IMPACT program, specifically for juniors, includes a diversity component that encourages the students to think about leading and working with diverse populations. Finally, the LEAD program has a career focus for seniors to prepare them to transition from college to work or continuing education.

Community Engagement Activities

The university provides service opportunities for students that promotes development of life skills and prepares successful citizens of the world. These activities are lead by the Volunteer Chargers and include Helping Hands of Huntsville, Can Creations, weekly service opportunities, alternative breaks, and an updated webpage with local volunteer needs for students to get involved with.

Intercollegiate Athletics

UAHuntsville is an NCAA Division II school and a member of the Gulf South Conference. The athletic department sponsors 14 intercollegiate sports providing the student-athlete with the opportunity to compete intercollegiality within a structured sporting environment and enhance personal growth and development in parallel with the goals of the institution. Sports sponsored for men are ice hockey, basketball, soccer, cross country, tennis and track; sports for women are basketball, softball, volleyball, cross country, tennis and track.

Baseball (Men)

Baseball was added in the spring of 1996, and UAHuntsville has already become a prominent competitor in the GSC and NCAA. The Gulf South Conference is nationally known as a premier conference for baseball. Beginning in 2007 home games will be played at the UAHuntsville campus.

Basketball (Men and Women)

Competition is high in the GSC in basketball, and UAHuntsville enjoys exciting competition during its basketball games that are played on campus in Spragins Hall.

Cross Country (Men and Women)

While running is basically an individual sport, cross country at UAHuntsville is founded on a philosophy of team effort and spirit. The team hosts an annual invitational competition in September.

Ice Hockey (Men)

UAHuntsville is the original "Hockey Capital of the South," building a very strong hockey program with local players as well as skaters from points north. The Chargers have competed in a number of NCAA Championships in the last few years, winning in 1996 and 1998 before capacity home crowds at the Von Braun Center, the site of all home games. In the year 2000, UAHuntsville began to compete at the Division I level.

Soccer (Men and Women)

The soccer teams attract players from around the world. Games are played on Charger Field located on campus. UAHuntsville has been a soccer leader in the GSC in recent years.

Softball (Women)

Competition in the GSC is always at a high level and UAHuntsville has competed at or near the top since its inaugural season in 1996. Beginning in 2007 home games will be played on the UAHuntsville campus.

Tennis (Men and Women)

The Charger tennis programs provide an opportunity for competition in both singles and doubles. Home matches are played at the Charger Tennis Center, located next to Spragins Hall on campus.

Track (Men and Women)

In 2001, Women's track and Field was added to the varisty athletics program followed by men's track and field in 2003. Track and field has had a representative at the NCAA Regionals every year since it joined the Charger squad.

Volleyball (Women)

UAHuntsville volleyball is a consistent leader in GSC competition. The program annually hosts a quality tournament, which attracts a number of outstanding teams. In 1998 the team was selected to participate in the NCAA Regionals.

Cheerleading and Mascot Program

The UAHuntsville Cheerleading & Mascot Program is open to all full-time students in good academic and social standing at the University. Tryouts are held annually at the end of the spring semester and, if needed, an additional tryout may be held after classes resume for the fall semester. The program supports the University in a number of ways including, but not limited to, appearances at athletic and community events. The squad also competes annually at the national level.

Dance Team

The Chargerette Dance Team is composed of students whose primary purpose is to promote CHARGER SPIRIT and enthusiasm among students and the UAHuntsville

community. The squad serves as half time entertainment during womens and mens basketball season as well as making appearances at other campus and community events. Try-outs are conducted at the end of the spring semester and if needed, after classes resume for the fall semester.

Charger Recreation

Charger Recreation offers the opportunity to build camaraderie & character though club sports, competitive intramural sports leagues, and outdoor recreation trips. New sports clubs can be formed by any highly motivated student who wants to be a team captain. Intramural sports leagues are hosted on weekends during both the fall & spring semesters. Basketball, dodge ball, racquetball, softball, volleyball, flag football, tennis, soccer, and ultimate Frisbee are all part of the current intramural league lineup. Players can create their own teams online or join any league as free agents. Outdoor recreation trips are planned on periodic weekends throughout the year. The Recreation Department also hires experienced referees & scorekeepers in the fall semester to work during the next calendar year.

Student Publications

The Charger Times is the student-run newspaper at The University of Alabama in Huntsville. Published every Thursday during the fall and spring semester, this news-worthy service is available for free to the campus community. Formally known as The Exponent, the newspaper made its first online appearance in 2012 that includes updates to published stories as well as up and coming features. For more information, please visit: http://chargertimes.org/

Facilities and Services

University Housing

The University of Alabama in Huntsville offers a variety of housing facilities to meet the needs of its diverse student population. Please visit www.uah.edu/housing for the most current information for first and second year options, requirements, policies, and residence hall amenities/services. All first-year freshmen students who apply for University housing will be assigned to either the Central Campus Residence Hall (CCRH), or Frank Franz Hall (FFH). First and second year students that reside outside of 30 miles from campus will be required to reside in University Housing. Sophomores and second year residents may apply to our newest residence halls, Charger Village (CV), Frank Franz Hall (FFH), and North Campus Residence Hall (NCRH). Students who are of at least junior status or 21 years of age may apply to the North Campus Residence Hall (NCRH), or Southeast Campus Housing (SECH). CCRH, FFH, CV and NCRH all have private rooms designed for students who are physically challenged.

All suites in University Housing have basic cable television connection and a dedicated telephone line. Each bedroom has a computer hookup that provides access to UAHuntsville's mainframe and the Internet. University Housing offers wireless service throughout all of its facilities.

All residence halls are near the Salmons Library, the University Fitness Center, and classrooms for liberal arts, nursing, business administration and natural sciences. Each resident has a carpeted, private bedroom in an air-conditioned suite and most share a bath with only one other suitemate. Every bedroom has an extra-long twin bed, a wardrobe or closet, a chest of drawers, a desk and chair. Suites are furnished with a dining table and chairs, sofa, accent tables, and lounge chairs. CCRH has a mini kitchen with a small refrigerator, microwave and sink. FFH, NCRH, and CV have a mini kitchen with an apartment-size refrigerator, microwave and sink. NCRH also contains 33 studio (one-bedroom) apartments, reserved for upper-class students. Laundry facilities, a recreation/meeting room, study lounges, computer labs, and mail service are available in each residence hall. Access to all halls except SECH is by an electronic smart card.

Southeast Campus Housing (SECH) consists of a cluster of nine three-story buildings located on John Wright Drive near Madison Hall, near the University Fitness Center and most engineering and science classrooms. Private bedrooms in three-bedroom suites are available in Southeast Campus Housing for students ranking junior or above or at least 21 years of age. In addition, one-bedroom unfurnished private apartments are available for graduate students or students with spouses and/or children. Several of the one-bedroom apartments are accessible to disabled students. A sandpit volleyball court in the center of the Southeast complex and intramural fields surrounding the area provide recreational spaces for residents.

All housing facilities have a full time, live-in Resident Director and at least one Student Resident Assistant (RA) on each floor. Southeast Campus is staffed with a Resident Director and a team of RA's. RA's develop activities and programs, provide assistance to student residents, serve as liaisons to other University departments and help create a residential community that contributes to effective student learning, personal and social growth, and individual responsibility.

Any admitted student to UAHuntsville is eligible for assignment to University Housing. A Housing Application Packet is mailed to every student who applies for admission or available on line at http://www.uah.edu/housing/prospective-residents/apply. Room assignments are contingent upon confirmation of admission. Priority for assignment is based upon academic class standing (first year student, graduate student, etc.) and the date of receipt of the application and commitment fee.

All single students sign an academic year room contract (late August-early May) or 12 month contract (late August-early August), depending on location. Housing charges are due when tuition is due each academic semester. Summer housing for single students is available in Southeast Campus Housing or in NCRH under separate contract. The room contract for family and graduate student apartments is for twelve months (late August-early August) and rent installments are due at the beginning of each semester.

Current rates and additional information are all available from the Housing Office, 606-A John Wright Drive (256/824-6108) or on line at http://www.uah.edu/housing/welcome. Individual and group tours of UAHuntsville Housing may be arranged by appointment through the Admissions Office.

University Food Service

Through the delivery of an exceptional food program, the UAHuntsville community is provided with options, quality, and convenience. Finding your favorite foods on campus is a snap. We are proud to offer a dining program, complete with signature brands and menu selections that entail just about every item you can imagine. Please visit www.uah.edu/dining for available dining locations, menus, and meal plan options. The Charger Cafe is an "All You Can Eat" dining area located in the University Center. The menu program is known as Ultimate Dining and features rotating formats of food presentation: Classics, Pizzarette, The Grille, Performance Station, Soup'n Salad, Sub'n Sandwich, Vegetarian Selections, Dessertsand Beverages. A spacious dining room with an adjacent patio is available for all guests.

In addition to the Charger Cafe, the University Center also houses 'We Proudly Brew Starbucks Coffee' kiosk and Sandella's Flat Bread Deli.

A second Starbucks Coffee kiosk provides a coffee shop menu and atmosphere in the Salmon Library. This is an ideal place for early morning meetings, quick lunches, or afternoon coffee breaks. Freshly brewed gourmet coffees, teas, fresh-baked gourmet muffins and cookies, salads and sandwiches provide a variety of choices for all to enjoy.

The Tom Bevill Conference Center and Hotel is adjacent to the Central Campus Residence Hall and contains the Gardenview Cafe, a full service dining facility.

Catering is also offered in the University Center as well as other areas of campus. Dining services' hours of operation are posted near the entrance of each dining area.

The University Center

The University Center (UC) is a part of the co-curricular educational program of the University and is a focal point of the campus. Designed for the entire campus community, it offers facilities and programs to meet the intellectual, social, recreational, and cultural needs of students, faculty, staff, alumni, and the entire Huntsville community.

The UC offers meeting rooms, dinning and snack facilities, lounges, a game room, TV viewing rooms, an information desk, an art gallery, and the University Bookstore. The offices of the Dean of Students, the Student Government Association, Association for Campus Entertainment, the *Charger Times*, Records, Student Financial Services, Charger Central, Student Activities, Student Life, Student Health Services, and the Bursar are also located in the University Center.

Student Identification Cards

As your official student identification, the Charger Card gives you access to campus facilities and services and allows you to make purchases at participating locations.

Your Charger Card may be used for access to or purchases in:

- Food Service Venues
- Follett's On-Campus Bookstore
- Off-Campus Bookstore
- University Fitness Center
- Residence Halls
- Salmon Library

Student Health Services
Campus Entertainment and Athletic Events
Computer Labs and Printers
Copy and Laundry Machines

The Charger Card offers four (4) types of accounts: Meal plans, Charger Bucks, Dining Dollars and Flex. Deposits by cash, check or credit card are accepted in UAHuntsville's Cashier's Office.

Lounges

A well-lit, spacious lounge, designed as a place to relax and meet friends, is equipped with comfortable furniture in an atrium setting.

Meeting Rooms

The Center has meeting rooms designed for multipurpose functions. The rooms can accommodate meetings from 10 to 500 people. The Center has a large number of tables, chairs, portable stages and audiovisual equipment, and can assist in designing set-up to make any conference or meeting a success.

University Bookstore

Located on the lower level in the University Center, the University Bookstore is a full service college bookstore operating to meet the needs and convenience of the UAHuntsville Community. The University Bookstore provides required and supplemental textbooks, a large selection of technical and reference books, various study aids, and educationally priced software. The bookstore also buys used texts from students during the store hours year round. In addition to these services, the bookstore will special order any book in print.

In the University Bookstore, students can find UAHuntsville Campus sportswear, UAHuntsville insignia gifts, cards, imprinted notebooks, a wide variety of school supplies, calculators, and a choice of Art Carved or Josten's class rings.

University Fitness Center

The University Fitness Center (UFC) is conveniently located on the UAHuntsville campus and is open 7 days a week, over 100 hours per week. The UFC is the only fitness center in Huntsville that offers its members a wide variety of health, wellness, and fitness programs all under one roof. As a joint University and Community facility, the primary mission of the UFC is to provide opportunities for wholesome recreational activities that complement daily living and increase the quality of life of its members. The UFC is a comprehensive facility offering among other activities, swimming, jogging, weight training, basketball and aerobics. All full-time students may become members free of charge.

Computer and Network Services

UAHuntsville students have access to a variety of microcomputer laboratories on campus. Personal email accounts are automatically generated when students begin their academic careers at UAHuntsville. Students living on campus have access to the university's central system as well as to the CNS Help Desk which troubleshoots individual computer problems.

Campus Security

The mission of the UAHuntsville Department of Public Safety is to enhance the quality of learning by protecting life and property and to provide a safe environment through professional services to the UAHuntsville community. The Department of Public Safety manages campus parking services, provides 24 hour patrolling and escort service when requested.

Student Support Services

Dean of Students

Student Affairs at UAHuntsville creates opportunities for students to engage in a diverse community of learners characterized by a supportive campus environment that encourages individual growth and development. This mission is accomplished through comprehensive programs and services focused on student learning and success. Through the Dean of Students office, the interpretation and administration of the Code of Student Conduct takes place. The Code of Student Conduct protects students rights and assists students in their awareness of their obligations and responsibilities in being part of the University community.

Counseling Center

The Counseling Center, under the direction of the Dean of Students, at UAHuntsville provides specialized professional services designed to assist students in their academic, personal, and social development. Many students encounter personal difficulties that affect the course of their collegiate experience. The Counseling Center provides short-term therapy to help students cope with stress and/or learn new skills. Counseling services are available to all students currently enrolled in 3 or more credits at UAHuntsville. The staff is committed to meeting the needs of individuals from diverse backgrounds. Services are confidential and in accordance with the ethical guidelines of the American Psychological Association. Information from counseling sessions does not go on a student's academic record and is not released to any other individuals (on campus or off) without the student's written permission— except in rare situations as mandated by law. Students come in for a variety of concerns such as relationships, self-esteem, time management, anxiety, family concerns, depression, sleeping problems and stress management. See our webpage at www.UAH.edu/counseling/ for more information. To schedule an appointment, contact the Counseling Center at (256) 824-6203 or come by 136 Madison Hall.

Disability Support Services

Disability Support Services (DSS), under the direction of the Dean of Students, is committed to providing an equal educational opportunity for all qualified students with disabilities. Any student who has a documented condition that substantially limits his or her learning activities can request coordination of appropriate academic support services. DSS collaborates with students, faculty, and staff to ensure appropriate services are provided to students registered with our office.

Students must self-identify to be eligible for accommodations and other disability services on campus. The student can choose whether or not to register for services. Services are provided in accordance with federal law. To be eligible for services, students must provide documentation of the disability from an appropriate practitioner. See our webpage at www.UAH.edu/counseling/disability for more information. To schedule an appointment contact DSS through the Counseling Center at (256) 824-6203 or 136 Madison Hall.

Office of International Engagement

The Office of International Engagement (OIE) prepares students, faculty and staff for success in today's globally interconnected world through international study, research, teaching, service, and experience and through opportunities for intercultural engagement that foster strengthened awareness and understanding among people of different cultures. The purpose of OIE is to promote campus and community internationalization and to provide central administrative support for a wide-ranging network of international initiatives. Through the Office of International Student & Scholar Services, the Intensive Language & Culture Program, and the Office of International Programs, the OIE coordinates programs and services that extend the university to our local and global communities. The OIE is located in Madison Hall 137; phone 256-824-6055.

Undergraduate Minority Mentoring Program

The Office of Undergraduate Minority Student Mentoring at UAHuntsville fosters student success through personal mentoring and leadership development for underrepresented students which will increase opportunities for student engagement across the campus community. The peer mentoring relationship is designed to foster a network of support for first year students of African-American and Hispanic descent at UAHuntsville. Mentors serve as peer support personnel for these freshmen (Mentees) and share program goals and responsibilities aimed at ensuring the retention of these particular student groups. This office is located in University Center 103; phone 256-824-2775.

Multicultural Affairs

The Office of Multicultural Affairs (OMA), a division of the Office of the President and Vice President for Diversity, assists the University in providing an atmosphere that is welcoming, supportive and rewarding for students from diverse cultural backgrounds. Students are encouraged to achieve and aided in attaining academic excellence while learning to be competitive with their peers. OMA endeavors to foster an understanding and a respect for cultural diversity throughout the UAHuntsville community. Programs are designed for minority as well as non-minority students in order to promote a sense of community and acceptance of multiculturalism and racial appreciation on the UAHuntsville campus. Students may contact the Office of Multicultural Affairs in Madison Hall, Room 108, or telephone 824-6822 (oma@uah.edu).

Student Health Services

The services of the Student Health Center are available to students enrolled for the current semester. Services available include treatment of illnesses and injuries, preventive health care, lab testing, immunizations and health counseling. There is a nominal fee for an office visit with additional minimum charges for laboratory testing, immunizations, and medications. The Student Health Center is located in the University Center, room 203. The center is open Monday – through Friday 8:15 a.m. – 5:00 p.m. For more information call (256) 824-6775 or visit our website http://uah.edu/shc

Tuberculosis Screening and Immunization Requirements

Immunization Requirements

The University of Alabama in Huntsville requires all students born after 1956 to have had 2 does of measles (rubeola) vaccine. One dose must have been a Measles, Mumps, Rubella (MMR) vaccine. Students ages 30 and older may submit evidence of one dose of MMR if the dose was received after 1980. A copy of a lab report showing proof of immunity to measles (rubeola), mumps, and rubella may be submitted in lieu of the vaccine.

A meningitis vaccination within the past 5 years is required for all first time freshman and all students living in on-campus residence halls.

Tuberculosis Screening

Domestic students are required to complete a Tuberculosis Screening form. Tuberculosis testing may be required for domestic students based upon the information provided on the screening form.

International students are required to have a Tuberculosis test. The test must be administered in the United States within 12 months of the student's most recent arrival to campus. TB screening tests are administered upon your arrival to campus at the Student Health Center.

Documentation Requirements

All new students admitted to the University of Alabama in Huntsville must provide a completed Tuberculosis Screening and Immunization Requirements form which is signed by a physician or authorized individual. The physician's license number or clinic stamp must also be recorded on the form for verification purposes. New students will not be allowed to register for classes until all required documentation is received in the Student Health Center. The form and instructions for completion can be found at the Student Health Center website at www.uah.edu/shc. Forms, along with any necessary attachments, should be submitted to:

The University of Alabama in Huntsville
Student Health Center
University Center Room 203
301 Sparkman Drive
Huntsville, AL 35899
Fax 256-824-5809

Please note: The requirements noted above are for new students being admitted to University of Alabama in Huntsville. Individual colleges, e.g. College of Nursing, may have additional immunization requirements.

Reserve Officers' Training Corps (ROTC)

Our goal is to prepare graduates for positions of officer leadership with the national defense structure. Upon graduation from Army ROTC, one will earn the bar of a Second Lieutenant and become a leader. The office is located in room 200 of the University Center.

Preschool Learning Center

The preschool is provided in part by the University Preschool Parents Association to accommodate students, faculty, and staff, as well as the public. A stimulating environment is provided daily at the center, according to a fundamental philosophy that learning should be fun. In addition to cognitive development, the center focuses attention on the social, physical, and emotional development of the children enrolled. The center is staffed by professional teachers and well-qualified teacher aides, each of whom is attentive to the needs of individual students. The center has several attendance plans to accommodate the various schedules of student parents. Call (256) 837-9553 for information.

Academic Support Services

Student Success Center (SSC)

Alan Constant, Director
227 Madison Hall
ssc@uah.edu
256-824-2478

The Student Success Center (SSC) provides a variety of student-centered programs that help students to be successful in their academic and professional goals. The SSC is located in Madison Hall. To participate in any of our programs, visit our website at www.uah.edu/ssc or call 256-824-2478.

Student Success Center Programs:

Cooperative Education and Career Development

The Cooperative Education and Career Development program offers a comprehensive career development process that includes career coaching, major and career assessment, job search assistance, on and off campus recruiting, and multiple experiential learning options for students. Career coaching along with a variety of career assessment tools assist students and alumni to discover their individual abilities, interests and values, and relate these factors to relevant career choices and majors. Experiential learning options are available in all colleges and include cooperative education assignments and internships related to students' fields of study.

The Cooperative Education and Career Development program seeks to provide students and alumni with the knowledge to make informed career choices and the personal skills to reach their career objectives. Services are available for alumni and all undergraduate and graduate students. The program is located in the Student Success Center at Madison Hall Suite 111. For more information, visit our website at www.uah.edu/ssc/programs/career-development or call 256-824-6741.

Peer Assisted Study Sessions

The Peer Assisted Study Sessions (PASS) Program provides academic support for students enrolled in specifically designated 100 and 200 level classes that are considered historically difficult. Working with the faculty who teach those classes, the program hires peer leaders who have been successful in the class to re-attend the class along with currently enrolled students and then facilitate group study sessions two to three times per week. Their goal is to work with students not only on content, but also on study and learning strategies. Students can participate in PASS by registering for classes coded with a P in the schedule of classes. To find out more about the program, students can visit www.uah.edu/ssc or call 256-824-6216.

Academic Coaching and Peer Academic Coaching

The general purpose of coaching is to assist students in becoming personally responsible and independent, so they can make better choices while pursuing their academic goals. Coaches empower students to take ownership of their academic success, and they work with students on skills such as managing time, developing

effective study habits, and creating academic goals.

Freshmen and sophomores on academic warning or probation are required to meet with an academic coach each semester until they are back in good academic standing. Coaches assist students to identify areas of strength and improvement and to help students develop an individual academic success plan.

The Academic Coaching office is located in Madison Hall 118. Students can make an appointment by visiting www.uah.edu/ssc or by calling 256-824-4581.

Tutoring and Writing

The Tutoring and Writing program, located in Madison Hall 123, offers free tutoring to currently enrolled students. Tutoring is available in a variety of subjects, focusing mostly on 100 and 200 level classes. The goal of tutoring is to reinforce course content, introduce study skills, and emphasize active learning strategies.

Appointments are available Monday through Thursday from 9:00am until 7:00pm and Fridays from 9:00am until 3:00pm in Madison Hall 123. To make an appointment and/or to see a current list of subjects offered for tutoring, visit the Student Success Center website at www.uah.edu/ssc or call 256-824-3472.

Project Success

Project Success, the University's Early Alert program, provides early intervention and academic coaching to students who have been referred by an instructor as having difficulty in a particular class during the first four weeks of the semester. Instructors are encouraged to refer students who have excessive absences, incomplete homework, and fail or miss an exam. For more information or to refer a student, visit www.uah.edu/ssc or call 256-824-4581.

College Academic Support Centers

General College Academic Advisement Center

The General College Advising office offers academic advisement for students with undeclared majors, non-degree and transient students, and all students admitted conditionally regardless of major. Undeclared students are those who have not decided on a major or who are exploring different majors. Conditional students who do not meet the requirements for regular admission either as first-time freshmen or as transfers have reduced academic course loads until they complete the required number of semester hours with acceptable grade point averages. Undergraduate students admitted on a conditional basis, regardless of major, must meet with the General College advisor each semester as long as the students remain in the conditional status. Undergraduate non-degree and transient students are not required to meet with an advisor, but they may seek advising through the General College Advising office. However, non-degree and transient students may be precluded from web registration if the courses they wish to take at UAHuntsville have prerequisites. General College Advising is located in the Student Success Center in Madison Hall 229. For more information please contact Ms. Jamie Clay, the Coordinator of Academic Advising, at 256-824-6290 or clayj@uah.edu.

College of Business Administration

The Office of Academic Assistance is located in the Business Administration Building, room 102, and is directed by Ms. Bernice Pitsis-Rush (824-6024). Advisement and tutoring arrangements may be obtained through this office. Administrative Science faculty are available for assistance during scheduled office hours. Computer labs are located on the second floor of ASB in rooms 207, 214 and 215.

College of Engineering

The College of Engineering Student Affairs Office is located in the Engineering Building, room 157. Under the direction of the Associate Dean, Dr. Sherri Messimer, the office offers comprehensive advising services and coordinates tutoring when requested. Phone 824-6877 for information.

College of Liberal Arts

The Liberal Arts Academic Advisor, Mr. Frank Bell, is located in Morton Hall 220. Liberal Arts students who have not filed a Program of Study must meet with Mr. Bell

for schedule planning before registering. Call for an appointment at 824-2867 (bellf@uah.edu). The college maintains a student computer lab in the Salmon Library. In addition, there is a Foreign Language Lab in Morton Hall 300, a Sociology Library in MH 344, and a Women's Studies Resource Center in MH 254.

College of Nursing

The Office of Nursing Student Affairs is located in room 207 of the Nursing Building, and is directed by Ms. Laura Mann (824-6742, mannl@uah.edu). Nursing students should visit the office for advisement and other academic needs. The college also maintains a Learning Resource Center on the fourth floor of the Nursing Building, directed by Ms. Andrea Payne (824-6139, paynea@uah.edu).

College of Science

The Science Academic Advisor, Ms. Morgan Lewis (824-6605, lewism@uah.edu) is located in the Materials Science Building room 206C. Advising is provided for students until they declare a major, after which they are assigned to a departmental advisor. Each department in the College of Science provides its own student services, including tutoring. Information can be obtained in the departmental offices. There are, however, specialized support centers maintained by the college. They include:

Mathematics Learning Center

The Mathematics Learning Center (MLC), located on the second floor of the Salmon Library, is the center for computer assisted instruction in mathematics. MA 004 (Basic Algebra), and MA 112 (Precalculus Algebra) are taught in a computer assisted format, with a mixture of traditional lecture and individual work in the MLC. The MLC is open only to current MA 004 and MA 112 students. It opens approximately 40 hours per week and is staffed by mathematics faculty, graduate teaching assistants, and undergraduate student assistants with a math major.

Mathematics Tutoring Center

The Mathematics Tutoring Center provides tutoring in MA 107, MA 110, MA 113, MA 115, MA 120, MA 171, and MA 172. The tutoring center is conveniently located in the Shelby Center for Science and Technology where most of the mathematics courses are taught, and is staffed by graduate assistants. The hours of the tutoring center vary from semester to semester. For more information, please call the Mathematical Sciences Department at 824-6470, or visit our web site at www.math.uah.edu.

Mathematics Computer Laboratory

The Mathematics Computer Laboratory has approximately 20 computers equipped with a variety of mathematical software packages including Maple, MATLAB, and various tutorial programs. Located in the Applied Science Building, the Mathematics Computer Lab is open only to students enrolled in math courses, and a student ID is required in the Lab. It is open approximately 35 hours per week and is staffed by undergraduate student assistants. For more information, please call the Mathematical Sciences Department at 824-6470, or visit our website at http://www.math.uah.edu.

Calculus Workshop

The Calculus Workshop is provided for students in MA 171 (Calculus A), MA 172 (Calculus B), and MA 201 (Calculus C). The workshop is designed to follow the schedule of these classes, providing additional practice for current topics as well as emphasizing the connections and relationships to past topics. Students work on problems that range from basic to challenging. The methods employed are varied, from whole group and guided practice to small group and individual work. The goal of the workshop is to help improve students' understanding of calculus concepts and improve problem-solving skills. Students who have attended the workshop in the past have consistently done better in their calculus classes than students who have not attended. For more information, please call the Mathematical Sciences Department at 824-6470, or visit our web site at http://www.math.uah.edu.

Physics Success Center

The Success Center exists to provide a central location (Optics Building 200) from which students in the physical sciences can seek guidance from experienced tutoring personnel free of charge. The center is supported by Physics Department faculty and provides supplementary class materials as well as on-gong tutoring.

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- English Minor
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- Studio Art Minor
- Theatre Cognate
- Web Communications Minor
- Women's Studies Minor

Bachelor of Science in Nursing

- Nursing, BSN

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The University of Alabama in Huntsville

Faculty

Programs by Degree Type Review Link

Course Descriptions

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University of Alabama in Huntsville

Go to departments for the institution.

Graduate Studies

Business Administration

• BLS 211 - Legal Environment of Business

Hours: 3

Legal environment of business including the ethical, social, political and technological aspects of that environment.

• BLS 400 - Law, Ethics and Business

Hours: 3

An analytical review of corporate ethics addressed from a legal and business standpoint. Focus on codes of ethics, integration of integrity into corporate cultures, top management commitment to ethics, civic involvement, employer-employee relations, consumer protection, and international business.

• BLS 406 - Government Contract Law

Hours: 3

Application of the legal principles governing government contracts as developed from common law, statutes, regulations, and court and board decisions. Includes requests for proposals, negotiation, inspection, acceptance, delivery, warranties, modifications of contracts, equitable adjustment, government furnished property, and disputes. Prerequisites: BLS 211, MGT 401 or ACC 440.

• BLS 411 - Business Law for Accountants

Hours: 3

In-depth study of legal principles and problems encountered in practice by professional accountants. This course covers legal topics from a Uniform Commercial Code perspective. Prerequisites: BLS 211 and ACC 310.

Accounting, Economics, and Finance

ACC 211 - Financial Accounting

Hours: 3

An introduction to basic concepts that underlie accounting information. Topics include the income statement, the retained earnings statement, the balance sheet, the cash flow statement, the accounting cycle, internal controls, and ethical and behavioral issues in financial reporting. Emphasis is placed on the ability to understand preparation of basic financial statements in their most commonly used forms, consistent with GAAP, as well as their use in decision making.

ACC 212 - Management Accounting

Hours: 3

An introduction to the use of accounting information for internal planning and control. Topics include cost behavior, cost-volume-profit analysis, cost measurement, relevant costs for decision making, budgeting, performance evaluation, and ethical and behavioral issues related to the development and presentation of management accounting information. Personal computer and spreadsheet software are used. Prerequisites: ACC 211.

ACC 307 - Accounting Information Systems

Hours: 3

Detailed review and analysis of procedures required to capture, classify, summarize, and report financial information. Topics include elements of accounting systems, business documents, considerations in systems design, flowcharting, and procedures to protect property and information. Extensive use is made of the personal computer and the SAP software to illustrate the concepts covered in the course.

Prerequisites: ACC 212.

ACC 310 - Intermediate Financial Accounting I

Hours: 3

In-depth examination of issues concerning the measurement and reporting of income, cash flows, assets, liabilities, and owner's equity in financial statements. Topics include time value of money, current assets, fixed assets, and intangible assets. Reference is made to professional pronouncements and current literature, with attention to the financial reporting environment and rule setting process. This is the first of a two-course sequence. Prerequisites: ACC 212.

ACC 311 - Intermediate Financial Accounting II

Hours: 3

In-depth examination of issues concerning the measurement and reporting of income, cash flows, assets, liabilities, and owner's equity in financial statements. Topics include long-term debt, leases, deferred taxes, and revenue recognition. Reference is made to professional pronouncements and current literature, with attention to the financial reporting environment and rule setting process. This is the second of a two-course sequence. Prerequisites: ACC 310.

ACC 313 - Individual and Small Business Income Taxes

Hours: 3

Determination of taxable income, business and non-business deductions, and selected aspects of tax accounting for individuals and sole proprietorships. Prerequisites: ACC 211.

• ACC 413 - Corporation, Partnership, and Estate Taxes

Hours: 3

Tax accounting for partnerships, corporations, S corporations, estates, and trusts. Tax administration and research are emphasized. Prerequisites: ACC 313.

• ACC 414 - Cost Accounting

Hours: 3

Development and use of cost data for external reporting and internal planning and control. Topics include cost estimation and prediction, job costing, process costing, joint product and by-product costing, service deportment cost allocation, standard costing, activity-based costing, and transfer pricing. Development of relevant cost information for special purposes is also considered. Personal computer and spread sheet software are used. Prerequisites: ACC 212.

• ACC 415 - Advanced Financial Accounting

Hours: 3

Analysis of financial accounting issues and alternatives concerning business combinations, inter-corporate investments, international business, and partnerships. Prerequisites: ACC 311.

• ACC 417 - Accounting for State & Local Governments and Non-Profits

Hours: 3

Fund accounting at federal, state and local governments, hospitals and universities. Special accounting principles, budgeting, accounting for various funds and account groups, are emphasized. Prerequisites: ACC 212.

• ACC 420 - State and Local Taxation

Hours: 3

Principles of state income tax, sales and other excise taxes and property tax. Taxation of interstate commerce will be examined along with US constitutional restrictions on the ability of states to tax interstate commerce.

• ACC 431 - Principles of Auditing

Hours: 3.

Conceptual foundations of auditing practice. Basic auditing concepts including risk assessment, materiality, audit evidence, and audit reports are covered. Additional topics include auditing standards, professional ethics, auditor independence, and the role of auditing in society. Prerequisites: ACC 307 and ACC 311.

• ACC 432 - Advanced Auditing

Hours: 3.

Practical application of auditing concepts and standards. An understanding of auditing principles is reinforced and expanded by exposure to problems and cases. Prerequisites: ACC 431.

• ACC 433 - Forensic Accounting

Hours: 3.

Study of the nature and types of fraud. The course covers the tools and techniques used to prevent, investigate, and detect fraud. Prerequisites: ACC 431.

• ACC 440 - Basic Governmental Contract Accounting

Hours: 3

Basic coverage and principles of government contract accounting with an emphasis on the Federal Acquisition Regulation (FAR). Prerequisites: ACC 414.

• ACC 441 - Advanced Government Contract Accounting

Hours: 3

Advanced issues in government contract cost accounting with an emphasis on the Federal Acquisition Regulation (FAR) and Cost Accounting Standards (CAS) cost allocation guidelines. Prerequisites: ACC 440.

• ACC 470 - Seminar in Contemporary Accounting Issues

Hours: 3

Current topics in professional accounting. Prerequisites: ACC 311 and permission of Instructor.

• ACC 480 - Professional Certification

Hours: 3

Provides a thorough and complete examination and review of each of the four areas of the Accounting Standards and Procedures (Regulation, Business Environment and Concepts, Financial Accounting and Reporting, Auditing and Attestation). A thorough knowledge of the diverse set of concepts covered in each of the areas is required for professional accounting certification as well as success as a practicing accountant. Prerequisites: Permission of the department chair.

• ACC 490 - Special Projects

Hours: 3

Independent study in an area of interest to the student in the fields of accounting. (See requirements for upper division

standing). Prerequisites: Senior standing and approval of the department chair.

ACC 495 - Internship in Accounting

Hours: 3

Active involvement in a project in a business enterprise, professional organization, or government agency that has particular interest and relevance to the student. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. Prerequisites: Senior standing and approval of the department chair, and subject to the College's guidelines on internships.

ECN 142 - Principles of Macroeconomics

Hours: 3

Reviews basics of individual market functions, then moves to the measurement of aggregate economic activity, models the determination of national income, and structures policy alternatives and their implications. Explains reasons for measurement of aggregate economic activity and presents measurements of output and income in nominal and real terms. Problems associated with achieving and maintaining macroeconomic stability are discussed. The aggregate expenditure model of output determination is presented and its application to fiscal policy demonstrated. Topics include structure and function of commercial banking, functions of money and mechanics of money creation, monetary policy options and their implications. Alternative macroeconomic models are presented and critiqued. The open economy model and its implications for the effectiveness of domestic fiscal and monetary policy is incorporated. Prerequisites: MA 004.

ECN 143 - Principles of Microeconomics

Hours: 3

Comprehensive coverage of individual market functioning, beginning with scarcity and the economizing problem, supply and demand are defined, and their non-price determinants presented along with obtainment of equilibrium price and quantity. The concept of elasticity is introduced and its measurement and interpretation in a variety of applications is demonstrated. Theories underlying demand and supply, utility maximization, and the production-cost relationship are developed. The firm's profit maximizing behavior is analyzed and applied to various demand conditions, market structures. Market functioning for each classification of resource is presented along with their implications for income distribution. Functioning of international markets and resulting exchange rate determination. Prerequisites: MA 004.

ECN 340 - Macroeconomic Analysis

Hours: 3

Comprehensive study of the nation's economic system. Interdependent market processes in determining income, consumption, saving, investment, interest, employment, and the aggregate price level. Economic growth as influenced by institutional structure, technological change, business management, and government monetary and fiscal policy. Prerequisites: ECN 142 and ECN 143.

ECN 345 - Microeconomic Analysis

Hours: 3

The purpose of this course is to provide students with an informed perspective of, and ability to use, microeconomic theory. Working through formal non-strategic and strategic decision-making exercises develops the analytical tools necessary to solve business and non-business decision problems. The logical foundations of the analytical tools are emphasized. Core topics

include consumer behavior, production, exchange and markets, and using game theory to solve strategic decision problems. Prerequisites: ECN 142 and ECN 143.

• ECN 352 - Money and Banking

Hours: 3

Organization, operation, and economic significance of monetary and banking systems. Fractional reserve banking systems, money creation, the Federal Reserve System, U.S. financial intermediaries. Introduction to monetary theory and international finance. Prerequisites: ECN 142 and ECN 143.

• ECN 406 - Sports Economics

Hours: 3

The economic analysis of sports as an industry. The course will focus on the application of economic analytical tools to the study of sports market outcomes, markets for talent in sports, labor relations, and government involvement in the outcomes of sports markets. Specific topics will include: the demand for sports; sports franchises and the theory of the firm; demand, supply, and compensation of player talent; economics of stadiums and sports television. . Prerequisites: ECN 143.

• ECN 411 - Economics of Information Technology

Hours: 3.

This course explores the economic theory underlying consumer and firm behavior and strategy in the information technology industry with an emphasis on developing formal tools of analysis and applying them to real-world examples. Core topics include cost structures, non-competitive markets, network effects, and using game theory to solve strategic decision problems.

Prerequisites: MTH 120, ECN 143

• ECN 445 - Games and Networks

Hours: 3.

An introduction to game theory and economic- and social network analysis. Students will explore the use of simple games to understand serious games– strategic interactions–especially in social network settings. Prerequisites: (ECN 143 or equivalent) or permission of the instructor.

• ECN 454 - International Economics

Hours: 3

Behavior of foreign-exchange rates under different monetary standards, methods of financing international trade, historical development of international financial institutions, current and proposed methods for fostering international trade, and problems of international liquidity. Prerequisites: FIN 301.

• ECN 470 - Seminar in Economics

Hours: 3

Extensive readings and reports reflecting current developments and trends in economic theory and its application to the decision-making process in business and government. Prerequisites: Permission of the department chair.

ECN 475 - Economics of Labor Markets and Human Resources

Hours: 3

Economic analysis of labor markets and institutions. Focus is primarily on understanding two general types of choices: (1) labor market choices of individuals which have implications for human resource management; and (2) choices made by organizations in the management of human resources and implications of those choices for employee behavior. Topics include individual decisions to supply labor, compensating wage differentials, human capital investments, discrimination in labor markets, pay and productivity, collective bargaining and strikes. Prerequisites: ECN 143.

ECN 480 - Introduction to Econometrics

Hours: 3.

An introduction to the quantitative measurement and analysis of actual economic and business phenomena. Prerequisites: MSC 288, ECN 340 and ECN 345.

ECN 481 - Research Practicum

Hours: 3.

The economics research practicum is designed to give undergraduate students research experience. Students team with a faculty member who mentors them through a research project. Prerequisites: ECN 340 and ECN 345.

ECN 490 - Special Projects

Hours: 3

Faculty guided independent study in an area of interest to the student and faculty member. Prerequisites: Senior standing and approval of Department Chair.

ECN 499 - Agent-based Computational Economics

Hours: 3.

Computational Economics introduces students to complex dynamic economic systems. Agent-based computational economics builds systems piece by piece-individual economic agents are constructed and placed in a virtual environment. This creates a virtual laboratory for economic experimentation. Prerequisites: ECN 340 and ECN 345.

FIN 100 - Personal Financial Planning

Hours: 3

An introduction to the study of personal money management. Topics include budgeting, home ownership, insurance, investments and retirement benefits. Not open for credit as a finance major.

FIN 301 - Principles of Finance

Hours: 3

In-depth study of the basic principles of modern finance: financial statement analysis, time value of money, security valuation, risk and return, project investment, cost of capital, and international finance. Prerequisites: ECN 143, MSC 287, ACC 212.

FIN 352 - Money and Banking

Hours: 3

Organization, operation, and economic significance of monetary and banking systems. Fractional reserve banking systems, money creation, the Federal Reserve System, U.S. financial intermediaries. Introduction to monetary theory and international finance. Prerequisites: ECN 143.

FIN 370 - Commercial Bank Management

Hours: 3

A study of the financial management of commercial banks emphasizing both current events and principles of sound management. Topics range from measuring bank performance, asset and liability management, risk management, and international banking.

FIN 375 - Financial Institutions

Hours: 3

Role and activities of financial intermediaries as they affect flow of funds and capital formation, money markets, and capital markets in which these institutions operate.

FIN 378 - Intermediate Corporate Finance

Hours: 3

Financial theory as it relates to long-term and short-term financial planning, capital investment decisions, and capital structure policy decisions. Prerequisites: FIN 301.

FIN 400 - Investment Practicum

Hours: 4.

Small number of students work closely with finance faculty in the UAHuntsville. Capital Management Group (CMG) to manage actual investment portfolios. Emphasis is placed on individual stock selection and management of the portfolio to meet objectives. Prerequisites: FIN 460.

FIN 410 - Financial Issues in Entrepreneurship

Hours: 3

Financial concepts and applications for entrepreneurs. Primarily focuses on the financial issues faced by start-up firms: financial statements, forecasting, managing financial resources, sources of funding, and exit strategies. Cross Listed FIN 510.

• FIN 431 - Advanced Corporate Finance

Hours: 3

The purpose of the course is to apply advanced corporate finance theories to solve practical corporate finance problems. Prerequisites: FIN 378.

• FIN 454 - International Finance

Hours: 3

An introduction to international finance for tomorrow's global business leaders, with a focus on the financial management dimensions of leading a multinational enterprise. Prerequisites: FIN 301.

• FIN 460 - Investments

Hours: 3

A study of standard investment securities, as well as an overall view of the investment decision process. The investment securities covered include equities, fixed income, options, futures, and mutual funds. Associated topics include financial markets, risk and return, valuation models, and fundamental portfolio theory. Prerequisites: FIN 301.

• FIN 461 - Portfolio Management

Hours: 3

A continuation of FIN 460 (Investments) with an emphasis on the application of investment portfolio management. An understanding of the functional areas of portfolio management is stressed, including investment policy, investment strategy, portfolio construction, performance evaluation, and portfolio protection. Prerequisites: FIN 460.

• FIN 490 - Special Projects

Hours: 3

Independent study in an area of interest to the student in the field of finance. Prerequisites: Senior standing and approval of department chair.

• FIN 495 - Internship in Finance

Hours: 1, 2, or 3

Active involvement in a project in a business enterprise, professional organization or in a government agency that has particular interest and relevance to the student. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis.

Management, Marketing, and Information Systems

• IS 101 - Introduction to Microcomputing

Hours: 1

Introduction to the use of microcomputing hardware and software with an emphasis on microcomputer operating systems and Windows.

• IS 102 - Spreadsheet Applications

Hours: 1

Introduction to the use of MS-Windows spreadsheet software to create and manage spreadsheets and graphics (bar, line, and pie charts) and to the application of spreadsheets for data analysis. Prerequisites: IS 101.

• IS 103 - Spreadsheet Applications II

Hours: 1

Application of MS-Windows spreadsheets in advanced data analysis, graphical presentations, fundamentals of spreadsheet databases and macros, and the incorporation of spreadsheet data into other computer applications. Prerequisites: IS 102.

• IS 104 - Word-processing I

Introduction to MS-Windows based word-processing for creating, editing, and printing documents; font types and sizes; page formatting; spell and grammar checking. Prerequisites: IS 101.

• IS 105 - Word-processing II

Hours: 1

Advanced word-processing techniques such as tables, graphical figures, equations, headers, footers, editing multiple documents, mail merge, and integration of word-processing with other computer applications. Prerequisites: IS 104.

• IS 106 - Presentation Graphics

Hours: 1

Introduction to the fundamentals of MS-Windows presentation graphics with emphasis on freeform art, shapes, text, and animation. Integration of graphics, data and text to develop slide shows. Prerequisites: IS 101.

• IS 108 - Database Applications

Hours: 1

Introduction to MS-Windows database application software with emphasis on creating and managing simple databases, querying and modifying records, and report generation. Prerequisites: IS 101.

• IS 110 - Introduction to the Internet

Hours: 1

Introduction to the Internet, the World Wide Web, and e-mail with emphasis on browsing, searching, and remote computer access. Prerequisites: IS 101. Same as CS 110.

• IS 112 - Introduction to PC UNIX

Hours: 1

Introduction to a PC-based UNIX (Linux) operating system, commands, file management, networking, and e-mail. Prerequisites: IS 101. Same as CS 112.

• IS 114 - Web Publishing Using HTML

Hours: 1

Hands-on instruction in HyperText Markup Language (HTML) and its application to web page creation and publication. Students will learn how to develop and publish their own home pages. Prerequisites: Knowledge of UNIX and Internet such as obtained in CS/IS 110, 112. Same as CS 114.

• IS 146 - Computer Applications in Business

Hours: 3

Overall structure of computer problem solving and method of constructing computer solutions in a business environment. Overview of hardware/software systems. Data and information processing in organizations and other computer uses in management. Usage of business software packages such as Windows, word processing, spreadsheets, presentation graphics, and databases. Applications and examples will generally be from administrative areas.

• IS 210 - Introduction to Computer Programming in Business

Hours: 3

Fundamentals of structured design and programming using a procedural language. Table handling and hierarchical data structure. Prerequisites: IS 146 or CS 108, or approval of instructor.

• IS 301 - Information Systems in Organizations

Hours: 3.

Understanding the role of information systems in organizations and how they relate to organizational objectives and organizational structure. Introduces information system applications and the SAP software to illustrate the concepts covered in this course. Prerequisites: IS 146.

IS 310 - Advanced Computer Programming in Business

Hours: 3

Advanced business language features, control language and file handling (sequential, random and indexed sequential), program structure documentation, and maintenance. Course project in development and documentation of significant business application. Prerequisites: IS 210.

IS 340 - Databases for Management

Hours: 3.

Management of data resources to effectively support the information systems of organizations. Concepts supported by use of current DBMS software on mainframe and/or PC. Prerequisites: IS 301.

IS 350 - Advanced Data Bases for Management

Hours: 3

In-depth investigation of data modeling, system development, and data administration in a data base environment. Course project in development and documentation of significant business applications. Prerequisites: IS 310 and IS 340.

IS 400 - Business Intelligent Systems

Hours: 3.

Business Intelligence (BI) explores data to obtain and identify patterns, relationships and trends to help make decisions. The course will provide a basic understanding of the concepts and technologies required to design BI solutions for organizations such as interactive reporting tools, data warehouses, data mining and knowledge management. In this course we will use SAP BI Suite, major enterprise software for Business Intelligence, analytical, reporting and Data Warehousing solutions.

Prerequisites: IS 301.

IS 401 - Introduction to Information Assurance

Hours: 3.

This course provides a managerial and technical overview of the concepts of information security. Students will be introduced to the complexity of the security issues facing today's networking organizations. Practices and standards will be presented to assess and plan for risks and the security needs to minimize the risks both technically and managerially. Prerequisites: IS 301.

IS 416 - Supply Chain Management and E-Business

Hours: 3.

Development and management of effective supply chain especially in the e-business environment including the cutting-edge tools and techniques of supply chain management, distribution and logistics network analysis, effective inventory control, value of integration, partnering with suppliers and customers to reduce costs and increase service levels. Integration of the supply chain

components in a global context are emphasized using emerging information technologies and SAP SCM software suite.

Prerequisites: IS 301 and MSC 385.

• IS 420 - Web Portals and Applications

Hours: 3

This course bridges the boundary between consumer use of web applications and the ability of enterprises to derive value from web technologies and platforms by developing portals that integrate disparate organizational silos and databases. The course explores concepts in digital content and communication, technology infrastructure and social media. Utilization of SAP tools to develop a enterprise portal front end to organizations' back-end business systems. Prerequisites: IS 301.

• IS 422 - Supply Chain Management Systems

Hours: 3.

This course presents the main concepts of supply chain management systems and software including ERP, CRM, and SCM systems as well as the underlying technologies and managerial implications. It provides hands on familiarity with SAP supply chain modules.

Prerequisites: IS 301.

• IS 440 - Web Programming and Database Integration

Hours: 3

Explores the use of scripting languages, such as Java Script, Active X controls, and Java Applets in web site development. Examines the use of relational databases to create dynamic web sites. Extensive exposure in lecture and lab to web-based application development tools. Students will develop a full-featured web-based business application that is inter-active and requires database integration. Prerequisites: IS 420.

• IS 460 - Telecommunications and Networking

Hours: 3

Overview of geographically distributed computer-communications facilities. Network design, structure and optimization are addressed. Regulated common carriers, data transmission, routine techniques, reliability, protocols, error detection, modems and controllers are included. Prerequisites: IS 301.

• IS 463 - Computer Forensics

Hours: 3

Provides an introduction to the area of computer forensics. Examines the problems and concerns related to computer investigations. Blends traditional investigation methods with classic systems-analysis problem solving techniques and applies them to computing investigations. Prerequisites: IS 401.

• IS 465 - Web Server and Internet Telecommunications Technology

Hours: 3

Examines the Internet telecommunications technologies required to implement, manage, and maintain an organization's web site. Topics include TCP/IP, IP addressing, subnet masks, routers, configuration and maintenance of web and DNS servers, and security issues. Prerequisites: IS 301.

• IS 470 - Management of the Microcomputer Environment

Hours: 3

Examines management issues, such as hardware and operating system selection, associated with operating in a distributed computing business environment. Emphasis is on micro computers using the Intel architecture and their operating systems. The course is designed for end user managers or professionals who need to understand hardware and software and their implications without necessarily wanting to build or maintain microcomputers. Prerequisites: IS 301.

• IS 477 - Network Defense and Operating Systems

Hours: 3

Provides an introduction to the area of network security. Addresses security issues and practical applications related to network Address translation, packet filtering, proxy servers and firewalls, and Virtual Private Networks. This course assumes familiarity with Internet and basic networking concepts such as TCP/IP, gateways, routers, and Ethernet. Prerequisites: IS 401 and IS 460.

• IS 480 - Current Topics in Management Information Systems

Hours: 3

Selected topics in management information systems. Topics will reflect the contemporary issues and current technological advancements which impact the development, implementation and management of effective information systems in organizations. Prerequisites: IS 301.

• IS 490 - Special Projects

Hours: 3

Independent study in an area of interest to the student in the field of management information systems. (See requirements for upper division standing). Prerequisites: Senior standing and approval of department chair.

• IS 495 - Internship in Information Systems

Hours: 1, 2, or 3

Active involvement in a project in a business enterprise, professional organization or in a government agency that has particular interest and relevance to the student. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. (See requirements for upper division standing). Prerequisites: Senior standing and approval of department chair, and subject to College's guidelines on internships.

• IS 497 - Information Systems Design and Implementation

Hours: 3

Advanced coverage of the strategies and techniques of structured systems development. Emphasizes information analysis and the logical specifications of the system. Students prepare exercises and case studies to develop proficiency in information analysis techniques. Integrates computer technology, systems analysis, systems design, and organizational behavior in designing large-scale application or decision support systems. Prerequisites: IS 310 and 340.

• IS 499 - Systems Development Project

Hours: 3

Capstone course emphasizing the development of a computer application via the life cycle methodology. Semester projects will produce current system specifications, devise logical system design, develop a physical design for a new design and implement the design to the extent possible. Prerequisites: IS 497.

• MGT 100 - Introduction to Business

Hours: 3

Career options for students interested in business are stressed. Fundamentals of business organizations, effective management and the functions of business are explored.

• MGT 101 - Introduction to Entrepreneurship

Hours: 3

Introduction to the startup of a new business and the entrepreneurial career. Focuses on elementary concepts of planning, financing, developing, and managing a new business.

• MGT 301 - Managing Organizations

Hours: 3

Introduction to management theory, roles, functions, and processes that are fundamental to the successful operation of various types of public and private organizations. The course includes modules providing overviews of the following topics: managerial roles and functions, the strategic management process, organizational structure, organizational theory and behavior, and the human resource management function.

• MGT 320 - Career Development

Hours: 3

The purpose of the course is to address students' career development and management. Career development theory will provide a foundation for career decisions in a highly participative environment. By actively engaging in career development processes, students will learn how, as managers, they can assist employees with their career development. Students will examine their career goals, personality preferences, interests, skills and values in order to formulate a career development profile and a concrete action plan. Students will apply career development theory to their own career goals. (See requirements for upper division standing).

MGT 361 - Organizational Behavior

Hours: 3

Behavioral science approach to the study of individual performance. Performance evaluation, job design, employee turnover, organizational culture, communication process, work motivation, leadership, group dynamics, and organizational development. Prerequisites: MGT 301.

MGT 362 - Management and Labor Relations

Hours: 3

Examination of theory, institutions, and practice of union-management relations. Topics include environmental context of labor relations, the organizing process, the collective bargaining contract negotiation process, the administration of the collective bargaining contract, union effects on organizations and society, and comparisons of the U.S. labor relations system with labor relations systems in other countries.

MGT 363 - Human Resource and Labor Relations Management

Hours: 3

This course will provide an overview of the human resource management (HRM) function, including strategic HRM, staffing, training and development, compensation, employee and labor relations; and will provide in-depth study of strategic HRM. Prerequisites: MGT 301.

MGT 401 - Introduction to Contract Management

Hours: 3

General survey in contracting basics, covering procedures as described by Federal Acquisition Regulations, statutes, ethics, policies, and other pertinent authorities.

MGT 402 - Contract Evaluation and Award

Hours: 3

This course introduces the student to topics related to the evaluation, award, and post award portions of the contracting process. Elements of evaluation related to competitive acquisitions and past performance evaluation are reviewed. Steps related to the proposal receipt process such as contractor responsibility. debarred/suspended, and certificate of competency are covered. The award process is also covered by a discussion of processes such as legal review, clearance, 1279 Report, notification to the unsuccessful offeror, and preparation of award. Post award topics such as contract administration functions, contract closeout, contract modifications, remedies, claims disputes, and request for equitable adjustments are covered. Prerequisites: MGT 401.

MGT 403 - Contract Pricing and Cost Analysis

Hours: 3

Techniques for cost estimating, cost analysis, and price analysis. Sources of data, statutory requirements, rates, factors, and definitions, projection methods, factors affecting profit or fee, weighted guidelines technique, application of statistical analysis including regression analysis, and learning curve theory. Prerequisites: FIN 301, MGT 401 or ACC 440.

MGT 404 - Negotiation Techniques

Hours: 3

Develops principles, skills, and techniques for effective negotiation and conflict resolution. Describes common mistakes in negotiation and provides a framework to prepare students for business or personal negotiation sessions. (See requirements for upper division standing). Prerequisites: Senior standing.

MGT 405 - New Venture Strategies

Hours: 3

Theory and application of both marketing and management strategies for start-up, operation, and control of new ventures. Role of entrepreneurship in the economy. Prerequisites: MGT 301 and MKT 301.

MGT 408 - Teamwork and Team Processes

Hours: 3.

This course provides an introduction to teams and teamwork processes.The foundaiton of the course is research-based; topics will be approached from the content of empirical research that has been conducted. The types of research designs that are typically used in team research are addressed. There are hands-on activities, so that students can put the theoretical material into context and into practice. This course is ideal for students who plan to work in business settings or in team-oriented fields (e.g., engineering, the military), or become involved in human resources or team training. Prerequisites: Junior standing.

MGT 410 - Leadership, Personal Development and Organizations

Hours: 3

The focus of this course is on the in-depth self-examination of skills, ability, personality, attitudes, values and behavior to increase self-awareness of leadership competencies. Students will also examine theories of leadership to develop insights for their personalized leadership development.

MGT 411 - Supply Chain Management

Hours: 3

A study of problems and practices of operations and materials management. Topics include: materials acquisitions, inventory systems, demand management, aggregate planning, materials logistics systems and current topics. Prerequisites: MSC 287.

MGT 440 - Small Business Counseling

Hours: 3

Practical exposure to problems and opportunities of small business firms. Serve as a consultant to assist local business managers with identification of problems and formulation of alternative solutions, as well as identification of areas of market opportunity. Experience gained under the supervision of the Director of the Small Business Development Center.

MGT 450 - International Business

Hours: 3

This course combines theoretical and political aspects of doing business in the global market. It addresses the complex environment of international business and the need to investigate its various economic, social, political, cultural and legal dimensions from conceptual, methodological and applications' perspectives. It then considers how these environmental factors would affect, and can be integrated into, business programs and strategies. Prerequisites: MGT 301, MKT 301, FIN 301.

MGT 460 - Employee Staffing and Development

Hours: 3

Study of the fundamental concepts, issues and tools of employee staffing and development. Topics include forecasting staffing needs, recruitment strategies, development and validation of selection procedures, placement, socialization and development of employees, and the utilization of contingent workers.

MGT 461 - Strategic Compensation Management

Hours: 3

Introduction to management of employees' compensation. Overview of compensation practices, behavioral and economic theories of compensation, and research on compensation programs.

MGT 462 - Employment Law for Managers

Hours: 3

Analysis of the impact of government regulation on the management of human resources. Examines the implications for employer responsibilities and employee rights of evolving public policies pertaining to separations, discrimination, compensation, occupational safety and health, privacy, union-management relations, and other terms of employment.

MGT 470 - Special Topics in Management

Hours: 3

In-depth study of a selected special topic relevant to contemporary management. Different sections of this course may address different topics. (See requirements for upper division standing). Prerequisites: Senior standing.

MGT 490 - Special Projects

Hours: 3

Active involvement in an on-going project in a business enterprise that has particular interest and relevance to the student, or an in-depth investigation of contemporary management problems. (See requirements for upper division standing). Prerequisites: Senior standing and approval of department chair.

MGT 495 - Internship in Management

Hours: 1, 2, or 3

Under the direction of a faculty advisor, experience is gained with an entrepreneur in a small business firm or a manager in a large firm. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. (See requirements for upper division standing).

MGT 499 - Competitive Strategy

Hours: 3

Strategic decision-making with an emphasis on analyzing complex business situations. The course involves the study of the formulation and implementation of business and corporate level strategies with emphasis on defining the mission; setting goals and objectives; analyzing current operating conditions, the general and industry environment and setting a unified strategic direction. This course should be taken with 12 or fewer semester hours. Students must obtain a grade of C or higher. Prerequisites: FIN 301, MGT 301, IS 301 or MIS 301, MKT 301, MSC 385 and EH 300.

MKT 301 - Principles of Marketing

Hours: 3

Integration and study of functional commodity, and institutional approaches from view point of consumer and marketing manager.

MKT 315 - Sales Management and Professional Selling

Hours: 3

Integration of techniques and concepts of professional selling with problems of sales management. Objectives and policies for sales managers concerning managing sales force and methods of marketing analysis in terms of sales forecasts and budgeting. Problems faced by sales management in competition, pricing, and promotions.

Prerequisites: MKT 301.

MKT 316 - Retailing Policy and Management

Hours: 3

Policies, practices, and problem solutions in efficient operation of chain and independent retail stores. Store location, organizational layout, merchandise planning and control, buying, pricing, and promotion. (See requirements for upper division standing). Prerequisites: MKT 301.

MKT 325 - Legal and Ethical Issues of Marketing on the Internet

Hours: 3

Discussion of legal issues and ethical issues associated with e-commerce and business uses of the internet. Topics include privacy issues, security, intellectual property, and internet content licensing.

MKT 332 - Buyer Behavior

Hours: 3

Interdisciplinary and organizational approach to analyze and interpret consumer buying habits and motives and the resultant purchases of goods and services. Purchaser's psychological, economic, and socio-cultural actions and reactions as they relate to better understanding of consumption. Prerequisites: MKT 301.

MKT 342 - Promotional Strategy

Hours: 3

Promotional techniques available to marketing management. Consumer behavior and communication process by which products can be effectively promoted. Specific tools of personal selling, advertising, sales promotion, and publicity as components of overall promotional strategy. Prerequisites: MKT 301.

MKT 343 - Marketing Research Design

Hours: 3

Introduction to the principles and purposes of marketing research; relationship to other marketing functions and marketing information systems, data sources, review of research methodologies and ethical considerations. Prerequisites: MKT 301, MSC 287, MSC 288.

MKT 344 - Marketing Research Applications

Hours: 3

Application of the principles and purposes of marketing research; laboratory, field and historical research methodologies, experimental design, sampling procedures, questionnaire design, and data analysis. (See requirements for upper division standing). Prerequisites: MSC 287, MKT 301, 343.

MKT 345 - Market Channel Structure and Strategy

Hours: 3

Marketing channels as a functional area and the alternative choices available to marketing management in developing overall marketing strategy. Institutional structures and dynamic interrelationships in distribution logistics. (See requirements for upper division standing). Prerequisites: MKT 301.

MKT 400 - Strategic Issues in Logistics

Hours: 3

The course introduces students to practical logistical challenges and planning issues that are important in reconciling and rationalizing both strategic and tactical problems. (See requirements for upper division standing). Prerequisites: MKT 301 and senior standing.

MKT 405 - New Venture Strategies

Hours: 3

Theory and application of both marketing and management strategies for start up, operation and control of new ventures. The course also discusses the role of entrepreneurship in the economy. (See requirements for upper division standing). Prerequisites: MGT 301, MKT 301, and senior standing.

MKT 414 - Marketing Emerging Technologies

Hours: 3

Comprehensive review of the new product development and marketing process. Emphasizes actual case examples showing how companies develop and market radically new products. Prerequisites: MKT 301.

MKT 415 - International Marketing

Hours: 3

Procedures and problems associated with establishing and carrying out marketing operations in or with foreign companies. Institutions, principles, and methods involved in solving these business problems. Effect of national differences in business practices and regulation. Prerequisites: MKT 301.

MKT 420 - Services Marketing

Hours: 3

The course focuses on the unique challenges of managing services and delivering quality service to customers. The course is equally applicable to organizations whose core product is services (e.g., banks, hospitals, aerospace and defense firms, non-profit organizations) and to organizations that depend on service excellence and services for competitive advantage (high technology firms, industrial products). Prerequisites: MKT 301.

MKT 465 - New Venture Challenge

Hours: 3.

It is the intent of this course to create teams of students who will take a technology to the next level with the potential for the creation of a venture team. This course will take students through the process of conceiving and creating a new business. The goal is to provide a solid background with practical application of important concepts for non-business majors or business majors with limited or no experience in an entrepreneurial environment. Finance, accounting, marketing and management will be addressed from a hands-on, entrepreneurial perspective. The course will rely on Podcast discussion, participation, case analysis, and the creation of a business plan. Prerequisites: MGT 405, MKT 414, FIN 301 or FIN 410.

MKT 470 - Marketing in an Electronic Environment

Hours: 3

This course focuses on the strategic implications of electronic commerce for both the consumer and business-to-business marketplace. Through a combination of lecture, readings, and application exercises the impact of the Internet and related technological developments are explored in relation to their effect on the firm's marketing activities. Topics for discussion include: advertising and selling on the Internet, the use of web sites to provide service and support to customers, supply chain management in the digital world, and data mining.

MKT 475 - Advanced Marketing Seminar

Hours: 3

Investigation of advanced marketing topics that are relevant to contemporary marketing practices. The course will focus on current issues related to marketing in a high technology environment, relationship marketing, channel design and strategy, transportation, and logistics. (See requirements for upper division standing). Prerequisites: MKT 301 and senior standing.

MKT 480 - Marketing Management

Hours: 3

Management of marketing function of the firm; determination of objectives, organization and controls for effective utilization of marketing resources in coordinated effort with other functional areas. Identification and selection of market opportunities. Competitive strategies and development of marketing policies and programs. Prerequisites: MSC 288, MKT 332, and MKT 343.

MKT 490 - Special Projects

Hours: 1, 2, or 3.

Independent study in an area of interest to the student in the field of marketing.

MKT 495 - Internship in Marketing

Hours: 1, 2, or 3

Active involvement in a project in a business enterprise, professional organization or in government agency that has particular interest and relevance to the student. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. (See requirements for upper division standing). Prerequisites: Senior standing, approval of department chair, and subject to College's guidelines on internships.

MKT 496 - Internship in E-Business

Hours: 1, 2, or 3

Active involvement in an e-business project in a business enterprise, professional organization, or in a government agency that is of particular interest and relevance to the student. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. (See requirements for upper division standing). Prerequisites: Senior standing, approval of the department chair, and subject to the college's guidelines on internships.

MSC 287 - Business Statistics I

Hours: 3

Introduction to the concepts of probability and business statistics. Topics include: tabular, graphical, and numerical methods for descriptive statistics; measures of central tendency, dispersion, and association for sets of data; probability; discrete and continuous probability distributions; sampling and sampling distributions; an introduction to confidence intervals. The solution of problems using spreadsheets is integral and mandatory for this course. Prerequisites: MA 107, 112, 113, 115, 120, or 171.

MSC 288 - Business Statistics II

Hours: 3

Inferential statistics for business decisions. Topics include: review of sampling distributions and interval estimation; inferences about means, proportions, and variances with one and two populations; goodness of fit tests; analysis of variance and experimental design; linear regression analysis. Prerequisites: MSC 287.

MSC 385 - Operations Analysis

Hours: 3

Survey of the concepts, processes, and institutions involved with the production function of the firm, and of the basic quantitative tools used to solve production problems. Topics include quality management, learning curves, assembly lines, linear programming, waiting lines, inventory, and others selected from operations scheduling, project management, facilities location, layout, supply chain management. Concepts are illustrated using the SAP software.

Prerequisites: MSC 288.

MSC 410 - Transportation and Logistics

Hours: 3.

An analysis of transportation and logistical services to include customer service, distribution operations, purchasing, order processing, facility design and operations, carrier selection, transportation costing, and negotiation. Prerequisites: MKT 301.

MSC 413 - Contemporary Topics in Supply Chain Management

Hours: 3

The investigation of contemporary topics in supply chain management to include emerging production and supply chain innovations, lean supply chains, supply chain technology, global supply chains, trends in outsourcing, DOD supply chains, and performance based logistics. (See requirements for upper division standing). Prerequisites: MKT 410 and MGT 411.

MSC 470 - Special Topics in Management Science

Hours: 3

In depth study of a selected topic relevant to contemporary management science. Different sections of this course may address different topics. (See requirements for upper division standing).

MSC 490 - Special Projects

Hours: 3

Independent study in an area of interest to the student in the field of management science. (See requirements for upper division standing). Prerequisites: Senior standing and approval of department chair.

MSC 495 - Internship in Management Science

Hours: 1, 2, or 3

Active involvement in a project in a business enterprise, professional organization or in a government agency that has particular interest and relevance to the student. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. Prerequisites: Senior standing and approval of department chair, and subject to College's guidelines on internships.

Engineering

ENG 100 - Introduction to Engineering

Hours: 1

Introduction to a variety of engineering disciplines. Included are lectures, laboratory experiments, and hands on activities in civil engineering, chemical engineering, electrical engineering, computer engineering, Optical engineering, industrial engineering, mechanical engineering, or aerospace engineering. Open only to students enrolled in the UAHuntsville Engineering Summer Camp. Prerequisites: Admission to the UAHuntsville Engineering Summer Camp.

Chemical and Materials Engineering

CHE 197 - Introduction to Chemical Engineering Processes

Hours: 2.

Principles of chemical processes and analysis with spreadsheets and graphics. Apply chemical engineering to current technology developments. Corequisite: MA 112 or placement in MA 113 or higher.

CHE 198 - Introduction to Chemical Engineering Processes 2

Hours: 2

Principles of chemical processes and analysis with spreadsheets and graphics. Apply chemical engineering to current technology developments including Chemcad software.
Corequisite: MA 112 or placement in MA 113 or higher.

CHE 244 - Introduction to Chemical Engineering Systems

Hours: 3

Introduction to basic analysis of chemical engineering systems, emphasizing material balances on physical and chemical process systems. Analysis includes single-component and multi-component systems, single-phase and multi-phase systems, single unit operations and complete flow sheet systems. Prerequisites: PH 111, CH 123, CHE 197.

CHE 294 - Nature and Properties of Materials

Hours: 3

Introduction to the fundamental nature (chemistry and structure), and properties of materials, including metals, polymers,

ceramics, and semiconductors. Bonding, composition, and phase diagrams, as well as the nano- and micro-structure of materials will be highlighted. How the nature and properties of materials are characterized or tested will be discussed. Composite materials and aspects of materials processing, including diffusion, nucleation, and transformation diagrams, will also be presented. Companion laboratory is CHE 295, to be taken concurrently with or after CHE 294. Prerequisites: CH 121, PH 111. Same as MAE 294.

• CHE 295 - Nature and Properties of Materials Laboratory

Hours: 1

Typical experiments include characterizing structure, using x-ray diffraction and microscopy, testing mechanical properties using tensile and creep tests, and mapping phase diagram boundaries using cooling curves. Emphasis is placed on proper numerical and statistical analysis of the data. Written reports are required, and elements of materials design are presented. Corequisite: CHE 294.

• CHE 298 - Computational Tools for Chemical Engineers

Use of spreadsheets, advanced equation-solving packages, and strutured languages to solve engineering problems. Introduction to chemical process principles.

• CHE 310 - Fluid Mechanics I

Hours: 3

The following courses were not found in the supplied content but, were listed in program requirements. Please review and provide us, if possible, with the correct information.

• CHE 342 - Transport Phenomena

Hours: 3

Fundamental aspects of heat and mass transfer and the use of these basic principles in solving problems in transport operations. Heat transfer with phase change. Diffusive and convective mass transfer with applications. Prerequisites: CHE 244. Prerequisite with concurrency: MAE 310

• CHE 344 - Chemical Engineering Thermodynamics

Hours: 3

Thermodynamics of phase equilibria, chemical reactions and thermodynamic analysis of chemical processes, with emphasis on topics of special interest to chemical engineers. Prerequisites: CHE 244 and CH 341.

• CHE 347 - Quantitative Modeling for Chemical Engineers

Hours: 3

Modeling and analysis of physical phenomena that arise in chemical engineering and an introduction to computer-aided design. Prerequisites: CHE 197, 244, and MA 238.

CHE 439 - Unit Operations I

Hours: 3.

Experimental studies cover fluid mechanics and heat transfer in unit operations Theoretical classes provide an introduction to engineering economy as well as standard laboratory practice, probability and statistical data analysis. Emphasis placed on written and oral laboratory report presentation techniques. Prerequisite with concurrency: CHE 295, CHE 441 and CHE 446.

CHE 440 - Unit Operations II

Hours: 2

Experimental studies covering reaction kinetics, mass separation, biotechnology, and special material properties. Specific applications of standard laboratory practices, probability, and statistical data analysis. Ethical issues in real situations taken from professional practice. Emphasis placed on written and oral laboratory report presentation techniques. Prerequisites: CHE 439, 441 and 443.

CHE 441 - Chemical Kinetics and Reactor Design

Hours: 3

Fundamental principles of chemical kinetics and chemical reactor engineering along with the design of both thermal and catalytic reactors. Prerequisites: CHE 344, 347.

CHE 443 - Mass Transfer Operations

Hours: 3

Theory of mass transfer phenomena, with applications to both stage-wise and diffusion controlled distillation, gas absorption/desorption, humidification, and extraction processes. Prerequisites: CHE 342, 344, MAE 310.

CHE 445 - Chemical Process Control

Hours: 3

Fundamental principles of chemical process control; control system design for chemical processes. Prerequisites: CHE 347 and 441, MA 238.

CHE 446 - Analysis and Design of Transport Equipment

Hours: 3

Theory of transport phenomena from a unified approach to momentum, heat and mass transfer. Application of theory to the design of various transport equipment. Prerequisites: CHE 342. Prerequisite with concurrency: CHE 443.

CHE 448 - Chemical Engineering Design

Hours: 3

Individual design of chemical engineering components, concluding with an overall team design effort, using modern computer-aided design techniques. Overall design requires a preliminary design, simulation, and economic evaluation of a chemical production flow sheet. Ethical issues in real situations taken from professional practice will be examined. This capstone design course requires a written report detailing a preliminary plant design, requiring students to show evidence of organization, research, and presentation. Prerequisites: CHE 441, 443, 446. Prerequisite with concurrency: CHE 445.

• CHE 449 - Introduction to Environmental Engineering

Hours: 3

Engineering aspects of air, water, and thermal pollution. Hydrologic cycle, water sources and uses; industrial and other sources of primary and secondary pollutants. Transport process in environmental problems and in their control. Prerequisites: CH 123 and 126, MAE 341. Prerequisite with concurrency: MAE 310. Same as CE 449.

• CHE 450 - Environmental Control

Hours: 3

Engineering design and synthesis of environmental control systems. Control of multiphase systems with application to air and water pollution control. Prerequisites: MAE 310/ CHE 342.

• CHE 459 - Advanced Independent Studies in Chemical Engineering

Hours: 1-3

Independent studies or research on a topic that requires a solid background in the foundations of chemical engineering. A written report, analytical or experimental analysis, and oral presenation will be required. Plans to present the results of the work at seminars or conferences are strongly desired. Prerequisites: CHE 347 Prerequisite with concurrency: CH 440 or CH 363

• CHE 460 - Introduction to Bioprocess Engineering

Hours: 3

Application of engineering principles to analysis of and development and design of processes using biological catalysts including enzymes, plant and animal cells, and genetically engineered cells. Other topics include fermentation and biological mass transport processes. Prerequisites: CH 362 and 363.

• CHE 461 - Bioseparations

Hours: 3

General characteristics of separation processes used in the biotechnology industry, including the removal of insolubles, isolation and purification of thermally sensitive products and the preparation for final use by the customer. Application of unit operation principles for biological separations, recombinant DNA techniques, and protein engineering. Prerequisites: CH 362, 363, and CHE 460.

CHE 485 - Process Safety and Toxicology

Thi capstone course is designed to teach the fundamentals of process safety and aspects of toxicology. It requires the application of chemical engineering concepts to review and analyze case studies to learn from industrial accidents. It introduces regulatory and design concepts such as interlock design, alarm design, safety valves, rupture disks, and flare systems, while providing a general and understanding of hazard identification.

CHE 494 - Applied Materials Engineering

Hours: 3

Synthesis and processing methods of materials for engineering applications. Selection and use of materials performance factors for design of structural and functional components. Use of computational methods in solving open-ended design problems that depend on an understanding of the nature and properties of materials will be emphasized. All classes of materials are covered. Prerequisites: CHE 294, and either CH 342 or 348.

CHE 495 - Polymer Engineering

Hours: 3

Engineering principles of polymers and their role in manufacturing processes. Aspects of polymer phenomena and their relationship to processing of structural and functional components. Prerequisites: CH 341, 440.

CHE 497 - Internship in Chemical Engineering

Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has particular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

Civil and Environmental Engineering

CE 101 - Prelude to Civil Engineering

Hours: 1

Primer in the practice of civil engineering and engineering design concepts. Includes history and seminars on different branches of civil engineering by faculty and professionals. Exercises in planning and design of a team project. Students will be required to write a short design proposal and present their results. Prerequisites: CE major or consent of instructor.

CE 111 - Civil Engineering Graphics

Hours: 2

Fundamental concepts in computer-aided graphics as they apply to civil engineering. Topics include lettering, sketching, manipulation of elements, rotation of views, and input of data. Students will gain engineering practice through AutoCad or other state of the art laboratory exercises.

Prerequisites: MA 112 or Level II Placement, Freshman CE Standing.

CE 271 - Statics

Hours: 3

Topics include: forces, resultant forces, moments, couples equivalent force systems, equilibrium, distributed loads, two force members, trusses, centroids, moments of inertia, shear and bending moment diagrams, static and kinematic friction. Prerequisites: PH 111. Prerequisite with concurrency: MA 201. Same as MAE 271.

CE 272 - Dynamics

Hours: 3

Kinematics and kinetics of particle and systems of particles with applications to central force motion, impact, relative motion, vibrations, and variable mass systems. Dynamics of rigid body in plane motion, relative motion in rotating coordinates, and gyroscopic motion. Prerequisites: MAE/CE 271 & (MAE 111 or CPE 112). *Note: MAE 110 is equivalent to MAE 111. Same as MAE 272.

CE 284 - Surveying

Hours: 2

Lecture/Lab 1.5 hour lecture and 2 hour lab Basic theory and practical field methods for engineering applications. Measurements and errors in surveying. Leveling, traversing, stadia, topographic surveys, mapping, and circular curves. 1.5 hour lecture and 2 hour lab. Prerequisite with concurrency: CE 111, or Instructor/Advisor Approval

CE 321 - Transportation Engineering and Design

Hours: 3

Theory, design, and operation of various modes of transportation with emphasis on traffic flow. Prerequisites: CE 284, MA 171.

CE 370 - Mechanics of Materials

Hours: 4

Topics include: theory of stress and strain. Hooke's law, analysis of stresses and deformations in bodies loaded by axial, torsional, bending and combined loads, and analysis of statically indeterminate systems. Required laboratory section includes: the determination of selected properties of various engineering materials, experimental verification of theories presented, use of strain measuring devices, test procedures, instrumentation, and interpretation of results. Prerequisites: MAE/CE 271 and (MAE 111 or CPE 112). *Note: MAE 111 is equivalent to MAE 110. Corequisite: MAE 370L.

CE 372 - Soil Mechanics

Hours: 3

Index properties and characteristics of soils. Compaction shear, compressibility and permeability. Application to analysis and design of foundation elements. Laboratory included. Prerequisites: CE 370. Prerequisite with concurrency: MAE 310.

CE 373 - Soil Mechanics Lab

Hours: 1

Laboratory classification of soils. Determination of soil properties. Prerequisite with concurrency: CE 372.

CE 380 - Civil Engineering Materials

Hours: 3.

A study of the performance properties and selection criteria of various materials used in the practice of civil engineering. These include aggregates, Portland cement, concrete, bituminous materials, and timber. Emphasis will be placed on standard methods of testing and characterization. Includes a 3 hour weekly lab. Prerequisites: CE 370. Corequisite: CE 380L.

CE 380L - Civil Engineering Materials Laboratory

Hours: 0

Standard methods of testing and characterization of various materials used in the practice of civil engineering. Determination of civil engineering materials properties. Prerequisites: CE 370. Corequisite: CE 380.

CE 381 - Structural Analysis I

Hours: 3

Reactions, shears, moments in determinate structures. Influence lines, energy methods in computing deformations. Introduction to indeterminate structures. Prerequisites: CE 272, 370.

CE 411 - Introduction to Geographical Information Systems

Hours: 3

Introduces vector, raster, and tabular concepts, emphasizing the vector approach. Topics include: spatial relationships, map features, attributes, relational database, layers of data, data ingesting, digitizing from maps, projections, output, applications, and availability of public data sets. Prerequisites: Senior standing or approval of instructor. Same as ES 411, and ATS 411.

CE 412 - Advanced CE Graphics

Hours: 3

Civil Engineering industry-trending geospatial and graphics technologies. 3-Dimensional land development workflows, GPS data acquisition and processing of aerial, lidar and topographic surveys, internet data resources, terrain modeling and depiction of existing site conditions, earthwork, sanitary, drainage, and transportation design methodologies within the graphical CAD environment, modeling and rendering of design solutions, automation of plan, profile, cross section, and project sheet drawing packages. Current and future trends in integrated mapping, modeling and integration of geospatial analysis and design. Offered Summer 2011, once a year.

• CE 420 - Urban Transportation Planning

Hours: 3

Planning of highway systems and terminals as part of a complete planning approach; public transportation system planning; transportation planning studies, projection analysis, plan formulation, and programming. Prerequisites: CE 321.

• CE 422 - Traffic Engineering Design

Hours: 3

Driver, pedestrian and vehicle characteristics. Principles of traffic flow for improved highway traffic service and safety. Design freeways, rural roads, urban streets, traffic signals, signs, channelization, and other traffic control measures. Prerequisites: CE 321.

• CE 441 - Hydraulic Engineering Design

Hours: 3

Analysis and design of pipe and water distribution systems, hydraulic structures such as dams, spillways and non-erodible channels, principles of centrifugal pumps and pump selection. Prerequisites: MAE 310.

• CE 449 - Introduction to Environmental Engineering

Hours: 3

Engineering aspects of air, water, and thermal pollution. Hydrologic cycle, water sources and uses; industrial and other sources of primary and secondary pollutants. Transport process in environmental problems and their control. Prerequisites: MAE 341. Prerequisite with concurrency: MAE 310 Same as CHE 449.

• CE 455 - Water Quality Laboratory

Hours: 3

Properties of natural water sources and laboratory methods associated with municipal water and wastewater treatment systems. Student design and demonstration of a water treatment system to bring a water sample into compliance with drinking water standards. Prerequisite with concurrency: CE 456/556.

• CE 456 - Water Quality Control Processes

Hours: 3

Principles of public water-supply design. Source selection, collection, purification, and distribution for municipal use. Collection of waste waters, their treatment and disposal. Prerequisites: CE 449/549.

• CE 457 - Hydrology

Hours: 3

Occurrence and movements of water over the earth's surface for engineering planning and design. Relationship of precipitation to stream-flow with frequency analysis, flood routing, and unit hydrograph theory. Prerequisites: MAE 310.

• CE 458 - Environmental Engineering Design

Hours: 3

Engineering design and project management of environmental quality/restoration systems. Students will complete a design project focusing on one of the following systems: sanitary landfill, municipal incinerator, or groundwater/site remediation. Addresses skills for technical presentations and proposal writing as well as process design and decision making. Prerequisite with concurrency: CE 449.

• CE 459 - Selected Topics in Civil Engineering

Hours: 1-3

• CE 461 - Vibration of Elastic Systems

Hours: 3

Formulation of the equations of motion of discrete and continuous systems, analytical and numerical methods of solution, eigenvalue problems and dynamic response. Prerequisites: MAE 488. Same as MAE 461.

• CE 471 - Advanced Soil Mechanics

Hours: 3

Continuum mechanics applied to soil behavior. Theoretical approaches to consolidation, shear strength, slope stability and soil stabilization. Prerequisites: CE 372.

• CE 472 - Soil Dynamics

Hours: 3

Behavior of soils under dynamic, earthquake and blast loading. Analysis of foundation vibration and isolation. Prerequisites: CE 372.

• CE 473 - Earth Structures Engineering

Hours: 3

Principles of earth structure design. Theories of earth pressures and the design of retaining wall systems including gravity, cantilever, mechanically stabilized earth, flexible sheet pile, and anchored wall systems. Methods of stability analyses for retaining walls, earth slopes, and embankment design. Prerequisites: CE 372, CE 373.

CE 474 - Applied Mechanics of Solids

Hours: 3

Stresses and strains at a point, theories of failures, stress concentration factors, thick-walled cylinders, torsion of noncircular members, curved beams, unsymmetrical bending and shear center. Prerequisites: CE 370. Same as MAE 474.

CE 477 - Experimental Techniques in Solid Mechanics

Hours: 3

Experimental methods to determine stress, strain, displacement, velocity, and acceleration in various media. Theory and laboratory applications of electrical resistance strain gages, brittle coatings, and photo-elasticity. Application of transducers and experimental analysis of engineering systems. Prerequisites: CE 370 and junior standing. Same as MAE 477.

CE 481 - Structural Analysis II

Hours: 3

Reactions, shears, moments and deformations in complex structural systems. Statically indeterminate systems, advanced geometric and energy methods. Prerequisites: CE 381.

CE 483 - Reinforced Concrete Design

Hours: 3

Theory and practice of reinforced concrete design. Theory and design of high strength concrete mixtures. Design of reinforced concrete beams, slabs, and columns using the ultimate strength design code of the American Concrete Institute. Prerequisites: CE 380, CE 381. Same as CE 583.

CE 484 - Steel Design

Hours: 3

Principles of design of steel structures using LRFD methods. Analysis and design of structural elements including beams, columns, connection details. Prerequisites: MA 244, CE 381.

CE 485 - Foundation Engineering

Hours: 3

Design of foundations with emphasis on reinforced concrete, footings, caissons, piles, retaining walls, and mat foundations. Effect of bearing pressure on foundations. Prerequisites: CE 372 and 483.

CE 487 - Bridge Design

Hours: 3

Bridge loads, load distribution, composite beam bridges, bridge bearings, reinforced and prestressed concrete slab and T-beam

bridges, bridge evaluations and ratings, and upgrade methodology. Prerequisites: CE 483. Same as CE 583.

• CE 497 - Internship in Civil Engineering

Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has partiular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

• CE 498 - Civil Engineering Design I

Hours: 1.

Planning and analysis for a preliminary civil engineering design project. Topics include fundamentals of management, public policy, cost estimation, environmental impacts, soils analysis, and ethical considerations. Part 1 of a 2-part course. Prerequisites: CE 321. Prerequisite with concurrency: CE 372, senior standing, CE 483.

• CE 499 - Civil Engineering Design II

Hours: 2

Analysis and design of a complete civil engineering project including establishment of design criteria, cost estimates, specifications, and plans. Topics include ethical considerations in engineering design and practice. Emphasis on developing written and oral communication skills. Prerequisites: CE 498. Corequisite: CE 499L, CE 483.

• CE 499L - Laboratory Component of Civil Engineering Design II

Hours: 0.

Students enrolling in CE 499L must enroll concurrently in CE 499. Prerequisites: Senior standing.

Electrical and Computer Engineering

• CPE 112 - Introduction to Computer Programming in Engineering

Hours: 3

Solution of engineering problems using a digital computer. Hardware structure of the stored-program computer; programming in a high level language such as C or C++, engineering approximation of dynamic systems; top-down design and algorithms. Practice in solving engineering problems. Students enrolling in CPE 112 must enroll concurrently in CPE 112L. Prerequisites: MA 113 or MA 115 or higher.

• CPE 112L - Laboratory Component of Introduction to Computer Programming

Hours: 0

Students enrolling in CPE 112L must enroll concurrently in CPE 112.

• CPE 212 - Fundamentals of Software Engineering

Hours: 3

Introduction to structured programming using C++. Search and sort algorithms. Introduction to data structures. Applications to engineering related problems. Prerequisites: CPE 112.

• CPE 221 - Computer Organization

Hours: 3

Functional organization of stored-program digital computers including number representation, assembly language programming, computer hardware, micro-operations, and control logic; microprocessor architecture. Prerequisites: EE 202. Same as EE 321.

• CPE 322 - Advanced Logic Design

Hours: 3

Advanced concepts in Boolean algebra, use of hardware description languages as a practical means to implement hybrid sequential and combinational designs, digital logic simulation, rapid prototyping techniques, and design for testability concepts. Focuses on the actual design and implementation of sizeable digital design problems using representative Computer Aided Design (CAD) tools. Students enrolling in CPE 322 must enroll concurrently in CPE 322L. Prerequisites: CPE 221. Corequisite: CPE 324. Same as EE 322.

• CPE 323 - Introduction to Embedded Computer Systems

Hours: 3

The course examines both hardware and software aspects in building embedded computer systems, as well as methods to evaluate design tradeoffs between different technology choices. The students develop an appreciation of technology capabilities and limitations and appreciation of all system components necessary to be able to design and implement a basic embedded computer system and interface it to the outside world. Experiments performed in the Microcomputer Laboratory provide considerable experience, allowing students to develop programs in assembly language and C and program embedded systems to perform required functions. Students enrolling in CPE 323 must enroll concurrently in CPE 323L. Prerequisites: EE 202, CPE 321.

• CPE 324 - Advanced Logis Design Laboratory

Hours: 1.

Demonstration through laboratory experimentation of fundamental concepts in digital logic design. Use of hardware description languages as a practical means to implement hybrid sequential and combinational digital designs, digital logic simulation, and rapid prototyping techniques. Focuses on the actual design and implementation of sizable digital design probelems using representative Computer Aided Desidn (CAD) tools. Corequisite: CPE 322/EE 322 Advanced Logic Design.

• CPE 325 - Embedded Systems Laboratory

Hours: 1.

Laboratory component of Introduction to Embedded Computer Systems. Students will gain considerable experience working with modern integrated software development environments and hardware platforms to solve practical problems. The experiments will include software development in assembly and C/C++; debugging and testing of embedded systems; and input/output interfacing including timers, serial comunication interfaces, ports, analog-to-digital converters, digital-to-analog converters, and direct memory-access controllers. Corequisite: CPE 323.

• CPE 353 - Software Design and Engineering

Hours: 3

Hands-on experience developing a substantial software project using software design tools such as the SQL database system and the Qt graphical interface development environment. Introduction to a software process including requirements elicitation and testing techniques.

Prerequisites: CPE 212. Prerequisite with concurrency: CS 317

• CPE 381 - Fundamentals of Signals and Systems for Computer Engineers

Hours: 3

Introduction to the fundamental concepts in continuous and discrete signals and systems, and methods of signal and system analysis. Topics covered: Fourier series, Fourier and Laplace transforms, system representation by transfer functions and impulse response functions, convolution integrals, discrete time signals and system, sampling techniques, Z and discrete Fourier transforms. No credit for EE or OPE students. Prerequisites: EE 213 and MA 238.

• CPE 412 - Introduction to Parallel Programming

Hours: 3

Introduction to processing in parallel and distributed computing environments. General concepts of parallel machine models, processes, mutual exclusion, process synchronization, message passing, and programming languages for parallel computing and scheduling. Design and analysis of parallel algorithms. Parallel programming environments: Pthreads for shared memory multiprocessor systems and PVM/MPI for distributed networked computers. Prerequisites: CPE 212 and CS 317. Strongly Recommended CPE 336 Recommended.

• CPE 423 - Hardware/Software Co-Design

Hours: 3

Study and design of Systems On a Chip (SOC). Emphasis on Field Programmable realizations of SOC systems. Prerequisites: CPE 422 or 426 or permission of instructor.

• CPE 426 - Modeling, and Synthesis

Hours: 3

Modern VLSI design techniques and tools, such as silicon compilers, (V)HDL modeling languages, placement and routing tools, synthesis tools, and simulators. Students will design, simulate, and layout using both programmable logic families and ASIC libraries. Prerequisites: EE 202 and EE 315.

CPE 427 - VLSI Design I

Hours: 3

Introduction to VLSI design using CAD tools, CMOS logic, switch level modeling, circuit characterization, logic design in CMOS, systems design methods, test subsystem design, design examples, student design project. Design project to be fabricated and tested in EE/CPE 428. Students enrolling in CPE 427 must enroll concurrently in CPE 427L. Prerequisites: EE 202 and 315. Same as EE 427.

CPE 427L - Laboratory Component of VLSI Design I

Hours: 0

Students enrolling in CPE 427L must enroll concurrently in CPE 427.

CPE 428 - VLSI Design II

Hours: 3

Advanced experience with CAD tools for VLSI design, IC testing. Design Project from EE/CPE 427 to be fabricated and tested. Implementation and verification of test programs, IC testing and troubleshooting, legal, economic, and ethical design issue. Oral presentations and written reports are required. Students enrolling in CPE 428 must enroll concurrently in CPE 428L. Prerequisites: CPE/EE 427. Same as EE 428.

CPE 428L - Laboratory Component of VLSI Design II

Hours: 0

Students enrolling in CPE 428L must enroll concurrently in CPE 428.

CPE 431 - Introduction to Computer Architecture

Hours: 3

Study of existing computer structures. Computer organization with emphasis on busing systems, storage systems, and instruction sets. Performance models and measures, pipelining, cache and virtual memory, introduction to parallel processing. Prerequisites: CPE 322 and CPE 323.

CPE 434 - Operating Systems

Hours: 3

Study of the fundamentals of operating systems. Emphasis on processes, file management, inter-process communication, input-output, virtual memory, networking and security. Students must take this course concurrently with CPE 435. Prerequisites: CPE/EE 321, CPE 353.

CPE 435 - Operating Systems Laboratory

Hours: 1

Laboratory component of Operating Systems course. Experiments include implementation of device drivers, process and thread management, virtual memory management, dynamic memory management, file-systems. Students must take this course concurrently with CPE 434.

• CPE 436 - Internals of a Modern Operating System

Hours: 3

In-depth study of the design of modern operating systems such as Unix, NT and Linux. Emphasis on the internals and implementation details of interrupt processing, real-time clocks, device independent I/O, process management, memory management, file management. Prerequisites: CPE 434.

• CPE 438 - Real Time and Embedded Systems

Hours: 3

Study of design methodologies for reliable real time systems. Prerequisites: CPE 434.

• CPE 448 - Introduction to Computer Networks

Hours: 3

Introduction to the concepts and architecture of computer networks. Review of communication protocols using the Internet and the TCP/IP model as major examples. High-speed networking, congestion control, data compression, security and distributed processing. Prerequisites: CPE 112 and CPE/EE 321. Same as EE 468.

• CPE 448L - Laboratory Component of Introduction to Computer Networks

Hours: 0

Students enrolling in CPE 448 must enroll concurrently in CPE 448L. Prerequisite with concurrency: Parallel CPE 448.

• CPE 449 - Introduction to Information Assurance Engineering

Hours: 3

Introduction to cryptography and computer security through hardware and physical security to a knowledge of audit methods, security management, and public law. The course will introduce security engineering skills such as business process analysis, software security, IAE evaluation, and IAE testing Prerequisites: CPE 448.

• CPE 449L - Laboratory Component of Introduction to Information Assurance Engineering

Hours: 0

Students enrolling in CPE 449 must enroll concurrently in CPE 449L. Prerequisite with concurrency: CPE 449.

• CPE 453 - Senior Software Studio

Hours: 3

Basic concepts of software engineering. Software project management including specification, design, implementation, testing, and documentation. Software design and management tools. Includes a multistudent software project. Prerequisites: CS 317 and CPE 353.

• CPE 461 - Translation Systems

Hours: 3

Grammars, parsers, and lexical analyzers; implementation of translators via top-down and bottom up techniques; grammar analysis to identify ambiguities. Practical applications of translators including conversion of file formats and compilation of traditional computer languages. Prerequisites: CPE 212 and CPE 321. Strongly Recommended Recommended CPE 431.

• CPE 490 - Special Topics in Computer Engineering

Hours: 1, 2, or 3

Topics will vary. The course may be repeated when topics vary. Prerequisites: Consent of Advisor.

• CPE 495 - Computer Engineering Design I

Hours: 3

First course in the senior capstone design sequence. The focus of this class is the application of techniques to the design of electronic systems that have digital hardware and software components. Students will apply the theory acquired from numerous engineering courses to solve real-world design problems. Must be taken in the same academic year as CPE 496 Prerequisites: CPE 353, EE 315, and CPE 323.

• CPE 496 - Computer Engineering Design II

Hours: 3

Second course in the senior capstone design sequence. The focus of this class is the application of techniques to the design of electronic systems that have digital hardware and software components. Students will apply the theory acquired from numerous engineering courses to solve real-world design problems. Must be taken in the same academic year as CPE 495. Prerequisites: CPE 495.

• CPE 497 - Internship in Computer Engineering

Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has particular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

CPE 499 - Project in Computer Engineering

Hours: 3

Individual design project under the direction of an ECE faculty member. Prerequisites: Senior standing and permission of instructor.

EE 100 - Fundamentals of Computer, Electrical and Optical Engineering

Hours: 3

Introduction to the fields of computer, electrical, and optical engineering.? Students will become familiar with modern computational and design tools, engineering ethics, and modern library resources tools. Introduction to the fundamentals of voltage, current, power, Boolean algebra, binary arithmetic, logic gates, computer architecture, computer networks, and optics. Lab work provides hands-on experience with electrical, computer, and optical systems. Oral and written presentation of projects are required. Students enrolling in EE 100 must enroll concurrently in EE 100L. Prerequisites: None.

EE 100L - Laboratory Component of Concepts in Digital Signals and Systems

Hours: 0

Students enrolling in EE 100L must enroll concurrently in EE 100.

EE 202 - Introduction to Digital Logic Design

Hours: 3

Engineering approaches to design and analysis of digital logic circuits. Boolean algebra, Karnaugh maps, design using MSI and LSI components, algorithmic state and machine design of sequential circuits. Prerequisites: EE 100 and CPE 112.

EE 203 - Digital Logic Design Lab

Hours: 1

Experiments in applying Boolean logic concepts to digital design. The course introduces students to small-scale prototyping and simulation techniques that are used to implement and evaluate digital combinational and sequential logic designs. Course is normally taken the semester following the successful completion of EE 202. Prerequisites: EE 202.

EE 213 - Electrical Circuit Analysis I

Hours: 3

Circuit elements, voltage-current characteristics for circuit elements; independent and dependent sources; Kirchhoff's laws and circuit equations. Source transformations; Thevenin's and Norton's theorems and superposition. Introduction to operational amplifiers. Transient and forced response of RC, RL, and RLC circuits. Introduction to sinusoidal steady-state, phasors, and impedance. Prerequisites: PH 112. Prerequisite with concurrency: MA 238, and MA 244 or CHE 244 or MAE 285.

EE 307 - Electricity and Magnetism

Hours: 3

Basic concepts of electrostatics, electric potential theory, electric fields and currents, fields of moving charge, magnetic fields, time varying electromagnetic fields, Maxwell's equations. Prerequisites: EE 213.

EE 308 - Electromagnetic Engineering

Hours: 3

Review of Maxwell's equations, uniform plane waves in different types of media, reflection, and transmission of uniform plane waves, transmission lines, waveguides, and antennas. Prerequisites: EE 307.

EE 310 - Solid State Fundamentals

Hours: 3.

Basic physical processes occurring in solids. Schrodinger equation and its applications. Energy bands and charge carriers in semiconductors, excess carriers in semiconductors, introduction to semiconductor junctions, the bipolar junction transistor, the metal-insulator- semiconductor field-effect transistors. Prerequisites: PH 113. Prerequisite with concurrency: MA 138.

EE 313 - Electrical Circuit Analysis II

Hours: 3

Continuation of EE 213. Use of phasors and impedance to analyze linear circuits at steady state. AC steady-state power for single and polyphase circuits. Properties and practical uses of resonant circuits, magnetically coupled circuits, and transformers for AC steady state. Introduction to two-port networks and low and high pass filter design. Prerequisites: EE 213.

EE 315 - Introduction to Electronic Analysis and Design

Hours: 3

Diode, bipolar transistor and FET circuit models for the design and analysis of electronic circuits. Single stage analysis and design. Computer aided design calculations, amplifier operating point design, and frequency response of single and multistage amplifiers. High frequency and low frequency designs are emphasized. Prerequisites: EE 213.

EE 316 - Electrical Circuits and Electronics Design Laboratory

Hours: 1.

Experiments in the measurements of DC and AC circuits including first and second order DC circuits, maximum power transfer, impedance measurements, and transformers. Experiments in the measurement of electronic device characteristics and design and testing of operational amplifier circuits and single-stage amplifiers using MOSFETs and BJTs. Prerequisite with concurrency: EE 315.

• EE 382 - Analytical Methods for Continuous Time Systems

Hours: 3

Fourier Series, Fourier and Laplace transforms with emphasis on their physical interpretation. System representation by transfer functions and impulse response functions. Convolution integral. Transient response. Modeling and simulation. Prerequisites: EE 213 and MA 238.

• EE 383 - Analytical Methods for Multivariable and Discrete Time Systems

Hours: 3

Discrete time signals and systems, sampling techniques, Z and discrete Fourier transforms, multivariable systems. Introduction to digital signal processing. Prerequisites: EE 382.

• EE 384 - Digital Signal Processing Laboratory

Hours: 1

Design and programming of digital processing algorithms such as DFT, FFT, IIR, and FIR filtering. Prerequisites: CPE 381. Prerequisite with concurrency: EE 383.

• EE 385 - Random Signals and Noise

Hours: 3

Random variables and probability description of signals. Introduction to random processes: autocorrelations, cross correlation, power spectral density. Noise analysis: thermal, shot, white, and colored. Response of electrical systems to random inputs. Prerequisites: EE 382 or CPE 381.

• EE 386 - Introduction to Control and Robotic Systems

Hours: 3

Basic theories and analytical techniques for modeling, analysis and control of dynamical systems. Transfer functions, block-diagrams, frequency response, stability criteria, series and feedback controller design, and digital control. Introduction to the dynamic analysis and control of robotic systems. Prerequisites: EE 382 or CPE 381.

• EE 401 - Real-time Digital Signal Processing

Hours: 3

Introduction to digital signal processor architectures, applications, assembly language programming, and development tools for designing and implementing DSP systems. Prerequisites: EE 383 or CPE 381.

• EE 410 - Selected Topics in Electrical Engineering

Hours: 1-3

• EE 411 - Electric Power Systems

Hours: 3

Power generation, transmission, and distribution. Three-phase circuits and per unit analysis, load-flow studies, symmetrical components, and power systems stability. Prerequisites: EE 313.

• EE 412 - Senior Design Project in Electrical Engineering

Hours: 1-3

Individual design project under the direction of an ECE faculty member. Prerequisites: Senior standing and permission of instructor.

• EE 414 - Analog and Digital Filter Design

Hours: 3

Analog filter design via Butterworth, Chebyshev, and elliptical approximation. Active filter design using operational amplifiers. Digital filter design methods. Prerequisites: EE 315 and 383.

• EE 416 - Electronics II

Hours: 3

Integrated circuits and micro-devices related to multistage amplifiers, oscillators, design specifications, operational amplifiers, and microcircuits. Computer simulation. Prerequisites: EE 313, 315.

• EE 422 - Advanced Logic Design

Hours: 3

Advanced concepts in Boolean algebra, use of hardware description languages as a practical means to implement hybrid sequential and combinational designs, digital logic simulation, rapid prototyping techniques, and design for testability concepts. Focuses upon the actual design and implementation of sizeable digital design problems using a representative set of Computer Aided Design (CAD) tools. Students enrolling in EE 422 must enroll currently in EE 422L Prerequisites: EE 202, EE 315. Same as CPE 422.

• EE 422L - Laboratory Component of Advanced Logic Design

Hours: 0

Students enrolling in EE 422L must enroll concurrently in EE 422.

EE 423 - Communications Systems and Simulation with Laboratory

Hours: 3

Modern test equipment and computer-based simulation methods are used to conduct experiments in the area of communication systems. Hands-on experiments are conducted using digital oscilloscopes, arbitrary waveform generators, vector impedance meters and other relevant test and measurement equipment. Methods are investigated for signal modulation and demodulation; studies are conducted on AM, FM, PSK, PCM and delta modulation circuits and systems. Several types of filters are investigated, both analytically and experimentally. Properties and behavior of phase-locked loop are studied by using both hardware and numerical simulations. Pre- or corequisite: EE 426.

EE 424 - Introduction to Data Communication Networks

Hours: 3

Overview of historic development of modern telephone and data communication system, system architecture, standards, broadband switching systems, modems, protocols, personal and mobile communications, digital modulation techniques. Prerequisites: EE 383 or CPE 381.

EE 426 - Communication Theory

Hours: 3

Review of elementary signals and systems including the Hilbert transform, cross and auto correlation, power density spectrum, and the Wiener-Khintchine theorem. Butterworth and Chebyshev low-pass filters. Band-pass signals and systems. The low-pass equivalent of a band-pass signal/system. Commonly used forms of linear and nonlinear modulation. Demodulation methods and circuits. Phase lock and frequency feedback techniques. Prerequisites: EE 382 or CPE 381.

EE 427 - VLSI Design I

Hours: 3

Introduction to VLSI design using CAD tools, CMOS logic, switch level modeling, circuit characterization, logic design in CMOS, systems design methods, test subsystem design, design examples, student design project. Design project to be fabricated and tested in EE/CPE 428. Students enrolling in EE 427 must enroll concurrently in EE 427L. Prerequisites: EE 202 and EE 315. Same as CPE 427.

EE 427L - Laboratory Component of VLSI Design I

Hours: 0

Students enrolling in EE 427L must enroll concurrently in EE 427.

EE 428 - VLSI Design II

Hours: 3

Advanced experience with CAD tools for VLSI design, IC testing. Design project from EE/CPE 427 to be fabricated and tested. Implementation and verification of test programs, IC testing and troubleshooting, legal, economic, and ethical design issue. Oral presentations and written reports are required. Students enrolling in EE 428 must enroll concurrently in EE 428L. Prerequisites: EE/CPE 427. Same as CPE 428.

• EE 428L - Laboratory Component of VLSI Design II

Hours: 0

Students enrolling in EE 428L must enroll concurrently in EE 428.

• EE 436 - Digital Electronics

Hours: 3

Introduction to digital electronics. The Metal-Oxide-Semiconductor (MOS) transistor. MOS inverters and gate circuits. Bipolar junction transistors, ECL inverters, and bipolar digital gates. Semiconductor Memories. Prerequisites: EE 202 and 315.

• EE 437 - Electronics Manufacturing Processes

Hours: 3

Current concepts, facilities, and technology utilized in the manufacture of electronic components and products. Includes printed wiring board fabrication and component mounting methods, automation, quality and reliability, product testing, and economic issues. Prerequisites: Senior standing. Same as ISE 437.

• EE 451 - Optoelectronics

Hours: 3

Basic concepts for understanding electro-optic devices and systems. Blackbody radiation; light sources; quantum and thermal detectors, noise in detectors; optical heterodyning; acousto-optic, magneto-optic, and electro-optic modulation. Prerequisite with concurrency: EE 307, 315. Same as OPE 451.

• EE 453 - Laser Systems

Hours: 3

Spontaneous and stimulated emission, population inversion, optical resonators, three-and four-level systems, Q-switching and mode-locking, semiconductor lasers, integrated optic waveguides and couplers, scanning systems, high-power industrial application. Prerequisites: EE 307. Same as OPE 453.

• EE 454 - Optical Fiber Communications

Hours: 3

Introduction to optical fibers and their transmission characteristics, optical fiber measurements, sources and detectors, noise considerations for digital and analog communication, optical fiber systems. Prerequisites: EE 307 or PH 432 and EE 383 or CPE 381. Same as OPE 454.

• EE 486 - Introduction to Modern Control Systems

Hours: 3.

The basic ideas and techniques of modern control theory. Analytical techniques for modeling, analysis and control of MIMO dynamic systems. State variable description of dynamic systems. State-variable feedback control design and state observers. Kalman-filtering. Fundamentals of nonlinear systems analysis. Introduction to discrete-time system modeling, analysis and control. Basics of adaptive and optimal control. Applications to aerospace and electric power systems. Prerequisites: EE 386.

• EE 494 - EE Design Projects

Hours: 3

Design, simulation, and construction of selected interdisciplinary projects. Review of legal, economic, and ethical issues. Students work as individuals or teams under the direction of a faculty member to design, implement, test, and evaluate their projects. Oral presentation and written reports are required. Prerequisites: CPE 323, EE 315, ISE 321 and Senior standing.

• EE 497 - Internship in Electrical Engineering

Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has particular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

• OPE 441 - Optical Systems Design

Hours: 3

Intermediate geometrical optics, first-order optics, linear transformations, paraxial optics, reflection and transmission at an interface, polarized light, Jones and Mueller calculi, matrix methods, ray tracing, apertures and stops, third-order optics and aberrations. Prerequisites: OPT 342. Same as EE 461, and PH/OPT 441.

• OPE 442 - Interference and Diffraction

Hours: 3

Two beam interference. Multiple beam interference. Optical testing. Fraunhofer diffraction. Fresnel diffraction. The Fourier transform. Fourier methods in optics. Coherence. Holography. Prerequisites: OPE 441. Same as EE 462 and PH/ OPT 442.

• OPE 451 - Optoelectronics

Hours: 3

Basic concepts for understanding electro-optic devices and systems. Blackbody radiation; light sources; quantum and thermal detectors, noise in detectors; optical heterodyning; acousto-optic, magneto-optic, and electro-optic modulation. Prerequisite with concurrency: EE 307, 315. Same as EE 451.

• OPE 453 - Laser Systems

Hours: 3

Spontaneous and stimulated emission, population inversion, optical resonators, three and four-level systems, Q-switching and mode-locking, semiconductor lasers, integrated optic waveguides and couplers, scanning systems, high-power industrial application. Prerequisites: EE 307. Same as EE 453.

• OPE 454 - Optical Fiber Communications

Hours: 3

Introduction to optical fibers and their transmission characteristics, optical fiber measurements, sources and detectors, noise considerations for digital and analog communications, optical fiber systems. Prerequisites: EE 307 or PH 432. Same as EE 454.

• OPE 456 - Photonics Systems

Hours: 3

Photonic systems with embedded lab that includes photonic devices, wave nature of light, diffraction, spectral measurements, refractive index, single mode and multimode optical fibers, simple optical communication systems, fiber optic sensors, case study. Prerequisites: OPE 451.

• OPE 459 - Optical Engineering Design I

Hours: 3

Identification, documentation, and presentation of proposed senior design project, followed by initial project design, analysis, and development, including the consideration of legal, economic, and ethical issues. Prerequisites: ISE 321. Prerequisite with concurrency: OPE 456.

• OPE 460 - Optical Engineering Design II

Hours: 3

Continuation of design project begun in OPE 459 to include prototype testing of the design optical or opto-electronic system. Prerequisites: OPE 459.

• OPE 497 - Internship in Optical Engineering

Hours: 1-3

Active involvement in an engineering project in an engineering enterprise, professional organization, or government agency that has particular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

Industrial and Systems Engineering and Engineering Management

• ISE 124 - Introduction to Industrial & Systems Engineering

Hours: 3

Overview of industrial engineering concepts. Includes history and development of classical industrial engineering; documentation and computational methods; basic work methods and measurement; manufacturing systems; and economic decision analysis. Prerequisite with concurrency: MA 113.

• ISE 321 - Engineering Economy

Hours: 3

Economic evaluation of engineering alternatives using cost estimating techniques, breakeven analysis, present, annual and future worth, rate of return, and cost benefit analysis, consideration of depreciation, taxes and accounting principles. Prerequisites: Sophomore standing.

• ISE 324 - Work Design

Hours: 3

Introduces the portion of the design process that uses basic principles of methods analysis and ergonomics to fit a task and workstation to the human operator. Methods analysis topics include: work measurement, work measurement tools, work sampling, job analysis, job evaluation, and the development and use of flow and activity charts for methods improvement. Ergonomics topics include anthropometric data, workplace design, design of the physical environment, work organization, and display and control design. Includes term project and laboratory exercises. Prerequisites: ISE 390. Same as PY 324.

• ISE 327 - Management Systems Analysis

Hours: 3

Formal organization structures and functions. Analysis of organization planning leading toward the accomplishment of goals. Techniques for making decisions within formal organizations, together with ethical constraints. Emphasis on technical writing. Prerequisites: ISE 390.

• ISE 340 - Operations Research

Hours: 3

Fundamental methods, models and computational techniques of operations research. Linear programming including transportation, assignment and simplex algorithms. Queueing theory. Prerequisite with concurrency: ISE 390.

• ISE 378 - Materials and Manufacturing Processes

Hours: 3

Engineering properties of materials, sources of information for properties of materials, cost considerations for material selection, manufacturing processes, casting, forming, machining, cost considerations for machining operations. One or more field trips are included. Prerequisites: MAE/CE 370. Same as MAE 378.

• ISE 390 - Probability and Engineering Statistics I

Hours: 3

Engineering uses of probability theory, discrete and continuous probability distributions including the binomial, Poisson, hypergeometric, normal, uniform, lognormal, and exponential distributions. Statistical sampling, distributions of means, variances, and proportions. Hypothesis testing and confidence intervals. Prerequisite with concurrency: MA 201.

• ISE 391 - Probability and Engineering Statistics II

Hours: 3

Continuation of ISE 390 with regression analysis, analysis of variance, and nonparametric statistics. Introduction to design of engineering experiments, and computer-based solution of large-scale problems. Prerequisites: ISE 390.

• ISE 402 - Industrial and Organizational Psychology

Hours: 3

Application of basic principles of learning, motivation, and perception to typical industrial and organizational problems. Prerequisites: Senior standing. Same as PSY 402.

• ISE 403 - Human Factors Psychology

Hours: 3

Study of human performance in human-technology-environment systems. Consideration of human capabilities and limitations as related to controls and displays, and the role of human cognition in decision-making and training effectiveness. Prerequisites: Senior Standing Same as PSY 403.

• ISE 423 - Statistical Quality Control

Hours: 3

This course introduces statistical theory and techniques to control quality of manufacturing products. This course will provide a solid foundation in Statistical Quality Control (SQC). The Six Sigma methodology is also introduced in this course. Students can take the certification exam to earn a Green Belt in Six Sigma. Prerequisite with concurrency: ISE 391.

• ISE 426 - Design and Analysis of Experiments

Hours: 3

Advanced topics in statistical experiments with emphasis on the design aspect. Factorial designs, including fractional replication and confounding. Includes computer laboratory exercises. Prerequisites: ISE 391.

• ISE 428 - Systems Analysis and Design I

Hours: 3

Philosophy and methods of industrial and non-industrial systems analysis and design. Methods of systems definition, analysis, simplification, evaluation, and optimization. Design project required. Ethics and technical writing are emphasized. Prerequisites: ISE 224, 321, 340, 391, and senior standing.

ISE 429 - Systems Analysis and Design II

Hours: 3

Continuation of design project begun in ISE 428. Prerequisites: ISE 428.

ISE 430 - Manufacturing Systems and Facilities Design

Hours: 3

Overview of modern manufacturing systems design with emphasis on facility location and plant layout. Includes classical systems, just-in-time systems, basic principles of integrated manufacturing systems design, as well as analysis of process flow, process productivity, and available space to determine facility layout. Includes term project and laboratory exercise. Prerequisites: Senior standing.

ISE 433 - Production and Inventory Control Systems

Hours: 3

Inventory models including classical optimal economic order quantity models, manufacturing resource planning (MRP) systems, master production scheduling, material requirements planning, and purchase order control. Emphasis on manufacturing system revisions, continuous process improvement, and the implementation of lean principles. Prerequisites: ISE 390.

ISE 437 - Electronics Manufacturing Processes

Hours: 3

Current concepts, facilities, and technology utilized in the manufacture of electronic components and products. Includes printed wiring board fabrication and component mounting methods, automation, quality and reliability, product testing and economic issues. Prerequisites: Senior standing. Same as EE 437.

ISE 439 - Selected Topics in ISE

Hours: 1-3

ISE 447 - Introduction to Systems Simulation

Hours: 3

Philosophy and elements of digital, discrete-event simulation. Emphasis on modeling and analysis of stochastic systems, including probabilistic models, output analysis, and the use of simulation software. Prerequisites: CPE 112, ISE 391.

ISE 497 - Internship in Industrial and Systems Engineering

Hours: 1-3

Active involvement in an engineering project, in an engineering enterprise, professional organization, or government agency that has particular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

Mechanical and Aerospace Engineering

• MAE 100 - Introduction to Mechanical and Aerospace Engineering

Hours: 2

Introduction to engineering in mechanical and aerospace fields; introduction to the various tools and facilities used to design and analyze engineering systems and present the results to others. Includes working with appropriate computer software. A project is performed and the results are presented in both written and oral form. One credit hour laboratory, MAE 100L, is included. Corequisite: MA 112 or placement in MA 113 or higher.

• MAE 111 - Introduction to Computational Tools

Hours: 3

Computer-aided design and solid modeling concepts including: model definition through constraints and dimensioning, and development of subassemblies and assemblies. Instruction to solving engineering problems using MathCAD and MATLAB environments including: flow diagrams and pseudocode; basic mathematical operations; vector, array and function definitions and operations; importing data; and plotting of functions and data. Prerequisites: Level II Placement. Prerequisite with concurrency: MA 113. Offered Fall 2013.

• MAE 115 - Introduction to Machining

Hours: 1

Safety and familiarity with the machine shop environment, equipment, tools, and practices. Correlate student design with consequences of design choice. Basic turning, milling, welding, and sheet metal operations. Programming and operation of numerically controlled machines. Design and fabrication of a semester project. Prerequisites: MAE 110.

• MAE 200 - Principles of Aeronautics and Astronautics

Hours: 3

An introductory course in the theory and practice of atmospheric flight, propulsion, rocket performance, space flight, satellite systems and uses, and other topics in the field of aeronautical and astronautical engineering. It is designed to prepare the beginning aerospace engineering student for future studies, and to develop good engineering practices. Prerequisite with concurrency: MA 113 or higher placement.

• MAE 271 - Statics

Hours: 3

Topics include: forces, resultant forces, moments, couples equivalent force systems, equilibrium, distributed loads, two force members, trusses, centroids, moments of inertia, shear and bending moment diagrams, static and kinematic friction. Prerequisites: PH 111. Prerequisite with concurrency: MA 201. Same as CE 271.

MAE 272 - Dynamics

Hours: 3

Kinematics and kinetics of a particle and of systems of particles with applications to central force motion, impact, relative motion, vibrations, and variable mass systems. Dynamics of rigid body in plane motion, relative motion in rotating coordinates, and gyroscopic motion. Prerequisites: MAE/CE 271 & (MAE 111 or CPE 112) *Note: MAE 110 is equivalent to MAE 111. Same as CE 362.

MAE 284 - Numerical Methods

Hours: 3

Use computational tools to solve mathematical problems of engineering interest. Discussion and application of root finding and optimization techniques. Other topics include curve fitting, Gauss Elimination, LU decomposition, and Cholesky decomposition, numerical integration and numerical differentiation. Solving initial and boundary value problems. Course includes a lab experience using modern computational tools. Prerequisites: MA 244 and (MAE 111 or CPE 112). Prerequisite with concurrency: MA 238. Corequisite: MAE 284L Offered Fall 2013

MAE 310 - Fluid Mechanics I

Hours: 3.

Fluid properties and fundamental principles governing fluid behavior. Fluid statics, basic equations in integral form and differential form, potential flow, dimensional analysis, and internal incompressible viscous flows. Prerequisites: MAE/CE 271, (MAE 111, CPE 112, or CHE 197) & MA 238. *Note: MAE 110 is equivalent to MAE 111.

MAE 311 - Principles of Measurement and Instrumentation

Hours: 3

Fundamentals of instrumentation and techniques for measurement of mechanical phenomena such as temperature, flow, pressure, force, strain, displacement, and acceleration. Calibration, standards, computerized data acquisition, error analysis, signal conditioning, dynamic response, and experimental design. One credit hour laboratory is included. Prerequisites: EE 213 and (MAE 100 or 200). Corequisite: MAE 311L.

MAE 341 - Thermodynamics I

Hours: 3

Basic laws of energy that apply in all branches of engineering and science. Properties of matter, state variables, reversible processes, first and second laws of thermodynamics with applications to closed and open systems. Availability of energy and irreversibility. Prerequisites: MA201, CH 121, CH 125, PH 112.

MAE 342 - Thermodynamics II

Hours: 3

Continuation of ME 341. Thermodynamic cycles, thermodynamic relations among properties, chemical reactions, and phase and chemical equilibrium. Prerequisites: MAE 341. Prerequisite with concurrency: MAE 285.

MAE 364 - Kinematics and Dynamics of Machines

Hours: 4

Kinematics and dynamics of planar machinery. Principles of mechanisms, design of cams, fundamentals of gears and epicyclic gear trains, methods of determination of velocity and acceleration in mechanisms. Inertia forces in machines, balancing of rotating masses and reciprocating masses, and vibration analysis. Prerequisites: MAE 111, MAE/CE 272. *Note: MAE 110 is equivalent to MAE 111. Corequisite: MAE 364L

MAE 370 - Mechanics of Materials

Hours: 4

Topics include: theory of stress and strain, Hooke's law, analysis of stresses and deformations in bodies loaded by axial, torsional, bending, and combined loads, and analysis of statically indeterminate systems. Laboratory includes: determination of selected properties of various engineering materials, experimental verification of theories presented, use of strain measuring devices, test procedures, instrumentation, and interpretation of results. Prerequisites: MAE/CE 271 & (MAE 111 or CPE 112). *Note: MAE 111 is equivalent to MAE 110. Corequisite: MAE 370L. Same as CE 370.

MAE 371 - Aerospace Structures

Hours: 3

Analysis and design of lightweight aerospace structures including sandwich structures, stiffened panels, and tubing stress and deflection analysis. Design of members in tension, torsion and bending. Space structures. Prerequisites: MAE 111, 200, and MAE/CE 370. *Note: MAE 110 is equivalent to MAE 111.

MAE 378 - Materials and Manufacturing Processes

Hours: 3

Engineering properties of materials, sources of information for properties of materials, cost considerations for material selection, manufacturing processes, casting, forming, machining, cost considerations for machining operations. One or more field trips included. Prerequisites: MAE/CE 370. Same as ISE 378.

MAE 395 - Selected Topics in Mechanical and Aerospace Engineering

Hours: 1-3

MAE 420 - Compressible Aerodynamics

Hours: 3

Principles of compressible flow including area change, friction, and heat transfer. Fundamentals of acoustic waves, one and two-dimensional shock and expansion waves, shock-expansion theory, and linearized flow with applications to inlets, nozzles, wind tunnels, and supersonic flow over aerodynamic bodies and wings Prerequisites: MAE 200, 310, 341.

MAE 430 - Fundamentals of Aerodynamics

Hours: 3

Application of the principles of fluid mechanics and thermodynamics to the prediction of aerodynamic performance of aircraft, missiles, and other flight vehicles. Topics include lift and drag, thrust and power, and the influence of wing loading, power loading, zero-lift drag, wing geometry, high lift devices, and Mach number on the performance and design trades of flight vehicles. Prerequisites: MAE 200k 310 and 341.

MAE 440 - Rocket Propulsion I

Hours: 3

Introduction to the operation, analysis, and design of liquid and solid rockets. The course incorporates an experience in design and realization of a thermal system, in which students work in teams to design a rocket motor or component. Students majoring in aerospace engineering must take either MAE 440 or MAE 441 to satisfy the aerospace propulsion elective. Prerequisites: MAE 420.

MAE 441 - Airbreathing Propulsion

Hours: 3

Survey of airbreathing propulsion systems with special emphasis on gas turbine engines for aircraft and rotorcraft. Thermodynamic power cycles, design of components, and overall engine performance analysis.Discussion of practical design and operations considerations including engine controls, reliability, and durability. The course incorporates an experience in design and realization of a thermal system, in which students work in teams to design a turbine engine. Students majoring in aerospace engineering must take either MAE 440 or MAE 441 to satisfy the aerospace propulsion elective. Prerequisites: MAE 420.

MAE 450 - Introduction to Heat and Mass Transfer

Hours: 4

Principles of heat and mass transfer; application of principles to problems in conductive, convective, and radiative heat transfer and mass transfer; laminar and turbulent flow processes; boiling and condensation; heat exchangers. One credit hour laboratory included. Prerequisites: MAE 284, 310, 311, & 341. *Note MAE 385 is equivalent to MAE 284. Corequisite: MAE 450L.

MAE 455 - Design of Thermal Systems

Hours: 3

Principles of heat transfer, thermodynamics, and fluid mechanics applied to analysis and design of systems for storage and transport, and exchange of thermal energy. Modeling of thermal equipment, simulation of system performance, optimization of system design, and comprehensive design of thermal systems. Prerequisites: MAE 342, MAE 450 . Strongly Recommended MAE 490 recommended.

MAE 461 - Vibrations of Elastic Systems

Hours: 3

Formulation of the equations of motion of discrete and continuous systems, analytical and numerical methods of solution, eigenvalue problems and dynamic response. Prerequisites: MAE 488. Prerequisite with concurrency: Same as CE 461.

• MAE 463 - Intermediate Dynamics

Hours: 3

Kinematics and dynamics of particles, system of particles, and rigid-bodies. Variational principles and Lagrangian mechanics. Prerequisites: MAE 272.

• MAE 466 - Mechanics and Design of Machine Elements

Hours: 3

Detailed design and selection of machine elements such as gears, shafts, and bearings. Analysis of stresses and deformations under combined static and dynamic loads, stress concentrations, and fatigue. Prerequisites: MAE 364 and MAE/CE 370.

• MAE 468 - Elements of Spacecraft Design

Hours: 3

Fundamentals of spacecraft engineering and design. Topics include: orbital mechanics, space environment, attitude determination and control, communications, space structures, thermal control, propulsion and power, and systems and mission design. Prerequisites: MAE 272 and 371. Prerequisite with concurrency: MAE 420.

• MAE 471 - Advanced Aerospace Structures and Materials

Hours: 3.

Introduction to composite materials and their applications in aerospace structures including: material types and fabrication techniques, material properties, micromechanics, constitutive behavior, classical laminated plate theory, introduction to failure concepts and introduction to sandwich panels. Introduction to finite element modeling of one and two-dimensional aerospace structures such as rods, beams, and panels. Students will have opportunities to conceptrually design laminated composite structures, fabricate composite specimens, and conduct experiments to evaluate their stuctural performance. Prerequisites: MAE 311 and 371.

• MAE 474 - Applied Mechanics of Solids

Hours: 3

Stresses and strains at a point, theories of failures, stress concentration factors, thick-walled cylinders, torsion of noncircular members, curved beams, unsymmetrical bending, and shear center. Prerequisites: MAE/CE 370. Same as CE 474.

• MAE 476 - Mechanics & Fabrication of Composite Materials

Hours: 3

Introduction to the mechanics of advanced composite materials. Design and analysis of composite structures. Analysis of orthotropic and transversely isotropic materials and systems. Hands on fabrication of a composite structure. Prerequisites: MAE

371 or 466.

MAE 477 - Experimental Techniques in Solid Mechanics

Hours: 3

Experimental methods to determine stress, strain, displacement, velocity, and acceleration in various media. Theory and laboratory applications of electrical resistance strain gages, brittle coatings, and photoelasticity. Application of transducers and experimental analysis of engineering systems. Prerequisites: MAE/CE 370 and junior standing. Same as CE 477.

MAE 480 - Aircraft Stability and Control

Hours: 3

The stability and control of aerodynamic vehicles. The design of aircraft to obtain good flying characteristics. The complete governing equations and analog solutions of linearized equations. Prerequisite with concurrency: MAE 488 and 430.

MAE 485 - Numerical Methods and Computation III

Hours: 3

Advanced topics in numerical methods and engineering computation including: finite elements and finite differences in solving various engineering problems; Gaussian quadrature; interpolation, integration, and differentiation; and stability and convergence analysis of iterative methods. Numerical applications to fluid mechanics, heat transfer, structural mechanics, and machine design. Prerequisites: MAE 385.

MAE 488 - Analysis of Engineering Systems

Hours: 3

Development of mathematical engineering models of physical systems including: mechanical, electrical, and fluid systems and combined systems. Determination of the dynamic response of physical systems. Prerequisites: EE 213, MAE/CE 272, MAE 284. *Note: MAE 385 is equivalent to MAE 284.

MAE 489 - Computer-Aided Engineering

Hours: 3

Application of computer methods in the analysis and design of structural, thermal, and dynamical systems. Uses of state-of-the-art finite element and finite difference computer programs. Practical guidelines for discrete modeling; analysis of modeling errors. Comparison of exact and approximate solutions to boundary value problems. Use of computers in engineering design and analysis. Prerequisites: MAE 370. Prerequisite with concurrency: MAE 284. *Note: MAE 385 is equivalent to MAE 284.

MAE 490 - Introduction to Engineering Design

Hours: 3.

Application of basic design principles and concepts. Design methodology, decision making, creativity, product liability, human factors, patents, ethics, technical writing, and others. Team design projects. Prerequisites: ISE 321, MAE/CE 272, MAE 311.

MAE 491 - Product Realization

Hours: 3

Students work on a team-oriented capstone design project with a focus upon the fabrication, assembly, testing, refinement, and delivery of a product developed according to customer requirements. Oral presentation and written detailed documentation of the product will also be completed. Prerequisites: MAE 490, senior standing.

MAE 492 - Mission Design and Development

Hours: 3

Students work on multi-disciplinary capstone design teams to develop missions of interest to NASA, DoD and industry. This includes defining the mission architecture and designing the associated vehicles and components required to meet the customer requirements. Oral presentations and written detailed documentation of the proposed solution will also be completed. Prerequisites: MAE 490, senior standing.

MAE 493 - Rocket Design

Hours: 3

Design, build, test and fly a high-powered rocket with a payload to a specified altitude. Students work on multi-disciplinary teams to design payloads, avionics, recovery systems, structures and other sub-systems and then integrate them into the final vehicle. Course may be used for senior design credit. Prerequisites: MAE 490, senior standing.

MAE 494 - Aircraft Design

Hours: 3

Design and build an unmanned aircraft to meet specified requirements and then verify design through ground and flight tests. Students work on multi-disciplinary teams to address configuration aerodynamics, avionics, structures, propulsion/power and payloads. Systems engineering aspects including simulation, fabrication, integration, scheduling and cost estimation are also emphasized. Course may be used for senior design credit. Prerequisites: MAE 490, senior standing.

MAE 495 - Selected Topics in Mechanical and Aerospace Engineering

Hours: 1-4

MAE 496 - Independent Study in Mechanical and Aerospace Engineering

Hours: 1-4

MAE 497 - Intership in Mechanical and Aerospace Engineering

Hours: 1-3

Active involvement in an engineering project, in an engineering enterprise, professional organization, or government agency that has particular interest and relevance to the student. Prerequisites: Junior/Senior standing and approval of Engineering faculty advisor.

• MAE 499 - Undergraduate Thesis

Hours: 3

Required for students completing an Honors Program Bachelors Thesis. Prerequisites: Senior Standing and Permission of Thesis Advisor.

Liberal Arts

• CL 100 - Survey Ancient to Medieval

Same as HY 101

• CL 101 - Elementary Latin I

Same as FL 101

• CL 102 - Elementary Latin II

Same as FL 102

• CL 199 - Special Topics

• CL 201 - Intermediate Latin I

Same as FL 201

• CL 229 - Survey of Ancient Times

Same as HY 229

CL 242 - Mythology

Same as EH 242

CL 301 - Ancient Philosophy

Same as PHL 301

CL 302 - Ancient Greek Art

Same as ARH 302

CL 305 - Ancient Roman Art

Same as ARH 305

CL 329 - Imperial Rome

Same as HY 329

CL 330 - Classical Political Philosophy

Same as PHL 330

CL 340 - Special Topics

The following course was not found in the supplied content but, was listed in program requirements. Please review and provide us, if possible, with the correct information.

CL 399 - Independent Study approved by the director

The following course was not found in the supplied content but, was listed in program requirements. Please review and provide us, if possible, with the correct information. Same as HY 399

CL 499 - Independent Study in Latin

The following course was not found in the supplied content but, was listed in program requirements. Please review and provide us, if possible, with the correct information. Same as FL 499

FYE 101 - Charger Success

Hours: 1

The purpose of Charger Success 101 is to help new students make a successful transition to the University of Alabama in Huntsville, both inside and outside the classroom. This course aims to foster a sense of belonging, promote engagement in the academic life of the university, and articulate to students the expectations of the University. In addition, the course will assist students to develop and apply critical thinking skills, as well as to help students to clarify their academic goals and eventual crareer direction. This course is mandatory for all freshman students.

GS 199 - Study Abroad

Hours: 3

Course will involve travel to selected countries for academic study purposes. Topics and countries will vary. Duration of travel will normally vary between one and three weeks and will incur additional costs to the student. The course will be taught in English and is open to all UAHuntsville students with permission of the instructor. May be repeated for credit when the content of the course differs. Offered Primarily offered during the spring and summer terms.

GS 200 - Global Systems and Cultures

Hours: 3

A multidisciplinary introduction to global studies through a focus on cultural, economic, political, and historical dimensions of interactions among world nations and cultures. Offered Annually.

GS 220 - Globalization Technology and Culture

Hours: 3

A multi-and interdisciplinary exploration of the interconnections between technology, culture, and globalization. Offered annually.

GS 399 - Study Abroad

Hours: 3

Travel to selected countries for academic study purposes. Topics and countries will vary. The course will be taught in English and is open to all UAHuntsville students with permission of the instructor. May be repeated for credit when the content of the course differs. Offered During the summer primarily.

GS 400 - Topics in Global Studies

Hours: 3

Maintaining a multi- and interdisciplinary focus, this course explores a particular topic pertinent to Global Studies from multiple perspectives. Course topics will vary annually. Course is open to students seeking upper-division elective credit and serves as the capstone course for Global studies dognate students. Prerequisites: Junior or Senior Status. Offered Annually.

GY 105 - World Regional Geography

Hours: 3

This course introduces the study of not only the location of places, but more importantly the physical and cultural features, economies, and population of the world's geographic regions. By exploring the interactions between people and their environment.

GY 110 - Principles of Human Geography

Hours: 3

This course serves as an introduction to geography as the science of location, emphasis on spatial patterns of human activities. Location of economic activities, location of cities as market and production centers, movement networks, and images and perceptions of landscapes form the core of the course.

WS 200 - Introduction to Women's Studies

Hours: 3

Focusing on gender as a fundamental category of meaning, introduces methods and approaches to Women's Studies in a variety of disciplines, examining the pervasive and often unacknowledged ways that gender changes our social institutions, individual knowledge, and interpersonal relationships.

WS 340 - Special Topics

Hours: 1-3

Pre-announced special areas addressed in seminar format, laboratory work, or practicum. May be taken twice for credit. Prerequisites: WS 200.

WS 499 - Independent Study

Hours: 1-3

Readings and/or individual research in an area of specialized interest to both student and instructor. Prerequisites: WS 200 and permission of instructor.

Art and Art History

ARH 100 - Art History Survey: Ancient to Medieval

Hours: 3

Survey of the material culture, including architecture, sculpture, painting, mosaic, jewelry, and ceramics, produced by Pre-historic European, Near Eastern, Egyptian, Bronze Age Aegean, Greek, Roman, Byzantine East, Islamic, and Medieval European cultures. Course emphasizes study of the cultural contexts that fostered the creation of art. Lower division art history courses explore the major monuments of art, ancient through contemporary, in their historical and cultural contexts. These courses introduce the student to the basic analytic tools of art history.

ARH 101 - Art History Survey: Renaissance to Modern

Hours: 3

Survey of the major works of art and architecture produced since the Renaissance, their major themes, the artists, and the critical issues that affected the cultures in which they were created. Lower division art history courses explore the major monuments of art, ancient through contemporary, in their historical and cultural contexts. These courses introduce the student to the basic analytic tools of art history.

ARH 103 - Art History Survey: Non-Western

Hours: 3

Survey of visual culture in India and Southeast Asia, China, Japan and Korea, the Americas, the Pacific, and Africa. Lectures, readings, and discussions will focus on relationships among works of art, religious belief systems, political conventions, and cultural practices. Lower division art history courses explore the major monuments of art, ancient through contemporary, in their historical and cultural contexts. These courses introduce the student to the basic analytic tools of art history.

ARH 120 - Special Topics

Hours: 3.

This course allows for the survey-style exploration of special topics in art history and related fields such as archaeology.

ARH 301 - Art History: Ancient Greek

Hours: 3.

Major works of art and architecture produced in the ancient Greek world from the Bronze Age through the first century B.C. in their social and political context. Attention given to the relationship of art to other forms of cultural expression such as philosophy, religion, literature, and drama. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

ARH 302 - Art History: Medieval

Hours: 3

Art and architecture of the medieval period from the transformation of the Roman Empire into a Christian state at the beginning of the fourth century to the late Gothic period around 1400. Cultural contexts in which art and architecture were produced in Europe and the Greek East. Examine architecture, sculpture, manuscripts, metalwork, stained glass, and other media. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

ARH 303 - Art History: Renaissance

Hours: 3

Art and architecture within the context of thirteenth through sixteenth century western Europe, marked by the rise of art theory

and criticism and new concepts of the artist's role in society. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

• ARH 304 - Art History: Twentieth Century

Hours: 3

Developments in European and American art from 1890 to World War II, covering major movements including Cubism, Dada, Surrealism, Expressionism, Russian Constructivism, and Abstract Expressionism. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

• ARH 305 - Art History: Ancient Roman

Hours: 3

Art and architecture of the ancient Romans, from the Etruscans through the fourth century CE in their religious, political, and social contexts. Special attention given to focused study of specific periods, such as the age of Augustus, or physical contexts, such as Pompeii. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

• ARH 306 - Art History: Collapse of Civilizations

Hours: 3.

This course will investigate why some cultures succeed and others fail. From the archeological and historical record of past civilizations we will examine the factors which lead to collapse in an attempt to address a question that is relevant to the contemporary world. How severe do internal stresses have to become in a civilization before relatively minor climate shifts can trigger a widespread cultural collapse? Prerequisites: ARH 103.

• ARH 307 - Art History: Impressionism and Post-Impressionism

Hours: 3

European and American art from 1860 to 1900 will be examined through historical, political, social, philosophical, and literary perspectives. Impressionism, Post-Impressionism, Symbolism, and the Art for Art's Sake movement will be studied through the works of artists such as Monet, Renoir, Van Gogh, Rodin, and Whistler. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

• ARH 309 - Art History: Contemporary Art and Issues

Hours: 3

Major movements since World War II, including Abstract Expressionism, Neo-Dada, Pop, Photorealism, Minimalism, Conceptual Art, Earthworks, New Realism, Neo-Expressionism, Performance, and Post-modernism. Special focus is given to the last five

years in contemporary art. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

• ARH 310 - Art History: Nineteenth Century

Hours: 3

European and American art from 1780 to 1860 will be examined through historical, political, social, philosophical, and literary perspectives. Neoclassicism, Romanticism, the Hudson River School, and Realism will be studied through the works of artists such as David, Goya, Turner, Cole, and Courbet. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100 and 101 required for majors and recommended for non-majors.

• ARH 311 - Art History: Philosophy of Art

Hours: 3.

Major aesthetic theories of the western tradition, with emphasis on the relation between artistic and discursive expression. Art majors only; other students should register for PHL 310. Prerequisites: Two 100-level art history classes chosen from ARH 100, 101, or 103. Same as PHL 310.

• ARH 320 - Art History: Special Topics

Hours: 3

Special topics[2] on periods of art history selected from ancient to contemporary as offered. Upper division art history courses present the art of specific periods in its historical, literary, philosophical, political, and social contexts. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: ARH 100, 101 and 309.

• ARH 395 - Independent Study

Hours: 3

Directed, independent study on a topic prearranged with the approval of the instructor, normally as an outgrowth of a 300-level art history course. Weekly meetings with the instructor oversee the completion of the approved research project. Approval of the instructor is required. Prerequisites: Approval of instructor.

• ARH 400 - Art History: Senior Thesis

Hours: 3

Directed study for the development of a scholarly research paper on special topics in art history as offered. Required for all students with an Art History focus. This course guides the student in critical reading of selected art historical and interdisciplinary scholarship. Prerequisites: 18 semester-hours of upper-level ARH courses and Approval of Instructor.

• ARS 123 - Two-Dimensional Design and Color Theory

Hours: 3

Principles and elements of composition including color theory. Problem-solving assignments explore formal and intuitive design concepts and the analytical and expressive understanding and application of color. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: NONE.

• ARS 140 - Three-Dimensional Design

Hours: 3

Introduction to three-dimensional design through the investigation of a wide range of forms and processes. Problem-solving assignments address a variety of design approaches, while considering the traditional and non-traditional roles of materials and the proper use of tools. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: NONE.

• ARS 160 - Drawing: Foundations

Hours: 3

Introduction to the principles, tools, materials, techniques, and concepts of drawing. Through exercises in rendering from observation, studies in perspective, and problem solving, students develop strong visual skills, consider the role of aesthetics, and begin to explore a variety of means for artistic expression. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: NONE.

• ARS 230 - Graphic Design: Introduction

Hours: 3

Introduction to graphic design theories, principles, and tools, with instruction in the basics of graphic design through practical understanding of visual communication and logistics of advertising media, stressing traditional and electronic techniques. Students will also become familiar with the Macintosh platform and digital layout methods, using software applications currently used in the industry. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: ARS 123 and 160, or Approval of Instructor.

• ARS 240 - Sculpture: Introduction

Hours: 3

Introduction to basic concepts employed to create sculptural forms. Students will develop and explore their ideas using a variety of traditional and non-traditional tools, materials and processes. Making of sculpture through assemblage, subtraction, modeling, and casting processes will be addressed to gain an understanding of the relationship between the formal, conceptual, and aesthetic concerns that are integral to the making of all art. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: ARS 140.

• ARS 250 - Photography: Introduction

Hours: 3

Fundamentals of the digital camera, image capture, digital scanning, and image manipulation with Adobe PhotoShop software. Basic printing and image preparation for the web and other media will also be explored. Basic Mac OS and/or Windows skills and digital camera required. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: For art majors, ARS 123 and ARS 160; for non art majors, Approval of Instructor.

• ARS 260 - Drawing: Introduction

Hours: 3

This course further develops drawing skills and individual expression through the study and practice of selected drawing approaches. Materials, compositional strategies and conceptual approaches will be explored. Critical thinking and visual analysis will be used in critique of artwork. The class will also stress the further development of visual and manual skills, problem solving abilities, and an awareness of the tools and materials used in the making of art. Prerequisites: ARS 123 and 160.

• ARS 270 - Painting: Introduction

Hours: 3

Introduction to formal and technical problems of painting. Experimentation with basic painting media, techniques, and the mechanics of painting. Problem solving assignments emphasize two-dimensional design and color theory concepts and practices. Nude models may be used. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: ARS 123 and 160.

• ARS 280 - Printmaking: Introduction

Hours: 3

Introduction to the four basic areas of printmaking including relief, screen-printing, etching and lithography. Emphasis on improving two-dimensional design concepts, color theory and drawing skills. Lower division studio courses stress the development of visual and manual skills, problem solving abilities, critical thinking, and an awareness of the tools and materials used in the making of art. Prerequisites: ARS 123 and 160.

• ARS 330 - Graphic Design: Print Media I

Hours: 3

Print Media I emphasizes creative exploration in design and the area of offset printing. Students will learn how to communicate with printers and prepare work for use in mass printing. Students will explore how to use layout software and other current processes in print media. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 230.

• ARS 332 - Graphic Design: Web Design

Hours: 3.

A beginning to intermediate course in web design that emphasizes the aspects of planning and creativity. Focus is on learning how to build effective and creative websites. Current web software is taught in this course. Upper division studio courses explore

the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 230.

• ARS 333 - Graphic Design: Watercolor and Digital Media I

Hours: 3.

Course approaches graphic design from an illustration and fine arts perspective. Class has an image-based focus on creativity, conceptual thinking, and visual exploration. Course explores different creative directions using current software in combination with watercolor media. The course emphasizes vocabulary, expression, and design pedagogy. Student artist will learn how to handle watercolor as a medium, develop creative concepts, and use software to support their design. Prerequisites: ARS 123, ARS 160, or Approval of Instructor.

• ARS 334 - Graphic Design: Web Animation I

Hours: 3.

The course explores web animation, interactive media, and advanced web design. Focus is on the development of a comprehensive interactive portfolio utilizing the latest software web animation applications. Students develop their artistic facility and a vocabulary of visual symbols for personal expression in the web environment. Prerequisites: ARS 332 or Approval of Instructor.

• ARS 340 - Sculpture: Fabrication I

Hours: 3.

Exploration of a variety of assemblage processes including wood, metal and fabric construction. Emphasis is placed on idea development and investigating a wide range of forms and materials. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 240.

• ARS 341 - Sculpture: Carving I

Hours: 3.

Carving stone, wood, and other materials is investigated with emphasis placed on developing the ability to see and release hidden form and on the unique relationship formed between maker and material. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 240.

• ARS 342 - Sculpture: Casting I

Hours: 3.

Investigation of foundry processes and materials involved in mold making in both traditional and non-traditional methods. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of

artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 240.

• ARS 346 - Sculpture: Figure Modeling I

Hours: 3.

Study of the human form through direct clay modeling from life including anatomical studies, armature construction, mold making and casting. Nude models will be used. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 240.

• ARS 347 - Sculpture: Installation and Environmental I

Hours: 3.

Investigation of installation and environmental art practices including site-specific work, public art, and interactive environments. Students will explore and develop works that are experienced by physically moving through a created space. Emphasis placed on how sculptural objects behave in space. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 240.

• ARS 350 - Photography: Digital I

Hours: 3.

Digital image creation and editing techniques using image-manipulation software, digital printing, and image presentation. Course addresses contemporary issues in digital image-making as a fine art medium. Students are required to provide their own digital camera. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 123, 160, 250.

• ARS 352 - Photography: Darkroom I

Hours: 3.

Black/White film and darkroom techniques explored as a means of expression in the production of fine art. Course addresses contemporary issues and discusses artistic styles. Students are required to provide their own 35 mm film camera. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 123, 160, 250.

• ARS 353 - Photography: Experimental and Historical I

Hours: 3.

Introduction to alternative processes with emphasis on historical techniques such as cyanotypes, the camera obscura, and image

transfers. Students are required to provide their own 35 mm film camera. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 352.

• ARS 355 - Photography: Documentary I

Hours: 3.

A study of the documentary genre of photography throughout the history of the medium from the first portraits and travel photographs to photojournalism and ethical issues of the modern world. Students are required to present a final portfolio of photographs. Prerequisites: ARS 350.

• ARS 360 - Drawing: Figure

Hours: 3.

Drawing with an emphasis on life drawing utilizing both traditional and contemporary methods and materials. Nude models will be used. Prerequisites: ARS 260.

• ARS 375 - Painting: Traditional I

Hours: 3

Investigation of figure painting, focusing on technical and philosophical approaches to using the human form as subject matter. Nude models will be used. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 270.

• ARS 376 - Painting: Contemporary I

Hours: 3

Contemporary approaches toward painting are explored through technical and conceptual exercises based on contemporary painting practices. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 270.

• ARS 377 - Painting: Mixed Media I

Hours: 3.

Exploration of painting with mixed and non-traditional media as vehicles of expression including the use of assemblage and collage processes, shaped or contoured canvasses, and related media. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 270.

ARS 381 - Printmaking: Etching and Lithography I

Hours: 3.

Studio practices in etching and lithography are covered in greater depth. Etching processes may include aquatint, photo processes, and ferric chloride methods. Lithography processes may include aluminum plate lithography and waterless lithography. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 280.

ARS 383 - Printmaking: Relief and Screen Printing I

Hours: 3

Studio practices in relief and screen-printing are covered in greater depth. Relief processes may include woodcut and color woodcut. Screen processes may include reduction screen, CMYK, and combination printmaking. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 280.

ARS 385 - Printmaking: Book Arts I

Hours: 3.

This course explores bookmaking as a fine art. It will cover various methods of book binding and bookmaking techniques such as accordion, pullouts, pockets, etc. This course also examines letterpress techniques as well as type setting. Prerequisites: ARS 280.

ARS 387 - Printmaking: Monoprint and Monotype I

Hours: 3.

Studio practices in monoprint and monotype are covered in depth. Monoprint and monotype processes include paper lithography, color viscosity, cintra plate, collograph, no-print and direct plate processes. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 280.

ARS 390 - Cross Disciplinary Studio I

Hours: 3.

This portfolio development course allows students to work with and gain feedback from studio professors and students from different studio disciplines. Students will explore a variety of conceptual approaches as well as exploring the possibility of combined and/or non-traditional media. Prerequisites: ARS 123, 140, 160, 260, plus a minimum of two 300-level studio courses.

ARS 393 - Multimedia I

Hours: 3.

Study and practice of artistic approaches which freely combine elements of various art forms such as painting, printmaking, photography, sculpture, video, or performance, usually developed along strong conceptual or thematic lines. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: For art majors: ARS 123, 140, 160, and 260; for minors: Approval of Instructor.

• ARS 395 - Special Topics in Studio Art

Hours: 3.

Special topics on particular media or conceptual approaches to art. Upper division art studio courses present methods, materials and/or thematic approaches to studio art practice. This course allows the student to explore new media and/or critical or theoretical approaches to contemporary art. Prerequisites: ARS 123, 140, 160 and 260 plus at least two additional 200-level studio courses.

• ARS 430 - Graphic Design: Print Media II

Hours: 3

An advanced-level course that emphasizes special applications of print design, environmental graphics, and advertising campaigns. Focus is on mastering print media methods and creating portfolio enhancement projects. Students are guided in their development of artistic facility and vocabulary of visual graphic representation for professional development. Students learn conceptual thinking, professional practices, creative research, and advance print production. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 330 (the former ARS 331) or Approval of Instructor.

• ARS 432 - Graphic Design: Senior Projects Management

Hours: 3

Students will develop and/or manage a web site for a business or organization. This course is a final, practical test of all theories and skills developed through the Web Communications Minor. It is also open to BA and BFA students. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: Approval of Instructor.

• ARS 433 - Graphic Design: Watercolor and Digital Media II

Hours: 3.

Course extends a student's knowledge of digital and traditional media. The purpose of this course is to further explore creative techniques, develop a style direction, and apply new techniques through technology application. Students will develop a philosophy for their work, explore creative methods in illustration and create a well-defined direction in their personal exploration of media. Prerequisites: ARS 333 or Approval of Instructor.

• ARS 434 - Graphic Design: Web Animation II

Hours: 3.

An advanced-level course that emphasizes extensive study of web animation, interactive media, and web design. Focus is on further developing animation skills through the use of current and active language methods. This is a studio course that explores the details of website specialization. Students will increase their vocabulary and enhance their educational experience through in-depth animation study. Prerequisites: ARS 334 or Approval of Instructor.

• ARS 440 - Sculpture: Fabrication II

Hours: 3

Continued exploration of fabrication processes. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 340.

• ARS 441 - Sculpture: Carving II

Hours: 3

Continued exploration of subtractive processes. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 341.

• ARS 442 - Sculpture: Casting II

Hours: 3.

Continued exploration of casting and foundry processes as well as contemporary methods and materials. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 342.

• ARS 447 - Sculpture: Installation and Environmental II

Hours: 3.

Continued investigation of installation and environmental art practices including site-specific work, public art, and interactive environments. Students will explore and develop works that are experienced by physically moving through a created space. Emphasis placed on how sculptural objects behave in space. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 347.

• ARS 450 - Photography: Digital II

Hours: 3

Advanced digital image creation and editing techniques using image-manipulation software, digital printing, and image presentation. Emphasis on personal style to produce cohesive portfolio. Students are required to provide their own digital camera.

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• ARS 452 - Photography: Darkroom II

Hours: 3

Advanced black/white film and darkroom techniques with emphasis on personal style to produce cohesive portfolio. Students are required to provide their own 35 mm film camera. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 352.

• ARS 453 - Photography: Experimental and Historical II

Hours: 3

Advanced alternative techniques with emphasis on personal style to produce cohesive portfolio. Students are required to provide their own 35 mm film camera. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 353.

• ARS 455 - Photography: Documentary II

Hours: 3.

Advanced study of the documentary genre of photography throughout the history of the medium from the first portraits and travel photographs to the photojournalism and ethical issues of the modern world. Students are required to present a final portfolio of photographs. Prerequisites: ARS 355.

• ARS 460 - Drawing: Conceptual

Hours: 3.

Practice and theory focusing on drawing as a major medium, utilizing both traditional and contemporary methods and materials. Assignments are concept based. Nude models may be used. Prerequisites: ARS 360.

• ARS 475 - Painting: Traditional II

Hours: 3

Continued exploration of painting processes with an emphasis on portfolio development and professional practices. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 375.

ARS 476 - Painting: Contemporary II

Hours: 3

Continued exploration of contemporary painting approaches with an emphasis on portfolio development and professional practices. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 376.

ARS 477 - Painting: Mixed Media II

Hours: 3.

Continued exploration of mixed and non-traditional media with an emphasis on portfolio development and professional practices. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 377.

ARS 481 - Printmaking: Etching and Lithography II

Hours: 3

Continued exploration of stone lithography, photo lithography, multi-plate lithography, intaglio and various etching techniques. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 381.

ARS 483 - Printmaking: Relief and Screen Printing II

Hours: 3

Continued exploration of relief and screen-printing processes. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 383.

ARS 485 - Advanced Book Arts II

Hours: 3.

Studio practice of book arts are covered in greater depth. Bookmaking techniques will include pop-ups, dueling accordions, etc. Course will also further cover letterpress techniques in association with bookmaking. Prerequisites: ARS 385.

ARS 487 - Advanced Monoprint and Monotype II

Hours: 3.

Advanced studio practices in monoprint and monotype are covered in greater depth. Upper division studio courses explore the

specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 387.

• ARS 490 - Cross Disciplinary Studio II

Hours: 3.

This advanced portfolio development course allows students to work with and gain feedback from studio professors and students from different studio disciplines. Students will explore a variety of conceptual approaches as well as exploring the possibility of combined and/or non-traditional media. Prerequisites: ARS 390.

• ARS 492 - Art Internship

Hours: 3.

Practical experience in the workplace allows the student to apply principles, theories, and skills learned in Studio Art and/or Art History courses. Arranged by the student with consent of the Chair, the student meets regularly with a faculty advisor, keeps a log of activities, and submits a report on the internship. Prerequisites: Junior Standing and Approval of Instructor.

• ARS 493 - Multimedia II

Hours: 3.

Continued exploration of multi-media art works. Upper division studio courses explore the specific nature of each area of specialization. Students are guided in their development of artistic facility and of a vocabulary of visual symbols for personal expression. They learn that the making of art is not solely the exercise of artistic skill, but that it requires the employment of reasoning and intellectual ability in entirely new and uniquely personal ways. Prerequisites: ARS 393.

• ARS 494 - Professional Practices

Hours: 3.

This Professional Practices course is a requirement for studio majors in the BFA, but is also open to BA students. The course includes all areas of preparation for the senior exit show, as well as the development of an artist resume and statement. Students will learn about a variety of careers in the visual arts, marketing and grant-writing techniques, documentation of work, and possibility for residencies and graduate studies. Prerequisites: ARS 123, 140, 160, 260, plus a minimum of four 300- or 400-level studio courses.

• ARS 495 - Independent Project

Hours: 3

Available for an advanced major when an appropriate course is not offered and would hinder progress to graduation. May be taken only one time. Prerequisites: Approval of Instructor.

Communication Arts

CM 110 - Voice and Diction

Hours: 3

Language, speech, and hearing as part of developmental training in vocal skills. Does not satisfy College of Engineering HU/SS requirement.

CM 113 - Introduction to Rhetorical Communication

Hours: 3

Develops public speaking skills through an examination of rhetorical theory, training, and practice.

CM 122 - Theater Appreciation

Hours: 3

Introductory survey of theater art focusing on understanding performance components and genres. Satisfies fine arts elective.

CM 205 - Media Writing

Hours: 3

Basic news writing, learning how to identify news, develop leads, organize information, develop stories, revise drafts, and copy-edit articles, all while working under simulated deadline pressure.

CM 221 - Acting

Hours: 3

Fundamentals of acting, including physical, vocal, and intellectual skills. Theory and practice in script analysis, scene study, improvisation, and mime.

CM 231 - Foundations of Human Communication

Hours: 3

Examines how human communication shapes and adapts to a variety of practical settings public, interpersonal, organizational, mass, and technical.

CM 251 - Decision-Making in Small Groups

Hours: 3

Introduction to the theories and techniques of group discussion and decision-making, emphasizing the skills of leadership, participation, and oral presentation.

CM 301 - Technical Writing

Hours: 3

Practical writing, especially technical or scientific reports and proposals, with emphasis on organization, research and presentation. Prerequisites: EH 101 and 102 and Junior Standing. Same as EH 301.

CM 302 - Technical Editing

Hours: 4

Clarifying, expanding, reducing, and rewriting technical reports and other documents created by others. Emphasis on elements of style and usage, revision, proofreading, and application of rhetorical techniques to the work of engineers, scientists, and technicians. Involves collaborative project with real-world application. Offered spring semester only. Prerequisites: EH 101 and 102 and junior standing. Qualifies as elective in English major. Does not count toward English minor except for Cognate Studies in Technical Writing. Does not count toward certification in Secondary education. Offered Spring Semester only. Same as EH 302.

CM 309 - History of Rhetoric

Hours: 3

Survey of rhetorical theory from ancient Greece and Rome through the present day. Prerequisites: CM 113 or approval of instructor.

CM 310 - Persuasion

Hours: 3

Principles and practices in persuasive communication, emphasizing observation and analysis of persuasive events on qualitative and quantitative levels.

CM 311 - Interviewing

Hours: 3

Interviewing theory and practice.

CM 313 - Business and Professional Communication

Hours: 3

Examines communication theories and practices relevant to the business context with a focus on oral presentations, interviewing, group leadership, and face-to-face communication. Develops knowledge and skills necessary for effective communication within business environments. (Prepares administrative science students to meet the oral communication requirement in upper division and graduate business courses.)

CM 316 - Legal Argument

Hours: 3

Examines argumentation in legal communities, that is, the way lawyers and judges provide reasoned support for the positions they defend concerning what the law requires in a given case. It considers common forms of legal argument, sources and forms of evidence, and legal values that underlie legal argument. It provides students with a critical perspective from which to judge legal arguments and a basic set of tools for developing legal arguments. Prerequisites: Junior standing or consent of instructor.

• CM 320 - Practicum in Writing

Hours: 1-3

Writing and editing under the supervision of professionals. May be repeated up to 3 times for no more than 3 hours total credit. Enrollment requires advance planning. Prerequisites: CM 301, 302, enrollment in the Technical Writing Track, and a successful interview with the participating technical supervisor.

• CM 322 - Theater History I

Hours: 3

Explores the development of theater art from its origins to French neoclassicism and Moliere with particular emphasis on the Greeks, Shakespeare, and his contemporaries.

• CM 323 - Theater History II

Hours: 3

Traces the development of world theater from French neoclassicism to contemporary drama with emphasis on changes in the twentieth century.

• CM 325 - Elements of Theatre Production

Hours: 3

This course is designed to give students the opportunity to explore the design components of theatre including scenery, costumes, lighting and sound through class projects and practical application. Prerequisites: CM 122 or permission of instructor.

• CM 330 - Nonverbal Communication

Hours: 3

Examines the diversity of human nonverbal behavior and its influences on everyday communication experiences. Same as PY 330.

• CM 331 - Communication Theory

Hours: 3

Lecture/Lab Lecture Examines significant theoretical frameworks for the study of human communication and mass communication. Develops knowledge of communication processes and social influence. Provides preparation for senior seminar

in communication theory and research. Prerequisites: CM 231

• CM 333 - Interpersonal Communication

Hours: 3

Examines the process of communication between individuals. Prerequisites: CM 231 or permission of instructor.

• CM 340 - Special Topics in Communication Arts

Hours: 3

Topics announced in advance. Representative topics include Media Effects, Intercultural Communication, and Corporeal Theory and Cultural Politics. May be repeated twice for credit.

• CM 345 - Media Representation

Hours: 3

This course examines some of the relationships between media systems in the U.S. and their role in the social construction of cultural identities. This class will focus on media representations of race, gender, beauty, sexuality, body image and power, audience interpretations of such media portrayals, critical analyses of media culture and content, and what to do about these concerns: media literacy, activism & advocacy. Prerequisites: Junior standing or consent of instructor.

• CM 370 - Communication Research Methods

Hours: 3

Examines social scientific concepts, theories and designs commonly used in interpersonal communication research. Develops knowledge and skills necessary for employment in fields involving the study of communication behavior and perception. Provides preparation for senior seminar in communication theory and research. Prerequisites: CM 231.

• CM 375 - Rhetorical Criticism

Hours: 3

This course is an introduction to the critical analysis of public discourse. Specifically, it focuses on understanding how the variables of situation, audience, and rhetoric influence the production and reception of public messages. Prerequisites: CM 113 or approval of instructor.

• CM 400 - Internship

Hours: 1-6

Practical experience in the workplace allows the student to apply principles, theories, and skills learned in communication arts courses. Arranged by the student with consent of the chair, the student meets regularly with a faculty advisor, keeps a log of activities, and submits a report on the internship. Prerequisites: Senior standing with CM major.

CM 402 - Theory and Practice in Technical Communication

Hours: 3

Explores the relationships between common practices in technical communication and the theories that legitimize those practices. Introduces students to research and theories about fundamental issues in technical communication, and may then become the basis for further graduate study in technical communication. Prerequisites: Advanced undergraduate standing, CM 301, 302 are strongly recommended. Same as EH 401.

CM 405 - Advanced Media Writing

Hours: 3

Introduces and investigates a variety of media writing genres through the generation of advertising, public relations, magazine, and multimedia copy. Prerequisites: CM 205 or permission of instructor.

CM 416 - Women Orators

Hours: 3

Critical examination of women's public address as it has developed through women's participation in movements for abolition, temperance, women's suffrage, and equal rights.

CM 425 - Theatre Mainstage

Hours: 3

This course provides students with an opportunity to experience the complete process of theatre including such elements as: direction, acting, design, tech and management. The class will produce two full length plays. Students will be auditioned to determine role in each production. Some will serve critical production roles such as design, direction, and management while others will act in one or both productions. In certain instances, a student actor may appear in both plays. Prerequisites: CM 221 or CM 325 or permission of instructor.

CM 426 - Burkeian Theory & Criticism

Hours: 3.

This course surveys key concepts in the theory of Kenneth Burke and their discussion and application by rhetorical scholars. Through readings, lectures, and class discussions students will gain insight into this, the most important rhetorical theorist of the 20th century. Prerequisites: Junior Standing.

CM 430 - Mass Media in America: Theory and Criticism

Hours: 3

This course encourages students to recognize the role media play in our everyday lives and in our construction of culture. The class also works to critically trace a media product through its production, content, audiences and social impact. The course emphasizes current research perspectives in media and its contemporary texts, primarily film, television, and mass marketed magazines. The course requires attention to and development of a media literacy campaign. Same as SOC 376.

• CM 431 - Senior Seminar in Communication Theory and Research

Hours: 3

Research and public presentation of original work demonstrating the ability to carry out a complete scholarly project. Prerequisites: CM 370, 375, and senior standing. Offered Spring semester.

• CM 433 - Dark Side of Interpersonal Communication

Hours: 3.

Traditional Interpersonal Communication pedagogy focuses on more of the positive aspects of relationship formation and maintenance. This course offers a more complete view of human relaitonships by exploring a variety of topics related to the "darker" side of relationships situated in the contexts of frienships, family members, and intimates. By exploring issues such as deception, fatal attraction, jealousy and envy, conflict, stalking, abuse, and many others, students acquire a more complete view of human relationships. Prerequisites: CM 231.

• CM 444 - Advertising

Hours: 3.

This course will examine the emergence of advertising as a form of communication, its influence upon other forms of mediated communication and its impact upon culture and society. Students will learn how to develop and present an advertising strategy for an actual brand. Prerequisites: Junior Standing.

• CM 451 - Organizational Training and Development

Hours: 3.

Provides upper-level undergraduates with the opportunity to learn how to design organizational training programs beginning with the needs assessment and continuing through the evaluation and implementation phases. Prerequisites: Junior standing or above.

• CM 456 - Communication and Culture

Hours: 3.

This course focuses on the application of theory and research to intercultural communication. Topics and activities assist students in developing communication skills that improve their competence in intercultural situations. By addressing the different world views that shape our perceptions, values, attitudes, and beliefs of different people, the Culture and Communication course challenges students to become aware of cultural differences, avoid ethnocentrism, and work toward effective communication with unalike others. Prerequisites: Junior Standing.

Education

• ED 115 - Effective Reading and Study Skills

Hours: 3

Developmental course focusing on acquisition of strategies to expand an individual's ability to read and study materials encountered in higher education. Effective reading and study strategies which incorporate reading, writing, and listening skills are taught and applied, using college texts and related readings.

• ED 301 - Introduction to Education Practicum

Hours: 1

Initial practicum experience designed to provide the opportunity to explore the role of the classroom teacher in today's diverse school settings. The five-day observation will be integral to the content and objectives of ED 305 and 308, and will provide a foundation for the coursework and activities. Required for all students, including transfer students, students adding an endorsement, and certification-only student. Prerequisites: Permission of the department chair.

• ED 305 - Foundations of Education in the United States

Hours: 3

Survey of social, cultural, historical, and philosophical foundations of education; interrelationships of society and education, effects of social change and influences of social-cultural values upon education; educational ideas and processes as they attempt to shape curricula. The perennial search for the meaning of education, perceived not merely as schooling, but as a process of enculturation and socialization. Intensive field experience required. To be taken concurrently with ED 301 and 308. Prerequisites: Permission of the department chair.

• ED 307 - Multicultural Foundations of Education

Hours: 3

This course will provide students with an understanding of selected philosophical, historical, social, cultural, political, and economic questions and influences on the development of educational policies and practices. Through an examination of constructs such as race, ethnicity, social class, gender, sexual orientation, and religious affiliation, students will develop an understanding of the connections between identity, difference, power, and privilege and the role(s) schools play in perpetuating or ending discriminatory practices. Prerequisites: Department permission.

• ED 308 - Educational Psychology

Hours: 3

Psychological principles basic to an understanding of the learner, the learning process, and the learning situation. Intensive field experience required. To be taken concurrently with ED 301 and 305. Prerequisites: Permission of the department chair.

• ED 309 - Classroom and Behavior Management

Hours: 3

This course focuses on instructional options that learners need in order to be successful. It takes a broad approach to classroom and behavior management that is grounded in both theory and reflective practice. Content will emphasize the study and implementation of a variety of classroom and behavior management strategies that are necessary for working with diverse populations. To be taken concurrently with EDC 301 and 311. Intensive field experience in an assigned public school required. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• ED 310 - Integrating the Creative Arts in Elementary School Classrooms

Hours: 3

This course is designed to serve as an introduction to the basic principles of visual and performing arts education for the elementary school setting. Emphases will be placed on methods for enhancing student learning and creative thinking through integration of the creative arts (art, music, drama, and movement-dance) into K-6 classroom instruction. Intensive school and community-based practicum required. Prerequisites: Admission to the Teacher Education Program.

• ED 315 - Educational Evaluation and Measurement

Hours: 3

This course is designed to help prospective teachers use and construct a range of assessments that will help them plan and teach more effectively, improve learning and meet state and national standards. The class will focus on more traditional assessment issues such as validity and reliability, as well as the alternative assessments that are likely used in today's classrooms. Furthermore contextual issues such as educational accountability testing, the No Child Left Behind Act, and teacher testing and evaluation (PEPE) will be explored. Intensive field experience required. Taken concurrently with ED 373, 374, 405. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• ED 325 - The Sociology of Education

Hours: 3

Sociological approach to the study of education as a social institution; its structure, function and role in contemporary life. Prerequisites: SOC 100 or approval of instructor. Same as SOC 325.

• ED 350 - Technology in the Classroom

Hours: 3

Introduces prospective teachers to current state of the art in educational technology. Designed as a laboratory course providing extensive hands-on experiences with microcomputers and other emerging technology. Emphasis is on enabling the student to effectively integrate technology into instructional settings. May be taken prior to or concurrently with ED 301, 305, and 308

• ED 371 - Teaching Elementary Language Arts

Hours: 3

Introduction to current practices in language arts instruction with emphasis on the development of an integrated curriculum using children's literature as a foundation. Includes appropriate techniques for the teaching of grammar, spelling, and handwriting. Intensive field experience required. To be taken concurrently with ED 372 and 375. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• ED 372 - Teaching Elementary Social Studies

Hours: 3

Teaching social studies in grades K-6. Helping beginning teachers acquire background skills in organizing and teaching units of work. Intensive field experience required. To be taken concurrently with ED 371, and 375. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

ED 373 - Teaching Elementary Science and Health

Hours: 3

Integrates concepts from reflective practice with elementary science teaching. Opportunity to refine teaching skills in the planning, implementation, and evaluation of science lessons and units of instruction. Intensive field experience required. To be taken concurrently with ED 374 and 405. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

ED 374 - Teaching Elementary Mathematics

Hours: 3

Overview of the mathematics concepts and skills taught in grades K-6 with an emphasis on the principles, methods, and materials used in the teaching and evaluation of elementary school mathematics. Focuses on the attitudes and behaviors of students and teachers in the actual planning and implementation of mathematics instruction for an elementary school classroom. Intensive field experience required. To be taken concurrently with ED 373 and 405. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

ED 375 - Teaching Reading in Primary Grades

Hours: 3

This course provides an introduction to basic principles of early literacy instruction in culturally and linguistically diverse classrooms, including theoretical bases for literacy instruction in grades K-2, methods of instruction and organization, the major components of primary grade reading instruction, developmentally appropriate strategies and materials, and assessment of children's literacy needs. Intensive field experience in an assigned public school required. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

ED 405 - Reading Strategies in Intermediate Grades

Hours: 3

This course provides an in-depth study in and application of the process of reading and reading instruction, theoretical approaches, instructional strategies, classroom organization, and the formal/informal assessment of reading in intermediate grades. This course is required of all elementary education majors and secondary education candidates who are pursuing a middle school endorsement. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program or permission of the chair. ED 375.

ED 408 - Teaching Reading in the Content Area

Hours: 3

Provides knowledge of certain basic developmental and remedial reading skills, practices, and concepts. Extends those learned in previous, more fundamental, reading courses and shows how to apply fundamental skill and knowledge to the classroom. This will include adapting fundamentals of reading instruction to the various subject matter areas (i.e., the sciences, social studies, English, etc.). Survey of special reading programs such as remedial reading and reading instruction as practiced in special education. Intensive field experience required. Prerequisites: Admission to Teacher Education Program or permission of the chair.

• ED 410 - Foundations of Educational Evaluation

Hours: 3

Measurement process with emphasis on its relationship to problems of educational evaluation. Evaluation as an integral part of overall educational planning in addition to its use in measurement and evaluation of academic achievement. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• ED 413 - Children's and Adolescent Literature

Hours: 3

Course content includes the study of various genres of children's and adolescent literature and their relationship to beginning reading, enhancement of reading comprehension, and intervention instruction in the various content areas. Intensive field experience required Prerequisites: Permission of chair. Same as EH 413.

• ED 414 - Teaching Secondary Science and Mathematics

Hours: 3

Focuses on teaching knowledge and skills necessary for the secondary mathematics and science classroom: Planning, facilitating and assessing mathematics and science learning; implementing manipulative and laboratory activities; current topics related to principles and methods of secondary science and mathematics. School-based practicum required. Prerequisites: Admission to the Teacher Education Program.

• ED 415 - Teaching Secondary Humanities and Social Sciences

Hours: 3

Focuses on knowledge and skills necessary for teaching the humanities and social sciences in secondary schools. Planning, facilitating, and assessing learning in the teaching field (English, history, art, etc.); opportunities for collaboration and integration of content; current topics related to principles of learning and effective methods in classroom. School-based practicum required. Prerequisites: Admission to the Teacher Education Program.

• ED 416 - Middle and Secondary Methods Block

Hours: 3

The methods course provides background for middle school and secondary teaching from the perspective of theory, research, and practice. It is designed to provide an introduction to and practice in ways in which to engage students in learning in the humanities, mathematics, science, and social studies in middle and secondary classrooms. Topics include constructivism, planning, instructional strategies, and student assessment within and across the specific content areas. Applications will include microteaching and school-based experiences in area schools. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• ED 421 - Teaching English in Middle & Secondary Schools

Hours: 3

This course is designed to provide undergraduate level English Education majors with the theory, tools, and techniques for teaching middle and secondary students. The focus of the course is primarily, though not exclusively, on designing lessons that

allow for maximum student participation and control while remainiing aligned to Alabama Content Standards. Students will study, discuss, and implement a variety of instructional methods for helping all students succeed. Given the technologically rich environments middle and secondary students reside in, special attention will be given to the use of various technologies as a means of content exploration and student evaluation. Prerequisites: Admission to the Teacher Education Program. Offered Annually, fall semester.

• ED 422 - Teaching Math in Middle & Secondary Schools

Hours: 3

The methods course provides background for middle school and secondary teaching from the perspective of theory, research, and practice. It is designed to provide an introduction to and practice in ways in which to engage students in learning in mathematics in middle and secondary classrooms. Topics include specific educational philosophies of mathematics education, lesson and unit planning, instructional strategies, use of mathematics manipulatives and technology, and student assessment within the content area. Applications will include microteaching and internsive school-based experiences in area schools. Prerequisites: Admission to the Teacher Education Program Offered Annually, fall semester.

• ED 423 - Teaching Science in Middle & Secondary Schools

Hours: 3

The course is designed for students who are pursuing teaching certification in middle and/or secondary science. The course will first focus on how middle and secondary students learn science, and then from this knowledge base, the class context will focus on how to plan, design, and implement inquiry-based science instruction. Assessment development in science, the interpretation, and the use of assessment results to guide student understanding will also be incorporated in teaching methodology. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program. Offered Annually, Spring semester.

• ED 424 - Teaching Social Studies in Middle & Secondary Schools

Hours: 3

This course is designed to study effective techniques and strategies employed by social science teachers at the middle and secondary levels. As well as learning theoretical fundations in social studies education, students will learn pedagogic skills, instructional strategies, and modes of reasoning unique to the social studies classroom. Intensive field experience required. Students are required to observe, participate, and teach a lesson in a secondary social studies classroom. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program. Offered Annually, Spring semester.

• ED 425 - Methods for Teaching Foreign Languages in Middle & High Schools

Hours: 3.

This course is designed to provide undergraduate level Foreign Language majors with the theory, tools and techniques for teaching middle and secondary students. The focus of the course is primarily, though not exclusively, on designing lessons that allow for maximum student participation and control while remaining aligned to Common Core and Alabama Content Standards. Students will study, discuss, and implement a variety of instructional methods for helping all students succeed. Given the technologically rich environments middle and secondary students reside in, special attention will be given to the use of various technologies as a means of content exploration and student evaluation. Applications will include microteaching and school-based experiences in area schools. Prerequisites: Admission to Teacher Education Programs.

ED 430 - Applied Multiculturalism

Hours: 3

Through an examination of constructs such as race, ethnicity, social class, gender, sexual orientation, and religious affiliation, students will develop an understanding of the connections between identity, difference, power, and privilege and the role(s) schools (could/should) play in perpetuating or ending discriminatory practices. Furthermore and importantly, students will develop an understanding of the ways research in both the humanities and social sciences can be used to interpret, analyze, and critique multiculturalism. Students will leave the course with research based pedagogical practices designed to help all students learn to the best of their abilities.

ED 492 - Observation and Participation in Teaching

Hours: 3-6

Selected observation and participation in elementary schools. For students in curricula designed for both elementary and secondary schools and for experienced teachers. Prerequisites: ED 305, 308, 309, three methods courses or equivalent approved courses, and an approved application for student teaching. Permission of the chair.

ED 493 - Elementary School Internship

Hours: 12

Observation, participation and teaching in elementary school (full time, 15 week semesters). Students will also attend campus-based seminars designed to meet specific needs of the interns. Prerequisites: Completion of all professional education courses and permission of the chair

ED 496 - Middle School Internship

Hours: 3

Essentially the same as ED 495. However, it will require a minimum of 100 total clock hours, including a minimum of 30 hours of responsible teaching. It is to be used by persons seeking dual certification or by post-graduate students seeking additional areas of endorsement. Prerequisites: Permission of the department chair.

ED 497 - High School Internship

Hours: 12

Observation, participation and teaching in middle/high school (full time, 15 week semester). Students will also attend campus-based seminars designed to meet specific needs of the interns. Prerequisites: Completion of all professional education courses and permission of chair.

ED 499 - P-12 Internship (Music)

Hours: 12

Lecture/Lab Lab Observation, participation and teaching in an elementary and middle/high school (full time, 15 weeks semesters). Students will also attend campus-based seminars designed to meet specific needs of the interns. Prerequisites: Completion of all professional education courses and permission of the chair.

• ED 500 - Special Problems in Education

Hours: 3

Independent study, special projects, and special in-service programs. Prerequisites: Senior standing.

• EDC 301 - Teaching the Exceptional Child (Survey Part I)

Hours: 3

Examines special education laws and methodology used in teaching special education students. Focus is primarily on those students with mild learning disabilities. Also examines requirements needed in the regular classroom for special teachers. Intensive field experience required. To be taken concurrently with ED 309 and EDC 311. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• EDC 302 - Introduction to Low Incidence Populations (Survey Part II)

Hours: 3

Students learn about low incidence disabilities through reading, research, discussion, and the integration of specific learning strategies during class activities. Students are expected to complete a case study/practicum with a disabled student in addition to 15 hours of observation in classrooms for low incidence exceptional students. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program and completion of EDC 301.

• EDC 311 - Instructional Strategies: Dimensions of Learning for K-12 Students

Hours: 3

This course focuses on instructional options that learners need in order to be successful. It takes a broad approach to the multiple teaching models that are necessary for working with diverse populations. The study of various models is grounded in the theory and research of effective teaching. Students will analyze lessons through a model of instruction lens and will develop lessons that reflect selected models. Intensive field experience required. To be taken concurrently with EDC 301 and ED 309. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• EDC 321 - Collaborative Consultation (Parents, Teachers, Teams)

Hours: 3

This class focuses on the description and rational for collaboration, including communication skills, group work, problem solving, and co-teaching. Each student will participate as a member of a collaborative team during the practicum. This course will also provide an examination of selected school district issues involving collaboration within traditional K-12 educational settings. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• EDC 331 - Critical Issues in Education: Behavioral, Medical, and Legal Issues

Hours: 3

Provides an in-depth discussion and evaluation of current issues in special education such as litigation, legislation, personnel preparation, and research. School-based practicum required. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• EDC 341 - Transition of K-12 Students: Assessing to Inform Change

Hours: 3

Teacher candidates develop the skills necessary for transitional planning, including administering cognitive, social, and functional assessments. Results of assessments are interpreted and utilized to plan transitions from one placement to another, to inform instruction in regular, inclusive and self-contained classrooms, and to develop IEPs) for eligible students. Field work is required.

• EDC 351 - Behavior Analysis and Intervention

Hours: 3

This course focuses on the concepts of applied behavior analysis and how to implement those concepts in classrooms and other settings. Students learn how to conduct a functional behavior assessment and design, implement, and evaluate a behavioral-change project with an appropriate subject in a public school setting. Intensive field experience required. Prerequisites: Admission to the Teacher Education Program or permission of the chair.

• EDC 499 - P-12 Internship (Music)

Hours: 12

Observation, participation and teaching in an elementary and middle/high school (full time, 15 weeks semesters). Students will also attend campus-based seminars designed to meet specific needs of the interns. Prerequisites: Completion of all professional education courses and permission of chair.

English

• EH 100 - Writing Studio

Hours: No credit

A writing workshop/lab to be taken concurrently with EH 101S. The course provides supplementary instruction and practice in written English language skills, editing techniques, writing strategies (brainstorming, drafting, revising, editing) as well as critical reading (skimming, scanning, inferring) for students needing additional support. Grading scale: A, B, C, D, F. Prerequisites: Requires concurrent registration with EH 101S. Students must also pass EH 100.

• EH 101 - Freshman Composition

Hours: 3

Critical reading, and essay writing. Grading scale: A, B, C, D, F. Minimum grade of C- required to advance to EH 102. Prerequisites: Placement.

• EH 101S - Freshman Composition with Studio

Hours: 4

Critical reading, essay writing, and documentation for students whose preparation suggests a need for intensive support as they progress through the composition sequence. Grading scale: A, B, C, D, F. Prerequisites: Requires concurrent registration with studio section EH 100. Students must also pass EH 100 in order to pass EH 101S.

• EH 102 - Freshman Composition

Hours: 3

Critical reading, argumentation, essay writing, and research. Grading scale: A, B, C, D, F. Minimum grade of C- required to advance to 200-level English classes. Prerequisites: EH 100 or 101.

• EH 105 - Honors English Seminar

Hours: 3

Interpretive and comparative readings in texts of enduring intellectual, esthetic, and ethical importance; critical and analytic writing and research. Grading Scale: A, B, C, D, F. Minimum grade of C- required to advance to 200-level English classes. Prerequisites: Formal admission to the University Honors College.

• EH 105(H) - Honors English Seminar

Hours: 3

(See offerings of the Department of English) Required for all students who enter the Honors Program before completing freshman English.

• EH 207 - Readings in Literature and Culture I

Hours: 3.

Critical and analysis of texts from ancient times through the Age of Discovery. The course introduces students to the methods of literary study through an examination of works in their social, historical, and philosophical contexts. Prerequisites: EH 101 and EH 102.

• EH 208 - Readings in Literature and Culture 2

Hours: 3.

Critical analysis of texts from the Age of Discovery through the present. The course introduces students to the methods of literary study through an examination of works in their social, historical, and philosophical contexts. Prerequisites: EH 101 and EH 102.

• EH 209 - Honors Seminar in Literature and Culture I

Hours: 3.

Critical analysis of texts from ancient times through the Age of Discovery. The course offers an in-depth examination of important works and their cultural contexts in a seminar format. Prerequisites: EH 105 or admission to the Honors College.

EH 210 - Honors Seminar in Literature and Culture 2

Hours: 3.

Critical analysis of texts from the Age of Discovery through the present. The course offers an in-depth examination of important works and their cultural contexts in a seminar format. Prerequisites: EH 105 or admission to the Honors College.

EH 242 - Mythology

Hours: 3

Archetypal, metaphorical, and historical significance of deities and myths. Prerequisites: EH 101 and EH 102.

EH 300 - Strategies for Business Writing

Hours: 3

Practical business writing with emphasis on rhetoric, organization, and research. Open to all students in the College of Business or by permission of the Department of English. Qualifies as elective in the English major. Does not count toward English minor. Prerequisites: 6 hours of freshman composition and junior standing or permission of the College of Business.

EH 301 - Technical Writing

Hours: 3

Practical writing, especially technical or scientific reports and proposals, with emphasis on organization, research, and presentation. Qualifies as elective in English major. Does not count toward English minor except for Cognate Studies in Technical Writing. Prerequisites: EH 101 and EH 102, and Junior Standing.

EH 302 - Technical Editing

Hours: 4

Clarifying, expanding, reducing, and rewriting technical reports and other documents created by others. Emphasis on elements of style and usage, revision, proofreading, and application of rhetorical techniques to the work of engineers, scientists, and technicians. Qualifies as elective in English major. Does not count toward English minor except for Cognate Studies in Technical Writing. Does not count toward certification in secondary education. Prerequisites: EH 101 and 102 and junior standing. Offered Spring Semester only.

EH 305 - Introduction to the English Major and Minor

Hours: 3.

Designed as an introduction to the discipline of English studies, this course will address the history of textual interpretation, the theoretical debates central to the field, and the basic research skills required for academic writing. Prerequisites: EH 207 and EH 208.

EH 320 - Practicum in Writing

Hours: 3

Writing and editing under the supervision of professionals. Enrollment requires advance planning. Does not count toward English minor except for Cognate Studies in Technical Writing. Prerequisites: EH 301, 302, enrollment for Cognate Studies in Technical Writing, permission of the Director of Business and Technical Writing, and a successful interview with the participating technical supervisor.

EH 335 - Survey of British Literature

Hours: 3.

Writers, genres, and periods from Beowulf through the present. Prerequisites: EH. 207 and EH 208. Corequisite: EH 305.

EH 336 - Survey of American Literature

Hours: 3.

Writers, genres, and periods from the Age of Discovery through the present. Prerequisites: EH 207 and EH 208. Corequisite: EH 305.

EH 360 - Shakespeare

Hours: 3

Renaissance background and at least six plays, including history, comedy, and major tragedies. Prerequisites: Course is open to students who have completed the general education requirement in literature.

EH 380 - Restoration and Early Eighteenth Century

Hours: 3

Poetry, drama, and various emergent prose forms in the early modern period, 1660-1744, with attention to cultural contexts. Prerequisites: Course is open to students who have completed the general education requirement in literature.

EH 381 - Later Eighteenth Century

Hours: 3

Poetry, drama, the novel, and other emergent prose forms in the early modern period, 1744-1799, with attention to cultural contexts. Prerequisites: Course is open to students who have completed the general education requirement in literature.

EH 390 - Romantic Poetry and Prose

Hours: 3

Poetry and prose (excluding the novel), 1780-1832. Emphasis may vary. Prerequisites: Course is open to students who have completed the general education requirement in literature.

• EH 391 - Victorian Poetry and Prose

Hours: 3

Poetry and prose (excluding the novel), 1832-1901. Emphasis may vary. Prerequisites: Course is open to students who have completed the general education requirement in literature.

• EH 400 - Composition Studies for Teachers

Hours: 3

Introduction to effective strategies for the teaching of writing. Strategies include creating and implementing writing prompts, fostering writing as process, working with grammar in context, investigating response strategies for teachers and students, and developing and implementing assessment rubrics. This course is ordinarily cross-listed with EH 500, a graduate-level course, and will be most appropriate for advanced undergraduates. Prerequisites: Junior standing.

• EH 401 - Theory and Practice in Technical Communication

Hours: 3

Explores the relationships between common practices in technical communication and the theories that legitimize those practices. Introduces students to research and theories about fundamental issues in technical communication which may then become the basis for further graduate study in technical communication. This course is ordinarily cross-listed with EH 501, a graduate-level course, and will be most appropriate for advanced undergraduates. Prerequisites: Advanced undergraduate standing. Same as CM 402. Strongly Recommended EH 301 and 302.

• EH 403 - Literary Criticism and Theory

Hours: 3

Major texts and approaches from Plato to the present. This course is ordinarily cross-listed with EH 503, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 408 - History of the English Language

Hours: 3

History of the emergence and development of English from the pre-Anglo-Saxon period to the present. Emphasis on cultural contexts. This course is ordinarily cross-listed with EH 508, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 410 - Fiction Writing

Hours: 3

Practice in writing of fiction from conception to revision. This course is ordinarily cross-listed with EH 510, a graduate-level course, and will be most appropriate for advanced undergraduates. Prerequisites: GER literature requirement and approval of instructor.

• EH 411 - Poetry Writing

Hours: 3

Practice in writing of poetry from conception to revision. This course is ordinarily cross-listed with EH 511, a graduate-level course, and will be most appropriate for advanced undergraduates. Prerequisites: 6 hours of sophomore literature or permission of instructor.

• EH 412 - Special Topics in Writing

Hours: 3

Topics in creative writing, professional writing, or other advanced writing announced in advanced. This course is ordinarily cross-listed with EH 512, a graduate-level course, and will be most appropriate for advanced undergraduates. Prerequisites: 6 hours of sophomore literature or permission of instructor.

• EH 413 - Children's and Adolescent Literature

Hours: 3

Course content will include the study of various genres of children's and adolescent literature and their relationship to beginning reading, enhancement of reading comprehension, and intervention instruction in the various content areas. Prerequisites: Admission to the teacher education program. Same as ED 413.

• EH 415 - Studies in Anglophone/Postcolonial Literature

Hours: 3

An introduction to major concepts, figures, and works with emphasis upon historical and cultural context. Specific focus will vary. This course is ordinarily cross-listed with EH 515, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 418 - Representative Texts by Women Writers

Hours: 3

Focus on women's contribution to the literary tradition. Prerequisites:

Course is open to students who have completed the general education requirement in literature or permission of the instructor.

• EH 420 - Modern and Contemporary Poetry

Hours: 3

American and British poetry from the 1890's to the present: Yeats, Pound, Eliot, Frost, Stevens, and others. Poets will be studied against the background of the social, political, and technological revolutions that characterize the modern world. This course is ordinarily cross-listed with EH 520, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 421 - Modern Drama

Hours: 3

New movements in drama from Ibsen to the present.

• EH 422 - Modern Novel

Hours: 3

Considers responses to the experience of modernity; focus on English and American but texts will also be drawn from Continental, Latin American, Asian, or African traditions. This course is ordinarily cross-listed with EH 522, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 423 - Studies in Contemporary British Literature

Hours: 3

Major works after 1945 with emphasis on historical and cultural contexts. Specific focus will vary. This course is ordinarily cross-listed with EH 523, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 425 - Literature and Technology

Hours: 3

Considers the relation between technology and culture as it has been understood since the classical period through a broad range of literary texts. This course is ordinarily cross-listed with EH 525, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 430 - The American Novel

Hours: 3

The American novel from the beginning through James.

• EH 431 - The American Novel

Hours: 3

The American novel from James to the present.

EH 433 - William Faulkner

Hours: 3

Critical study of the major novels. This course is ordinarily cross-listed with EH 533, a graduate-level course, and will be most appropriate for advanced undergraduates.

EH 435 - Special Studies in American Literature

Hours: 3

Topics announced in advance. This course is ordinarily cross-listed with EH 535, a graduate-level course, and will be most appropriate for advanced undergraduates.

EH 438 - African American Literature

Hours: 3

Themes, concepts and imagery in the Black American literary tradition. This course is ordinarily cross-listed with EH 538, a graduate-level course, and will be most appropriate for advanced undergraduates.

EH 439 - Ethnic American Novel

Hours: 3

Race, ethnicity, and the 20th-century American Novel.

EH 440 - Special Studies in English Literature

Hours: 3

Topics announced in advance. This course is ordinarily cross-listed with EH 540, a graduate-level course, and will be most appropriate for advanced undergraduates.

EH 448 - The Bible as Literature

Hours: 3

An introduction to the major literary forms of the Bible. Material will be approached analytically, involving both socio-historical and literary-critical perspectives. This course is ordinarily cross-listed with EH 548, a graduate-level course, and will be most appropriate for advanced undergraduates.

EH 450 - Chaucer

Hours: 3

A study of Geoffrey Chaucer's Middle English works including the early dream visions, Troilus and Criseyde, and the Canterbury Tales.

• EH 451 - Middle English Literature

Hours: 3.

A study of the literature of medieval England from the twelfth to the fifteenth century, including Arthurian romance, religious drama, hagiography, chronicles, lyrics, and ballads. This course is ordinarily cross-listed with EH 551, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 460 - Sixteenth-Century Poetry and Prose

Hours: 3

Selected topics, authors and genres of 16th–century English and continental literature.

• EH 470 - Milton

Hours: 3

A study of the development of Milton's thought and art as it appears in his early poems, selected prose, and later poetry, with particular attention given to Paradise Lost. This course is ordinarily cross-listed with EH 570, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 471 - Renaissance Drama

Hours: 3

Non-Shakespearean drama of the sixteenth and early-seventeenth centuries in social, critical, and performative contexts. Specific focus will vary from term to term. This course is ordinarily cross-listed with EH 571, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 472 - Seventeenth-Century Poetry

Hours: 3

Emphasis on major figures (Donne, Jonson, Herbert) their followers, and major themes and genres of the period. Excludes Milton. This course is ordinarily cross-listed with EH 572, a graduate-level course, and will be most appropriate for advanced undergraduates.

• EH 492 - The Early English Novel

Hours: 3

Emergence and development of the genre as evident in representative eighteenth-century texts.

EH 493 - The Victorian Novel

Hours: 3

Dickens through Hardy: critical reading of representative novels accompanied by historical survey of major trends.

EH 495 - The Literature of Transition

Hours: 3

Considers literature in all genres, including intellectual and philosophic works, from 1890-1915 to explore the transition from Victorianism(s) to Modernism. This course is ordinarily cross-listed with EH 595, a graduate-level course, and will be most appropriate for advanced undergraduates.

EHL 301 - Technical Writing for Graduate Students

Hours: 3

Practical writing, especially technical or scientific reports and proposals, with emphasis on organization, research, and presentation. Designed to address the specific needs of nonnative speakers of English who are developing their skills in written discourse. The class is designed for nonnative-speaking graduate students. Prerequisites: ESL 103 or appropriate placement on ELPT.

EHL 405 - Survey of General Linguistics

Hours: 3

Survey of phonology, morphology, and syntax, language universals and typology, history of English and other major world languages, topics in psycho- and socio-linguistics such as language acquisition, situational language change, and the study of regional and ethnic varieties as they reflect and construct the linguistic and cultural diversity of the United States. This course is ordinarily cross-listed with EHL 505, a graduate-level course, and will be most appropriate for advanced undergraduates. EHL 405 is recommended but not required as a preliminary to other EHL courses.

EHL 406 - Critical Issues

Hours: 3

This class reviews critical issues impacting the progress of English Language Learners (ELLs) in K-12 classrooms in the U.S. The categories of issues covered will remain responsive to TESOL/NCATE Standards for P-12 Teacher Education Programs. Among representative issues are historical overviews of relevant legislation, coverage of current and developing regulations (Federal, state, local), advocacy options, and assessment at the programmatic level. Prerequisites: None. Same as EHL 506

EHL 407 - Advanced English Grammar Studies

Hours: 3

In-depth study of English syntax within contemporary theoretical paradigms. Comparisons between modern syntactic analyses and traditional methods, comparisons between Standard American English and regional and ethnic varieties, the inevitable historical changes in English grammar, and pedagogical contexts/teaching issues. This course is ordinarily cross-listed with EHL 507, a graduate-level course, and will be most appropriate for advanced undergraduates. EHL 405 is recommended but not required as a preliminary to other EHL courses.

EHL 408 - TESOL Methods

Hours: 3

Designed to give current and future ESL instructors a foundation for informed and effective classroom teaching. Focuses on Domains 3 (planning, implementing and managing instruction) and 4 (assessment) of the TESOL Standards. Includes theoretical underpinnings of historical and contemporary ESL, instructional methods, analysis and critique of methodologies, and strategies for pedagogically sound classroom activity development and lesson planning within linguistically and culturally diverse instructional contexts. Cross listed: EHL 508 Prerequisites: EHL 405, EHL 407

EHL 409 - Special Studies in Applied English Linguistics

Hours: 3

Special topics in linguistics. Focus and emphasis of topics announced in advance. This course is ordinarily cross-listed with EHL 509, a graduate-level course, and will be most appropriate for advanced undergraduates. EHL 405 is recommended but not required as a preliminary to other EHL courses.

ILC 010: Level I - Intensive Language and Culture, I

Hours: 4 - 20.

Course designed to improve nonnative speakers' ability in their overall language proficiency at the high beginning level. Admission to program and placement in Level 1. Prerequisites: Admission to program and placement in Level I.

Placement according to the new policy for matriculation of nonnative speakers of English.

Fee

$227.50/hour (no college-specific fee)

ILC 020: Level II - Intensive Language and Culture, II

Hours: 4 - 20.

Course designed to improve nonnative speakers' ability in their overall language proficiency at the low intermediate level. Admission to program and placement in Level II. Prerequisites: Admission to program and placement in Level II.

Placement according to the new policy for matriculation of nonative speakers of English.

Fee

$227.50/hour (no college-specific fee)

ILC 030: Level III - Intensive Language and Culture, III

Hours: 4 - 20.

Course designed to improve nonnative speakers' ability in their overall language proficiency at the intermediate level. Prerequisites: Admission to program and placement in Level III.

Placement according to the new policy for matriculation of nonative speakers of English.

Fee

$227.50/hour (no college-specific fee)

• ILC 040: Level IV - Intensive Language Culture, IV

Course designed to improve nonnative speakers' ability in their overall language proficiency at the high intermediate level. Prerequisites: Admission to program and placement in Level IV.

Fee

$227.50/hour (no college-specific fee)

• ILC 050: Level V - Intensive Language and Culture, V

Hours: 4 - 20.

Course designed to improve nonnative speakers' ability in their overall language proficiency at the advanced level. Prerequisites: Admission to program and placement in Level V.

Placement according to the new policy for matriculation of nonnative speakers of English.

Fee

$227.70/hour (no college-specific fee)

Foreign Languages and Literatures

• FL 101F/G/J/N/R/S - Comparative Languages and Cultures in Practices. Communicating in a Second Language and Culture: Introductory Foreign Language I

Hours: 3

Introductory Foreign Language I (Available in French, German, Greek, Japanese, Latin, Russian, and Spanish). This is the first course in the introductory foreign language sequence; no previous foreign language study is expected, and no prerequisite is required. Students will actively practice and be tested on all four language skills (listening, speaking, including correct pronunciation of the foreign language, reading and writing) within culturally authentic contexts. Students will begin the process of learning to communicate and function in a second language and culture. Class is conducted in the target language. Language laboratory attendance is required. Offered Fall Semester

• FL 102F/G/J/N/R/S - Comparative Languages and Cultures in Practices. Communicating in a Second Language and Culture: Introductory Foreign Language II

Hours: 3

Introductory Foreign Language II (Available in French, German, Greek, Japanese, Latin, Russian, and Spanish) This is the second course in the introductory foreign language sequence. Students will actively practice and be tested on all four language skills (listening, speaking, including correct pronunciation of the foreign language, reading, and writing) within culturally authentic contexts. Students will continue the process of learning to communicate and function in a second language and culture. Class is conducted in the target language. Language laboratory attendance is required. Prerequisites: FL 101 (or the equivalent or placement by examination). Offered Spring Semester

• FL 199F/G/R/S - Special Topics

Hours: 3

Study of special topics in foreign language, literature, or culture to be taught at the introductory level on the UAHuntsville campus or abroad. Prerequisites: Variable according to topic from none to FL 101 and FL 102 (or the equivalent or placement by examination).

• FL 201F/G/N/R/S - Further Explorations in a Second Language and Culture: Intermediate Foreign Language I

Hours: 3

Intermediate Foreign Language, part I (Available in French, German, Latin, Russian, and Spanish) Students will continue to practice and be tested on all four language skills (listening, speaking, including correct pronunciation of the foreign language, reading and writing) within culturally authentic contexts. Students will continue the process of learning to communicate and function in a second language and culture. To broaden and intensify their knowledge of the second language and culture, students will read representative samples of foreign language literature and other publications (such as newspaper and magazine articles, business and personal correspondence and commercial documents). Class is conducted in the target language. Language laboratory attendance is required. Prerequisites: FL 101 and 102 (or the equivalent or placement by examination). Offered Fall Semester

• FL 202F/G/N/R/S - Further Explorations in a Second Language and Culture: Intermediate Foreign Language II

Hours: 3

Intermediate Foreign Language, part II (Available in French, German, Latin, Russian, and Spanish). Students will continue to practice and be tested on all four language skills (listening, speaking, including correct pronunciation of the foreign language, reading and writing) within culturally authentic contexts. Students will continue the process of learning to communicate and function in a second language and culture. To broaden and intensify their knowledge of the second language and culture, students will read representative samples of foreign language literature and other publications (such as documents). Upon completion of this course, students will be prepared to move to advanced (300-level) study of the foreign language, culture and literature. Class is conducted in the target language. Language laboratory attendance is required. Prerequisites: FL 201 (or the equivalent or placement by examination).

• FL 204 - International Cinema (Taught in English)

Hours: 3

Students will view, discuss, and analyze approximately eight to ten foreign language films centered on a theme, that will change from year-to-year (for example, gender issues, family, religion, children and society, the arts). Multicultural and cross-cultural issues will be highlighted. Class is conducted in English. Prerequisites: No prerequisite is required. Offered Spring Semester

• FL 301F/G/R/S - Conversation

Hours: 3

Given that oral skill development and writing skill development complement each other, students will continue to practice and be tested on all four language skills (listening, speaking, reading and writing) within culturally authentic contexts, but with emphasis on oral skills (listening and speaking). Readings and materials of topical interest (such as newspaper and magazine articles, comic strips, advertisements, political propaganda, brochures, songs and films) will serve as the basis for oral presentations, dialogues, discussion, debate and oral questions. Class is conducted in the target language. Prerequisites: FL 200 (or the equivalent or placement by examination). Offered Spring semester or on demand.

• FL 302F/G/R/S - Composition

Hours: 3

Given that writing skill development and oral skill development complement each other, students will continue to practice and be tested on all four language skills (writing, reading, listening and speaking) within culturally authentic contexts with emphasis on writing. Students will study and practice writing various types of compositions (such as description, narration, exposition, definition, analysis and classification, comparison and contrast, cause and effect, persuasion, summary, research paper and business and personal correspondence), including related grammar and vocabulary. Class is conducted in the target language. Prerequisites: FL 200 (or the equivalent or placement by examination). Offered Fall semester or on demand.

• FL 303F/G/R/S - Foreign Language for Life and Professions

Hours: 3

This course is designed to prepare students for content-specific applications of the second language in various contexts, such as: 1) business and technology, 2) government and law enforcement, and 3) health professions. Class is conducted in the target language. Prerequisites: FL 200 (or the equivalent or placement by examination). Offered Spring semester or on demand.

• FL 304F/G/R/S - Culture

Hours: 3

This course focuses on the artistic, historical, intellectual, political and social life of the culture(s) where the foreign language is used, so that the US student can gain greater insight into the development of the foreign culture(s) and civilization(s). Class is conducted in the target language. Prerequisites: FL 200 (or the equivalent or placement by examination). Offered Fall semester or on demand.

• FL 305F/G/R/S - Introduction to Literature

Hours: 3

In this panoramic course, students will study representative texts, trends and movements in the foreign language literature from its beginnings through the contemporary period. Class is conducted in the target language. Prerequisites: FL 200, 301 or 302 (or the equivalent or placement by examination or permission of the instructor). Offered Spring semester or on demand.

• FL 404F/G/R/S - Texts and Contexts: Seminar in Literature

Hours: 3

This course will provide students with the opportunity for in-depth study of a specific author, genre or topic (for example, women writers, poetry, narrative and memory in the construction of national identity). Class is conducted in the target language. This course may be repeated for credit with permission of the instructor. Prerequisites: FL 200, 301 or 302 (or the equivalent or placement by examination or permission of the instructor). Offered Fall semester or on demand.

• FL 410 - International Internship

Hours: 3 or 6.

As the capstone course for the Foreign Language major, the Foreign Language Internship combines practical experience in a wide range of governmental, educational and commercial organizations with an individual cultural investigation into the cultural

language of the student's target language. The experience will enable students to put into practice the knowledge and skils they have acquired in the classroom during their program of study. An in-depth investigation into their target culture is combined with a working experience to produce an Internship Portfolio demonstrating the results of the Cultural Investigation and their work experience. The course includes classroom sessions in preparation for the cultural investigation and a final presentation demonstrating the fruits of the students' practical experience with discussion of the theoretical, historical and cultural ramifications of foreign language study.

Due to the nature of the course, Foreign Languages majors should speak with the internship coordinator as early in their collegiate career as possible to begin planning their internships. The process for assigning internships begins in early October for the following calendar year's internships. Class is conducted in English. At least three (3) credit hours are required for majors. May be taken for six (6) credit hours if student needs extra elective hours. Taking the course for six credit hours involves spending twice the number of hours working at the internship site. Prerequisites: FL 200 and 303 (or the equivalent or placement by examination or permission of the instructor). Offered Spring. Summer, and Fall Semesters

• FL 499F/G/R/S - Independent Studies

Hours: 3

Independent study and/or study abroad under the supervision of an instructor. Prerequisites: FL 200 (or the equivalent or placement by examination) and permission of the instructor.

History

• HY 103 - World History to 1500

Hours: 3

This course is a comparative survey of the historical development of peoples and cultures from their beginnings to 1500. It explores cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas and Oceania.

• HY 104 - World History from 1500

Hours: 3

This course is a comparative survey of the global interdependence of the world from the period of transoceanic exploration to the present. It explores cross-cultural interactions among societies, states, and economies of Asia, Europe, Africa, the Americas and Oceania.

• HY 221 - The United States to 1877

Hours: 3

Discovery of America through the Civil War and Reconstruction. Open to all students other than beginning freshmen, with exceptions as indicated.

• HY 222 - The United States Since 1877

Hours: 3

United States from the end of the Civil War era to the present. Open to all students other than beginning freshmen, with exceptions as indicated.

HY 229 - Survey of Ancient Times

Hours: 3

Ancient Near East, Greece, and Rome. Open to all students other than beginning freshmen, with exceptions as indicated. Prerequisites: HY 101-102 or approval of instructor.

HY 230 - Early Middle Ages in Western Europe

Hours: 3

Survey of the origins and development of medieval society in the West, with attention given to Byzantium and the Islamic world as well as to the Latin west. Open to all students other than beginning freshmen, with exceptions as indicated. Prerequisites: HY 101 and 102 or permission of instructor.

HY 290 - Historical Methods

Hours: 3

Introduction to historical methodology and historiography, designed to prepare history majors for Liberal Arts upper-level coursework. Required of all history majors, including transfer students. Open to non-history majors.

HY 306 - Collapse of Civilizations

Hours: 3

This course will investigate why some cultures succeed and others fail. From the archeological and historical record of past civilizations we will examine the factors which lead to collapse in an attempt to address a question that is relevant to the contemporary worldnamely, how severe do internal stresses have to become in a civilization before relatively minor climate shifts can trigger a widespread cultural collapse? Open to students who have completed 9 semester hours in history or have junior standing.

HY 310 - Introduction to Public History

Hours: 3.

This course provides an introduction to the interdisciplinary field of public history. Students will learn about historic preservation, cultural resource management, local and state history, methodology, historical archaeology, museum studies, oral history, and archival management trhough academic training and practical experience. Prerequisites: Open to students who have completed 9 semestger hours in history or have junior standing.

HY 311 - Historic Archaeology

Hours: 3.

Historic Archaeology will introduce intellectural and practical concepts using elements of research, fieldwork, analysis, and interpretation to explore and recreate the documented and undocumented past. Prerequisites: For students who have completed 9 semester hours in history, junior standing, or have permission from the instructor.

HY 312 - Cultural Resource Management

Hours: 3.

Cultural resource management encompasses recognition, description, maintenance, security, and overall management of historical items, places, and ideas through preservation and protection. Prerequisites: For students who have completed 9 semester hours in history, junior standing, or have permission from the instructor.

HY 318 - Constitutional History of the United States

Hours: 3

Growth and development of the American constitutional system with emphasis on those aspects, which relate to the fundamental structure of American government and social order. Open to students who have completed 9 semester hours in history or have junior standing.

HY 325 - History of Alabama

Hours: 3

The state's past from colonial times to the present with emphasis on its place in United States history. Open to students who have completed 9 semester hours in history or have junior standing.

HY 329 - Imperial Rome

Hours: 3

Roman Empire from the Principate to the barbarian invasions. Open to students who have completed 9 semester hours in history or have junior standing.

HY 330 - The History of the Christian Church

Hours: 3.

A study of the Church from Biblical times through the Protestant Reformation. The course examines the Church as a social, political, and religious institution largely within Western Europe. Heavy emphasis on primary souces and on how to interpret religious sources for historical purposes. Prerequisites: For students who have completed 9 semester hours in history, or have junior standing.

HY 347 - Early Modern England

Hours: 3

Course surveys the political and religious history of England under the Tudors and Stuarts. Topics covered will include the Reformation under Henry VIII, the reign of Elizabeth I, the English Civil Wars and the revolutions of the seventeenth century.

Open to students who have completed 9 semester hours in history or have junior standing.

HY 363 - Indigenous Peoples of the Americas

Hours: 3.

Surveys the history of Indigenous peoples of tghe Americas from the fifteenth century to the present. Open to students who have completed 9 semester hours in history or have junior standing.

HY 365 - American Labor History

Hours: 3

American labor relations from colonial times but concentrating on post-Civil War topics. Open to students who have completed 9 semester hours in history or have junior standing.

HY 366 - African-American History

Hours: 3

This course explores African Americans' experiences in and contributions to the United States. Open to students who have completed 9 semester hours in history or have junior standing.

HY 367 - Women in U.S. History

Hours: 3

Women in the United States from the colonial period to the present. Open to students who have completed 9 semester hours in history or have junior standing.

HY 368 - American Environmental History

Hours: 3

Explores the interrelationships of people and the environment in American history from 1500 to the present. Prerequisites: Open to students who have junior standing or have permission of the instructor.

HY 370 - Social History of American Technology

Hours: 3.

Explores the history of the interrelationship of people and technology in American history from 1600 to the present. Prerequisites: Open to students who have junior standing or permission of the instructor.

HY 371 - U.S. Military History to 1920

Hours: 3.

To examine the evolution of the United States Armed Forces from the 1760's to 1920. The class will enhance understanding of the development and evolution of American strategy, doctrine, and operational issues. In addition, there will be discussioms of

key questions in American military historiography. Prerequisites: 9 hours and HY 221 and HY 222 or Junior Standing.

• HY 372 - U.S. Military History From 1920

Hours: 3.

To examine the evolution of the United States Armed Forces from 1920 to the present. The class will enhance understanding of the development and evolution of American strategy, doctrine, and operational issues. In addition, there will be discussions of key questions in American military historiography. Prerequisites: 9 hours and HY 221 and HY 222 or Junior Standing.

• HY 373 - Foreign Relations of the U. S. to 1920

Hours: 3

American foreign relations from the Revolutionary era through World War I. American territorial and commercial expansion, imperialism, and emergence as a world power. Open to students who have completed 9 semester hours in history or have junior standing.

• HY 374 - Foreign Relations of the U. S. since 1920

Hours: 3

United States as a world power. American involvement in World War II, Vietnam, and the Cold War, and the growth of American presence in Asia, Latin America, and the Middle East. Open to students who have completed 9 semester hours in history or have junior standing.

• HY 375 - Imperial Russia

Hours: 3

Survey of the social, political and cultural history of Russia from its beginnings to 1917, with particular emphasis on the imperial period of the 18th and 19th centuries. Major themes include the evolution of the Russian state, state-society relations, and the multiethnic nature of the empire. Open to students who have completed 9 semester hours in history or have junior standing.

• HY 376 - Soviet Russia

Hours: 3

Russian history from the collapse of autocracy to the collapse of communism with special emphasis on the revolutions of 1917, the formation and evolution of the Soviet state in the 1920s and 30s, the multi-national nature of the state, and the successes and failures of the post-1945 era. Open to students who have completed 9 semester hours in history or have junior standing.

• HY 381 - Colonial Latin America

Hours: 3.

This course surveys the history of Colonial Latin America from the pre-hispanic period to the wars of independence in the nineteenth century. Prerequisites: Open to students who have completed 9 semester hours in history or have junior standing.

HY 382 - Modern Latin America

Hours: 3.

This course surveys the history of Latin America from the nineteenth century to the present. Prerequisites: Open to students who have completed 9 semester hours in history or have junior standing.

HY 385 - History of Modern Africa

Hours: 3.

Course provides students with an overview of Africa during the colonial era. Students first discuss colonial conquest and the imposition of colonial rule, and then explore several themes, including colonial education, the spread of Christianity, and African resistance to colonial rule. Students also will study the process of decolonization and the implications of colonialism for contemporary Africa. Students will be assessed based on three papers, a midterm and in-class presentations.

HY 390 - Women in Modern European History

Hours: 3

Survey of European women's history from the Enlightenment to the present. Focus on how women have supported, challenged, and revised expected roles for women in different historical contexts, as well as how nationality, social class, and ethnicity have shaped women's lives. Open to students who have completed 9 semester hours in history or have junior standing.

HY 391 - Europe, 1500-1789

Hours: 3

Examination of the economic, scientific, social, political, and cultural developments in Europe from the Renaissance to the French Revolution. Open to students who have completed 9 semester hours in history or have junior standing.

HY 392 - Europe Since 1789

Hours: 3

Europe from the French Revolution to the present. Open to students who have completed 9 semester hours in history or have junior standing.

HY 395 - History of Medicine from Antiquity to the Enlightenment

Hours: 3.

Examines the history of medicine in pre-modern Europe. Course gegins with the Ancient and Islamic origins of European medicine and ends the semester with the changes wroguht by the Scientific Revolution and Enlightenment. The course also explores various themes in the history of medicine. Some of these include anatomy and dissection, learned vs. polular medicine, sex, and madness. Students will be evaluated based on three papers, a midterm, and a final exam. Prerequisites: Open to students who have completed 9 semester hours in history or have junior standing.

HY 399 - Special Topics in History

Hours: 3

Intensive examination of particular problems, periods, or topics in history. Open to students who have completed 9 semester hours in history or have junior standing.

HY 410 - Public History

Hours: 3

Public history and its application in areas such as public policy, historical editing, local and community history (including historical societies), archival collection (including electronic databasing) and historic preservation, oral history, museum programs, and historical sites interpretation. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 413 - The Old South

Hours: 3

Southern society, economics, politics and culture concentrating on the nineteenth century South through Reconstruction. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 414 - The New South

Hours: 3

Post-Reconstruction South emphasizing the economic, social, and political readjustments made during the twentieth century. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 424 - The Atlantic World

Hours: 3.

Examination of cultural, economic, and political interactions across the Atlantic Ocean, among Africans, Americans and others in the New World, and Europeans, and the encounters, connections, and conflicts that ensued from those interactions. This course meets the requirements for either American or non-American credit. This course meets the requirements for either American or non-American credit in the history major. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 426 - Colonial America

Hours: 3.

Explores the founding of New World colonies, including political, social, economic, and religious developments during the colonial period. Open to students who have completed 9 semester hours in history or have junior standing.

HY 427 - The Age of the American Revolution

Hours: 3.

Explores the multinational connections and conflicts that lead some English colonists to revolt. Considers the political, social, and economic aspect of the time period. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 428 - Early American Republic

Hours: 3.

Political, social, and economic changes between the American Revolution and the nineteenth century that laid the foundation for the United States. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 429 - Civil War and Reconstruction

Hours: 3.

An examination of the major political, economic, and social developments in the United States during the Civil War and Reconstruction eras. Prerequisites: For students who have completed 9 semester hours in history, senior standing, or have permission from the instructor.

HY 437 - The Rise of Modern America

Hours: 3

Economic and social changes, imperialism, and the growth in government in the United States from 1877 to the 1920s. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 438 - Modern America

Hours: 3

American society, politics, economics, and foreign affairs from the end of World War I to the origins of the Cold War. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 439 - Recent America

Hours: 3

Contemporary America from the 1950s to the present, analyzing both domestic and foreign affairs. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

HY 445 - Comparative Military Policy and Strategy

Hours: 3.

Thematic course that uses lectures and discussions to conduct a comparative analysis of the military policy and strategy of states and empires in World History. Prerequisites: 400-level courses are open to students who have completed 12 semester hours in history or have senior standing or have permission to the instructor.

• HY 473 - The High Middle Ages

Hours: 3

Political, economic, and cultural features of Europe when medieval civilization was at its height. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

• HY 474 - The Renaissance and Reformation

Hours: 3

Selected topics in the Italian Renaissance and European Reformation. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

• HY 475 - Europe in Crisis, 1500-1700

Hours: 3.

Europe in an age of anxiety, religious wars, political upheaval, witch-hunts, and the early scientific revolution. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

• HY 481 - Empires and Nations

Hours: 3

Thematic focus on empires and nations as political and cultural constructs in European and world history. Open to students who have completed 12 semester hours in history or have
senior standing or have permission of the instructor. Students may take HY 481 more than once for credit ONLY IF 1) a different instructor teaches each offering, and 2) the temporal and/or geographic focus is distinct each time.

• HY 482 - Comparative Slavery and Abolition

Hours: 3.

Explore what slavery has meant in different times and places as a way of better understanding this pervasive institution. In this course, students may consider slavery in the ancient world, Indian Ocean, Africa, the United States, and/or other locations over time. The course will cover select topics in comparative methodology. Prerequisites: Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

• HY 483 - Women and Gender in Latin America

Hours: 3.

This course studies the history of women and gender relations in Latin America from the colonial period to the present. Prerequisites: Open to students who have completed 12 semester hours in history or have senior standing or have permission of

the instructor.

• HY 485 - Nazi Germany and the Holocaust

Hours: 3

Seminar course on the historiography of Nazi Germany and the Holocaust. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

• HY 486 - Europe During the Cold War

Hours: 3.

Seminar course focusing on Europe during the Cold War era. Prerequisites: Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

• HY 490 - Research Seminar in History

Hours: 3

Historiography, research and writing, and recent interpretations in the field of history. Required of all history majors. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor. Offered Once annually.

• HY 495 - Public History Internship

Hours: 3.

Students will participate in a semester-long public history internship and be responsible for completing a significant project using historical skills in a professional setting. This practical experience will fit the academic and professional needs of the student and the off-campus agency involved. Students must complete a minimum of 125 hours of work during their internship. Prerequisites: For students who have completed 12 semester hours in history, senior standing, or have permission from the instructor.

• HY 498 - Readings in History

Hours: 1-3

In exceptional circumstances, a student may ask a professor to provide a readings course on a subject of the professor's choosing. This course may be repeated for credit. Open to students who have completed 12 semester hours in history or have senior standing or have permission of the instructor.

Music

• MU 100 - Introduction to Music Literature

Hours: 3

Basic music appreciation. Exploration of ideas and issues in various types of western music through reading, listening, and discussion. Offered Every semester.

MU 102 - Introduction to World Music

Hours: 3

Exploration of ideas and issues in various types of non-western music through reading, listening, and discussion. Includes optional travel abroad. Offered Summer semesters only.

MU 104 - American Music

Hours: 3

Formerly MU 310. Designed for non-music major. Important aspects of American musical art are presented, including the colonial period, folksong and European influences, jazz, Broadway and film scores. The contemporary period, beginning with Charles Ives, is also covvered. Offered upon demand.

MU 106 - Introduction to Music Technology

Hours: 1

Introduction to computer sound options, with an overview of computer-assisted instruction in music, an introduction to music sequencing and digital audio software, and an in-depth tutorial in music notation. Offered Fall semesters only.

MU 108 - Introduction to Music Theory

Hours: 3

Basic music presented in a practical way for students who have little or no musical training. Mechanical aspects of musicclefs, notation, scales, intervals, and rhythm with some aural skills, and practice in writing and harmonizing melodies. For students who expect to major or minor in music, this course may not be taken for degree credit. Offered Summer and fall semesters only.

MU 110 - Introduction to Arts Management

Hours: 3

Designed to explore arts management and administration, focusing primarily on non-profit considerations, but also addressing commercial activities in the arts.

MU 130 - Piano Class

Hours: 1

Techniques of performance, note reading, and basic musicianship.

MU 140 - Beginning Guitar Class

Hours: 1

The course objective is to provide basic guitar instruction for students who have had little or no experience playing the guitar. The course will cover note reading, posture, chords, strumming patterns, simple arpeggios, scales, and simple to intermediate solo playing.

MU 199 - Concert Attendance

Hours: 0

Concert attendance is an indispensable aspect of a student's music education. Attendance requirements for this course include Thursday morning Music Forums as well as the number of formal concerts specified in the syllabus.

MU 201 - Theory of Music I

Hours: 3

Fundamentals of basic musicianship through practical as well as theoretical studies. Development of skills in written harmony and analysis. Appropriate Musicianship Skills (e.g. MU 203) to be taken concurrently throughout theory program. Prerequisites: The approval of instructor or department chair. Offered Spring semesters only.

MU 202 - Theory of Music II

Hours: 3

Continuation of MU 201. Prerequisites: MU 201 and 203. Offered Fall semesters only.

MU 203 - Musicianship Skills I

Hours: 1

To be taken concurrently with MU 201 and designed to complement written studies. Exercises in sight singing using solfege, numbers or other systems. Basic conducting patterns, rhythmic execution and melodic, harmonic, and rhythmic dictation. Prerequisites: Approval of instructor or department chair. Offered Spring semesters only.

MU 204 - Musicianship Skills II

Hours: 1

Continuation of MU 203. Prerequisites: MU 201 and 203. Offered Fall semesters only.

MU 205 - Jazz Theory

Hours: 2

This course serves as an introduction to the theoretical analysis of jazz harmony, with an emphasis on styles from the bebop era and later. Prerequisites: MU 201. Offered Every other fall semester only.

MU 301 - Theory of Music III

Hours: 3

Continuation of studies on a more advanced basis than MU 201-202. Prerequisites: MU 202 and 204. Offered Spring semesters only.

MU 302 - Musical Materials of the Modern Era

Hours: 3

Systems of tonal organization, compositional procedures, terminology, and analytical methods that relate to music since 1900. Prerequisites: MU 301 and 303. Offered Every other fall semester only.

MU 303 - Musicianship Skills III

Hours: 1

Continuation of MU 204. Prerequisites: MU 202 and 204. Offered Spring semesters only.

MU 306 - Music Technology

Hours: 3

An exploration of music technology hardware and software, including an overview of acoustics, MIDI and digital audio data structures, and an introduction to multimedia authoring. Prerequisites: MU 106 and EE 100. Offered Every other spring semester only.

MU 308 - Jazz Improvisation I

Hours: 2.

This course provides the student with an introduction to jazz improvisation.

MU 309 - Jazz Improvisation II

Hours: 2.

This course provides the student with advanced instruction in jazz improvisation.

MU 311 - History of Music I

Hours: 3

Development of music as an art in western civilization to 1750. Representative musical works and style. Understanding of musical concepts in view of their historical background. Prerequisites: MU 100 and 301, or approval of instructor. Offered Fall semesters only.

MU 312 - History of Music II

Hours: 3

Music as an art in western civilization from 1750 to the present. Formal and stylistic problems through representative works and an understanding of musical concepts in light of their historical and general cultural context. Prerequisites: MU 100 and 301, or approval of the instructor. Offered Spring semesters only.

MU 313 - Survey of Church Music

Hours: 3

Explores Christian music from historical and musical perspectives. Prerequisites: MU 100, MU 301.

MU 316 - History and Appreciation of Jazz

Hours: 3

This course is designed to explore the history and development of jazz as an art form, from its origins as popular music to its evolution into an Art Music. Improvisation will be explained and explored in the context of the different styles of jazz. The course will focus on understanding through listening to jazz. Prerequisites: MU 100. Offered Every other spring semester only.

MU 317 - Jazz Arranging

Hours: 2

This course provides the student with instruction in arranging for small and large jazz ensembles, both instrumental and vocal. Prerequisites: MU 205. Offered Every other spring semester only.

MU 320 - Piano Pedagogy

Hours: 2

Materials, techniques, and practices in teaching beginners and students through lower advanced grades of piano. Practical experience. Prerequisites: Approval of instructor. Offered Upon demand.

MU 321 - Piano Pedagogy II

Hours: 2.

An examination of relevant methods in piano pedagogy and technique for all levels of instruction. The course will also asses the historical achievements made by previous pedagogues in the field of piano pedagogy. Prerequisites: MU 320.

MU 322 - Diction for Singers

Hours: 1

Intended as an overview for vocal and choral students who wish to learn the diction requirements for singing in Latin, Italian, German, French and English. Prerequisites: MUA 111 or permission of the instructor. Offered Every other fall semester only.

• MU 325 - Conducting

Hours: 2

Basic techniques of choral and instrumental conducting. Prerequisites: MU 301 or approval of instructor. Offered Fall semesters only.

• MU 330 - Music Composition

Hours: 1

This course is designed to develop the individual composition skills of each student through the creation of new works, preparation of score and parts in a professional manner, and exposure to contemporary composers and their works. May be repeated for credit. Prerequisites: MU 301. Offered Every semester.

• MU 399 - Special Topics in Music

Hours: 3

Special topics in music. Focus and emphasis of topics announced in advance. Offered Upon demand.

• MU 401 - Form and Analysis

Hours: 2

Musical forms and analysis. Prerequisites: MU 303 and 312 or approval of instructor. Offered Every other fall semester only.

• MU 402 - Church Music Methods

Hours: 3.

Church Music Methods, Materials, and Administration. Prerequisites: MU 301.

• MU 404 - Music Technology Individual Projects

Hours: 1

Three-semester sequence for students enrolled in music technology majors and minors. Students will create individual projects in MIDI, sound creation and editing, and multimedia. Prerequisites: MU 306 and permission of instructor.

• MU 406 - Internship in Music Technology

Hours: 3

An internship of eight hours per week working in the music technology industry. Prerequisites: MU 306. Offered Upon demand.

MU 407 - Internship in Music Business

Hours: 3.

Internship in Music Business. Prerequisites: MU 100, MU 110, MU 301, MKT 301, MGT 301, FIN 410.

MU 408 - Internship in Church Music

Hours: 3.

An internship of nine hours per week working in church music.

MU 409 - Internship in Group Piano Pedagogy

Hours: 3.

An internship of three hours per week working with an approved group piano program. Prerequisites: MU 100, MU 321, MU 420, MUE 328.

MU 410 - Internship in Individual Piano Pedagogy

Hours: 3.

An internship of nine hours per week working with a local piano teacher. Prerequisites: MU 100, MU 321, MU 420, MUE 328.

MU 411 - Musicum Practicum

Hours: 1

Courses of study and activity developed by the student and submitted to music faculty for approval. Projects to reinforce learning and performance experiences. May be repeated, but no more than two hours count toward degree requirements. Offered Upon demand.

MU 416 - Orchestration

Hours: 2

Instruments of the band and orchestra, their ranges, transpositions, and capabilities. Practical experience in arranging for instruments. Prerequisites: MU 302. Offered Every other fall semester only.

MU 420 - Piano Literature

Hours: 2

Music for string keyboard instruments from the pre-pianoforte period to the present. Representative works from all periods.

Prerequisites: MU 302, 304, 312 or approval of instructor. Offered Upon demand.

MU 425 - Advanced Conducting

Hours: 2

Review of basic conducting patterns. Emphasis on communication as the role of the conductor. Detailed score preparation. Prerequisites: MU 325. Offered Every other spring semester only.

MUA 111 - Studio Instruction in Voice

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 115 - Studio Instruction in Voice

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 121 - Studio Instruction in Organ

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 125 - Studio Instruction in Organ

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 131 - Studio Instruction in Piano

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 135 - Studio Instruction in Piano

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 141 - Studio Instruction in Guitar

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 145 - Studio Instruction in Guitar

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 151 - Studio Instruction in Strings

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 155 - Studio Instruction in Strings

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 161 - Studio Instruction in Woodwinds

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 165 - Studio Instruction in Woodwinds

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 171 - Studio Instruction in Brass

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 175 - Studio Instruction Brass

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 181 - Studio Instruction in Percussion

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

MUA 185 - Studio Instruction in Percussion

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 191 - Studio Instruction in Composition

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instructor.

MUA 195 - Studio Instruction in Composition

Hours: 1.5.

For aspiring music majors who have not yet been accepted as music majors. Prerequisites: Permission of Instrutor. Corequisite: MU 199

MUA 211 - Studio Instruction in Voice

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390.

MUA 221 - Studio Instruction in Organ

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 231 - Studio Instruction in Piano

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 241 - Studio Instruction in Guitar

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 251 - Studio Instruction in Strings

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 261 - Studio Instruction in Woodwinds

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 399.

MUA 271 - Studio Instruction in Brass

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 399.

MUA 281 - Studio Instruction in Percussion

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 399.

MUA 291 - Studio Instruction in Composition

Hours: 1.

For music majors' principal instrument. Prerequisites: Permission of Instructor. Corequisite: MU 199.

MUA 411 - Studio Instruction in Voice

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390.

MUA 421 - Studio Instruction in Organ

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 431 - Studio Instruction in Piano

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 441 - Studio Instruction in Guitar

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 451 - Studio Instruction in Strings

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 390, 396, or 399.

MUA 461 - Studio Instruction in Woodwinds

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 399.

MUA 471 - Studio Instruction in Brass

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 399.

MUA 481 - Studio Instruction in Percussion

Hours: 1.5

For music majors' principal instrument. Corequisite: MUA 399.

MUA 491 - Studio Instruction in Composition

Hours: 1.

For music majors' principal instrument. Prerequisites: Permission of Instructor. Corequisite: MU 199.

• MUA 498 - Senior Recital

Hours: 1.5

The Senior Recital represents the final semester of studio instruction on the primary instrument for all music majors except those pursuing the performance emphasis, who typically perform this recital as juniors. The recital must include a minimum of 30 minutes of music. The student must pass a recital jury at least two weeks before the scheduled recital performance. Prerequisites: Departmental permission and one semester of one of the following: MUA 411, 421, 431, 441, 451, 461, 471, or 481. Corequisite: MUA 390, 396, or 399.

• MUA 499 - Performance Emphasis Recital

Hours: 1.5

For music majors pursuing the performance emphasis only. The Performance Emphasis Recital represents the final semester of studio instruction on the primary instrument for music majors pursuing the performance emphasis. The recital must include a minimum of 60 minutes of music. The student must pass a recital jury at least two weeks before the scheduled recital performance. Prerequisites: Departmental Permission, MUA 498, and two semesters of one of the following: MUA 411, 421, 431, 441, 451, 461, 471, 481. Corequisite: MUA 390, 396, or 399.

• MUE 321 - Choral/Instrumental Directed Observation

Hours: 1

In this course, music education students will observe band or choral programs outside their primary area: choral students in an instrumental program and instrumental students in a choral program. The student will observe and assist the band or choir director, gaining an experience in working with ensembles outside the student's primary area. Prerequisites: MU 325. Offered Upon demand.

• MUE 328 - Teaching General Music

Hours: 3

Materials and methods. Emphasis on developing teaching competencies in general music, with an emphasis on the elementary school level. Prerequisites: MU 301. Offered Fall semesters only.

• MUE 428 - Vocal/Choral Methods for Secondary Schools

Hours: 3

Includes basic principles of breathing, posture, and resonance. Diction guidelines for Latin, Italian, German, and French; repertoire for both vocal and choral students; organizational methods for leading choral programs; rehearsal techniques; classroom management skills. Prerequisites: MUE 326, 327, MU 425, or permission of instructor. Offered Every other spring semester only.

• MUE 429 - Organizing and Directing Instrumental Groups in Secondary School

Hours: 3

Repertoire, procedures for administering and teaching school bands, orchestras and instrumental ensembles. Prerequisites: MUE 326, 327, 425 or permission of instructor. Offered Every other spring semester only.

• MUJ 131 - Jazz Studio Instruction in Piano

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

• MUJ 141 - Jazz Studio Instruction in Guitar

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

• MUJ 151 - Jazz Studio Instruction in Bass

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

• MUJ 161 - Jazz Studio Instruction in Woodwinds

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

• MUJ 171 - Jazz Studio Instruction in Brass

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

• MUJ 181 - Jazz Studio Instruction in Percussion

Hours: 1

For non-music majors, music minors, and music majors' secondary instrument.

• MUJ 231 - Jazz Studio Instruction in Piano

Hours: 1.5

For music majors' principal instrument. Corequisite: MUJ 398.

• MUJ 241 - Jazz Studio Instruction in Guitar

Hours: 1.5

For music majors' principal instrument. Corequisite: MUJ 398.

• MUJ 251 - Jazz Studio Instruction in Bass

Hours: 1.5

For music majors' principal instrument. Corequisite: MUJ 398.

• MUJ 261 - Jazz Studio Instruction in Woodwinds

Hours: 1.5

For music majors' principal instrument. Corequisite: MUJ 398.

• MUJ 271 - Jazz Studio Instruction in Brass

Hours: 1.5

For music majors' principal instrument. Corequisite: MUJ 398.

• MUJ 281 - Jazz Studio Instruction in Percussion

Hours: 1.5

For music majors' principal instrument. Corequisite: MUJ 398.

• MUJ 498 - Senior Jazz Recital

Hours: 1.5

For music majors pursuing the jazz emphasis only. The Senior Jazz Recital represents the final semester of studio instruction on the primary jazz instrument for music majors pursuing the jazz emphasis. The recital must include a minimum of 30 minutes of music. The student must pass a recital jury at least two weeks before the scheduled recital performance. Prerequisites: Departmental Permission and three semesters of one of the following: MUJ 231, 241, 251, 261, 271, 281.

• MUX 386 - Jazz Chamber Ensembles

Hours: 0.5

Discussion, evaluation, and performance of literature available for selected small jazz combos. Prerequisites: Approval of instructor.

• MUX 389 - Jazz Ensemble

Hours: 1

Open to all students by audition with the director. Provides the participant with opportunities to perform a wide variety of jazz styles in varied settings. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

• MUX 390 - UAHuntsville Choir

Hours: 1

Mixed voices singing the serious choral repertoire. Open to all students by audition. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

• MUX 391 - Chamber Choir

Hours: 0.5

Change from 0.5 credit hours to 1 credit hour, with a corresponding change in rehearsal time. All music ensembles at UAH are either 1 credit or 0.5 credit, with the 1-credit ensembles rehearsing approximately twice as much as the others.
Open to all students by audition. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

• MUX 392 - Tenor-Bass Chorale

Hours: 0.5

A non-auditioned choir for tenor and bass voices. Classical and popular music are included in the repertoire. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

• MUX 393 - Women's Choir

Hours: 0.5

A non-auditioned choir for soprano and alto ranges. Classical, folk, and popular music are the components of this repertoire. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

MUX 394 - University Chorale

Hours: 0.5

Mixed voices singing the serious choral repertoire. Open to all students. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

MUX 396 - Chamber Ensembles

Hours: 0.5

Discussion, evaluation and performance of literature available for selected small ensembles. Piano trios, quartets, quintets, string quartets, woodwind, brass, percussion and vocal ensembles. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements. Prerequisites: Approval of instructor.

MUX 397 - University Band

Hours: 1

The university band is a key component of the university environment at UAHuntsville as it encourages the continued musical participation of students outside the department of music. The university band has an open enrollment policy which welcomes all interested UAHuntsville students with previous band experience, regardless of major. The university band meets weekly to rehearse and perform a variety of band music ranging from popular arrangements to contemporary band works for sports and university audiences, both on campus and off. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

MUX 398 - Orchestra

Hours: 1.

Preparation of the finest literature for symphony orchestra. Open to all students by audition with the conductor. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students, some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements. Prerequisites: Permission of instructor.

MUX 399 - UAHuntsville Wind Ensemble

Hours: 1

Preparation of the finest literature for wind ensemble and concert band. Open to all students by audition with the conductor. Required attendance at rehearsals and performances. The UAHuntsville music ensembles are open to all students; some ensembles require an audition. Ensemble participation is essential for all music majors and minors, and music majors are expected to participate in an appropriate ensemble each semester the student is enrolled for degree requirements.

Philosophy

• PHL 101 - Introduction to Philosophy

Hours: 3

Introduction to philosophical reflection focusing upon central problems in each of the major branches of the western tradition: metaphysics, epistemology and axiology.

• PHL 150 - Technology, Science, and Human Values

Hours: 3.

A philosophical examination of the relationship between technical and scientific change and human experience and values. Students will critically address central philosophical quesitons about what exists, the nature and extent of knowledge, and moral values in an attempt to understand technology and scientific understanding, and to address moral problems posed by technical and scientific change.

• PHL 201 - Introduction to Logic

Hours: 3

Methodology of correct formal and informal reasoning.

• PHL 202 - Introduction to Ethics

Hours: 3

Major ethical positions in both classical and modern thought. The course may include a consideration of case studies drawn from practical contexts in engineering, medicine and other areas.

• PHL 301 - Ancient Philosophy

Hours: 3

Survey of classical philosophy from the Pre-Socratics through Aristotle. Add PHL 301 and PHL 302 to requrements of minor disjunctively: minors will have to take either PHL 301 or PHL 302 to complete the minor.

• PHL 302 - Modern Philosophy

Hours: 3

Survey of the British and Continental traditions from Descartes through Kant. Add PHL 301 and PHL 302 to requirements of minor disjunctively: minors will have to take either PHL 301 or PHL 302 to complete the minor. Prerequisites: PHL 101 or PHL 202.

• PHL 303 - Contemporary Philosophy

Hours: 3

Examination of some of the most important trends in late nineteenth and twentieth century thought. Prerequisites: PHL 101 or PHL 202.

• PHL 310 - Philosophy of Art

Hours: 3

Major aesthetic theories of the western tradition, with emphasis on the relation between artistic and discursive expression. Prerequisites: PHL 101 or PHL 202.

• PHL 311 - Philosophy of Science

Hours: 3

Critical assessment of the historical and logical foundations of the natural and theoretical sciences. Prerequisites: PHL 101 or PHL 202.

• PHL 312 - American Philosophy

Hours: 3

Survey of American thought with emphasis upon the development of pragmatism in the work of Peirce, James, and Dewey. Prerequisites: PHL 101 or PHL 202.

• PHL 314 - Philosophy of Eastern and Western Religions

Hours: 3

Philosophical examination of eastern and western religious thought. Central tenets of some of the following traditions will be discussed: Buddhism, Christianity, Confucianism, Hinduism, Islam, Judaism, Taoism. Topics include: the roles of reason and faith in the religious life, proofs for the existence of God, the nature of God or the Absolute, mysticism, religious accounts of human nature or the self. Prerequisites: PHL 101 or PHL 202.

• PHL 315 - Biomedical Ethics

Hours: 3

Introduces basic concepts of biomedical ethics; fosters careful reflective thought about the challenging value questions raised by advances in biology, medicine, and medical technologies. Prerequisites: 6 hours of PHL.

• PHL 317 - Philosophy of Mind

Hours: 3

Formerly PHL 316. The problem of the nature of mind, including consciousness, and its relationship to the physical world has been a perennial concern of philosophy. This concern has gained new importance and focus as a result of recent developments in psychology, biology, and computer science. This course examines a range of models, theories, and arguments concerning the nature of mind and its relationship to the physical world. Prerequisites: PHL 101 or PHL 202. Same as PY 317.

PHL 320 - Symbolic Logic

Hours: 3

Symbolic deductive logic, including propositional calculus (truth-functional logic), predicate calculus (propositional functions and quantification), and the logic of relations. Prerequisites: PHL 201.

PHL 330 - Classical Political Philosophy

Hours: 3

Formerly PHL 316. Careful analysis of the roots of political inquiry in selected works of ancient and medieval political philosophers such as Socrates, Plato, Aristotle, Cicero, Augustine and Aquinas. Major themes include the search for the just social order, the proper relationship between the citizen and the state, and other fundamental concepts of western political institutions. Same as PSC 330.

PHL 332 - Modern Political Philosophy

Hours: 3

Formerly PHL 317. Critical examination of the philosophical foundations for modern politics that emerged from the 15th through the 19th century in western Europe. Major themes and theorists include the concepts of individual rights, property, representation, majority rule, limited government, and revolution discussed in selected writings of Machiavelli, Hobbes, Locke, Rousseau, and J.S. Mill among others. Philosophical examination of the nature and importance of gender. Topics may include: the debate between essentialist and constructionist views of gender, the political importance of gender, the intersection of gender and other forms of identity (such as racial and sexual identity), and basic issues in established fields of feminist epistemology, feminist political theory or feminist ethics. Prerequisites: PHL101 or permission of instructor. Same as PSC 332.

PHL 335 - Philosophy of Gender

Hours: 3

Philosophical examination of the nature and importance of gender. Topics may include: the debate between essentialist and constructionist views of gender, the political importance of gender, the intersection of gender and other forms of identity (such as racial and sexual identity), and basic issues in established fields of feminist epistemology, feminist political theory or feminist ethics. Prerequisites: PHL 101 or PHL 202.

PHL 385 - Selected Topics in the History of Philosophy

Hours: 3

Intensive examination of particular problems, periods, or movements in the history of philosophy. Prerequisites: Determination in accordance with course content.

PHL 395 - Junior Research Seminar

Hours: 3

Intensive examination of selected topics leading to the preparation of a substantial philosophical paper. Required of all majors.

May be taken twice for credit. Prerequisites: 6 hours of PHL not including PHL 201.

PHL 397 - Philosophy Internship

Hours: 3

A supervised experience in a professional environment enhanced by a student's background in philosophy. Paid or unpaid. Prerequisites:

- 18 hours of philosophy.
- Junior or Senior standing.
- Minimum 3.0 GPA in major.
- Application to and approval from department chairperson.

PHL 399 - Directed Study in Philosophy

Hours: 1-3

Independent study in an area of philosophy selected in consultation with faculty advisor. Prerequisites: Approval of department chair.

PHL 401 - Metaphysics

Hours: 3

Critical examination of traditional and contemporary responses to questions about the nature of reality, the relation between determinate and indeterminate being, being and becoming, the infinite and the finite. Prerequisites: 6 hours of PHL not including PHL 201.

PHL 402 - Epistemology

Hours: 3

Investigation of fundamental problems of knowledge such as the relation of knowledge and belief, truth, certainty and skepticism, perception, logic, explanation, and justification. Prerequisites: 6 hours of PHL not including PHL 201.

PHL 403 - Advanced Moral Philosophy

Hours: 3

Critical examination of significant works in moral and political philosophy focusing on such issues as the relationship between morality and human nature, the individual and the state, and the consequences of actions. Prerequisites: 6 hours of PHL not including PHL 201.

PHL 438 - Contemporary Political Thought

Hours: 3

Systematic study of recent and current thinking on issues and problems of politics, social theory, and ethics with special attention to the philosophical dimension of these issues and problems. Prerequisites: 9 hours PSC, PHL, and/or HY. Same as PSC 438.

Political Science

PSC 101 - American Government

Hours: 3

Introductory examination of American government and politics.

PSC 102 - Comparative Politics and Foreign Governments

Hours: 3

Survey of government and politics in industrializing, post-industrial, and modernizing countries.

PSC 103 - State and Local Government

Hours: 3

Introduction to state and local governments in America. Examination of different governmental forms and their impact on public policies.

PSC 260 - Introduction to International Relations

Hours: 3

Examination of the basic factors underlying the conduct of international relations, focusing on the forces affecting the change and direction of the present state system. Special attention is given to the forces affecting war and peace. Prerequisites: PSC 101.

PSC 280 - Special Topics I

Hours: 3

Selected topics in local, state, national and world politics. Prerequisites: Permission of chair.

PSC 302 - The American Congress

Hours: 3

Examination of the organization and role of the Congress, its leadership, internal processes, and relationship with other parts of the American political system. Prerequisites: PSC 101.

PSC 304 - American Presidency

Hours: 3

Role of the president in the American political system. Special emphasis on internal functioning of executive branch of government through analysis of structure and techniques of the national administration. Prerequisites: PSC 101.

• PSC 309 - Political Parties and Interest Groups

Hours: 3

Reviews the roles of two major "linkage" institutions in U.S. politics. Considers the organizational features of these institutions and their impact on the electoral and policy-making processes. Prerequisites: PSC 101.

• PSC 330 - Classical Political Philosophy

Hours: 3

Careful analysis of the roots of political inquiry in selected works of ancient and medieval political philosophers such as Socrates, Plato, Aristotle, Cicero, Augustine and Aquinas. Major themes include the search for the just social order, the proper relationship between the citizen and the state, and other fundamental concepts of western political institutions. Prerequisites: 9 hours of PSC, PHL and/or HY. Same as PHL 330.

• PSC 332 - Modern Political Philosophy

Hours: 3

Critical examination of the philosophical foundations for modern politics that emerged from the 15th through the 19th century in western Europe. Major themes and theorists include the concepts of individual rights, property, representation, majority rule, limited government, and revolution discussed in selected writings of Machiavelli, Hobbes, Locke, Rousseau, and J.S. Mill among others. Prerequisites: 9 hours of PSC, PHL and/or HY. Same as PHL 332.

• PSC 334 - American Political Thought

Hours: 3

In-depth study of theorists, concepts, and forces that have shaped American political values from the founding of the republic to the present. Major themes include the relationship between liberty and equality, rights and democracy, and industrialization and the public good. Prerequisites: PSC 101.

• PSC 340 - Government and Politics of Industrializing & Post Industrial Countries

Hours: 3

Examination of selected advanced industrialized countries and countries that have significant influence on the developed world. Themes will vary but will generally include presidential and parliamentary forms of democracy, political parties and mass participation, and the role of the government in the economy. Prerequisites: PSC 101; 102 recommended.

• PSC 341 - Government and Politics of Modernizing Countries

Hours: 3

Examination of selected nations in Latin America, Asia, the Middle East, and Africa which are undergoing political and economic modernization. Themes will vary but will generally include the role of democracy in development, political institutionalization, and the roles of religion and ethnicity. Prerequisites: PSC 101; 102 recommended.

• PSC 416 - Alabama & Southern Politics

Hours: 3

Surveys the government and politics of Alabama and provides an overview of the political culture in the American South. Prerequisites: PSC 101.

• PSC 418 - Urban Politics

Hours: 3

Examination of urban politics in America with attention given to urban problems, urban environment, governmental forms, power structures, and policy outputs. Prerequisites: PSC 101, 103; PSC 306 recommended.

• PSC 420 - Federalism and Intergovernmental Relations

Hours: 3

Examination of the theory and practice of American federalism with emphasis on the constitutional framework, intergovernmental relations and the changing roles of state and local governments.

• PSC 436 - Political Ideologies

Hours: 3

Critical examination of the nature of modern ideologies. Among the major ideologies studied will be important examples of conservatism, liberalism, socialism and communism.

• PSC 438 - Contemporary Political Thought

Hours: 3

Systematic study of recent and current thinking on issues and problems of politics, social theory, and ethics with special attention to the philosophical dimension of these issues and problems. Prerequisites: 9 hours PSC, PHL, and/or HY. Same as PHL 438.

• PSC 452 - American Constitutional Law

Hours: 3

Policy-making role of the Supreme Court in the American political system through analysis of leading cases in interpreting the constitution. Prerequisites: PSC 101; 351 recommended.

PSC 454 - Civil Liberties

Hours: 3

Judicial interpretations of contemporary questions involving rights of individuals and limits of freedom of action in American society. Prerequisites: PSC 101; 351 and/or HY 318 recommended.

PSC 464 - American Foreign Policy

Hours: 3

Institutions, processes, interests and personalities affecting the formation of American foreign policy. Prerequisites: PSC 101; 102 recommended.

PSC 468 - United States National Security Policy

Hours: 3

Examination of the substance and decision making processes behind the national security policies of the United States. Includes a discussion of the historical rationale of the policy as well as the current military, economic, technological, and social challenges confronting the country. Prerequisites: PSC 101; 102, 260 recommended.

PSC 480 - Advanced Topics in Political Science

Hours: 3

Selected topics in local, state, national and world politics. May be repeated for up to 6 hours credit. Prerequisites: Permission of the department chair.

PSC 484 - Senior Seminar in Political Science

Hours: 3

Advanced examination into the subfields of political science offered by the department. May be repeated with different faculty for up to 6 hours credit. Prerequisites: PSC 101, advanced status in political science.

PSC 495 - Internship in Government

Hours: 1-6

Undergraduates may receive from 1 to 6 hours of academic credit for an internship with local, state, or federal governmental agencies. Students must attend internship seminars, keep a log of activities, and submit a report on their internship.

Psychology

PY 101 - General Psychology I

Hours: 3

This course may be applied to the G.E.R. Introduction to methods and research findings in the field. Topics include historical perspectives, learning, memory, cognition, language, the biological and social basis of behavior, sensation, perception, human development, personality theories, and abnormal behavior. Students are required to participate in approved experiential activities. These activities include participating in research studies, attending lectures, reading psychological literature, and viewing videos. All activities are designed to illustrate the development, testing, and validation of psychological knowledge. Credit for PY 101 may be obtained by either Advanced Placement or the College Level Examination Program (CLEP).

• PY 102 - Applications in Psychology

Hours: 3

Introduction to applied topics in psychology, such as statistical analysis, counseling, human factors, health psychology, and industrial and organizational psychology. Career opportunities are discussed. Students are required to engage in approved experiential activities such as participating in current research studies, attending lectures, reading psychological literature, and viewing videos. All experiences are designed to illustrate the development, testing, and validation of psychological knowledge. Prerequisites: PY 101.

• PY 201 - Life-Span Development

Hours: 3

Examination of the psychological, social, and physical factors that affect human behavior and development from conception to death. The student is encouraged to participate in approved experiential activities, including participating in research studies, attending lectures, reading psychological literature, and viewing videos. All activities are designed to illustrate the development, testing, and validation of psychological knowledge. Prerequisites: PY 101.

• PY 300 - Psychological Statistics

Hours: 3

Introduction to psychological statistics, with an emphasis on quantitative analysis of human behavior and experimental data. Topics covered include probability, descriptive statistics, and hypothesis testing with an emphasis on correlation, t-tests, and analyses of variance. The course will provide students with a working familiarity of SPSS, and the abilities to analyze experimental data, read and comprehend published statistics, and write-up statistical results. Prerequisites: 3 hours college math.

• PY 300L - Psychological Statistics Lab

Hours: 1

This course is an introduction to analyzing data with computerized statistical software. Topics covered include graphing, prabability, descriptive statistics, and inferential statistics with an emphasis on correlation, t-tests, and analyses of variance. The course will provide students with a familiarity of SPSS, and the abilities to analyze experimental data, read computer statistical output, and write-up statistical results. Prerequisites: 3 hours college math. Corequisite: PY 300.

• PY 301 - Personality

Hours: 3

Examination of various theories of personality with possible implications for research. Prerequisites: PY101 and 102.

PY 302 - Experimental Psychology

Hours: 4

Design and execution of experiments in psychology. Data analysis and manuscript preparation. Prerequisites: PY101, 102 and PY 300 with a grade of “C” or better.

PY 314 - Learning

Hours: 3

Analysis of learning principles from simple relationships with animals to the complexities of human language and problem solving. Prerequisites: PY101 and 102; 3 hrs. PY 300-level or above. Strongly Recommended PY 302.

PY 315 - Developmental Psychology

Hours: 3

Cognitive, psychoanalytic, ethological, behavioral, and humanistic theories of development. Prerequisites: PY 101 and 102.

PY 316 - Perception

Hours: 3

Examines sensory systems and elements of perception. Topics include vision research, audition, chemical senses, and body sensations. Prerequisites: PY 101 and 102, 3 hrs. PY300-level or above. Strongly Recommended PY 302.

PY 317 - Philosophy of Mind

Hours: 3

The problem of the nature of mind, including consciousness, and its relationship to the physical world has been a perennial concern of philosophy. This concern has gained new importance and focus as a result of recent developments in psychology, biology, and computer science. This course examines a range of models, theories, and arguments concerning the nature of mind and its relationship to the physical world. Prerequisites: PY 101 and 102 or PHL 101. Same as PHL 317

PY 324 - Work Design

Hours: 3

Introduces the portion of the design process that uses basic principles of methods analysis and ergonomics to fit a task and workstation to the human operator. Methods analysis topics include: work measurement, work measurement tools, work sampling, job analysis, job evaluation, and the development and use of flow and activity charts for methods improvement. Ergonomics topics include anthropometric data, workplace design, design of the physical environment, work organization, and display and control design. Includes laboratory exercises that focus on the implementation of lean principles. Prerequisites: PY 101, 102, and 300. Same as ISE 324.

PY 330 - Nonverbal Communication

Hours: 3

Examines the diversity of human nonverbal behavior and its influences on everyday communication experiences. Same as CM 330.

PY 375 - Social Psychology

Hours: 3

Examination of the social influences on both individual and group behavior. Topics may include attitudes, group processes, intergroup conflict, interpersonal attraction, aggression, altruism, and impression formation. Prerequisites: SOC 100 or PY101. Same as SOC 375.

PY 380 - Cognition

Hours: 3

Information processing: how information is acquired, encoded, organized, stored, and retrieved. This process will be applied to specific areas of psychology such as language, learning, or personality. Prerequisites: PY 101 and 102; 3 hrs. PY 300-level or above.

PY 399 - Professional Development for Psychology Majors

Hours: 1

Development of skills related to graduate work and to occupations in psychology. Career and internship exploration, resum and graduate application writing, graduate school exploration. Exposure to work and research related topics, such as teamwork and ethics. Prerequisites: PY 101 and 102.

PY 402 - Industrial and Organizational Psychology

Hours: 3

Application of basic principles of learning, motivation, and perception to typical industrial and organizational problems. Open to students who have completed 15 hours of psychology. Prerequisites: Senior standing. Same as ISE 402.

PY 403 - Human Factors Psychology

Hours: 3

Human performance in human-technology-environment systems. Includes consideration of human capabilities and limitations as related to controls and displays, and the role of human cognition in decision making and training effectiveness. Open to students who have completed 15 hours of psychology. Prerequisites: Senior standing. Same as ISE 403.

PY 405 - Psychopharmacology

Hours: 3

Introduction to drug classification and action with emphasis on physiological and psychological interactions. Open to students who have completed 15 hours of psychology. Prerequisites: 9 hours PY or BYS. Same as BYS 405.

• PY 406 - Psychology of Women

Hours: 3

Examines theory and research in the psychological functioning of women, both in the United States and other nations. Topics include achievement and education, mental and physical health issues, biological influences on women's behavior, women and work, and victimization of women. Open to students who have completed 15 hours of psychology. Senior standing.

• PY 407 - Cross-cultural Psychology

Hours: 3

Examines psychological similarities and differences between members of industrialized and non-industrialized cultures. Comparisons will include development, social interaction, personality, cognition, and perception, as well as psychological health and treatment, work, and acculturation. Open to students who have completed 15 hours of psychology. Senior standing.

• PY 408 - Teamwork and Team Processes

Hours: 3.

This course provides an introduction to teams and teamwork processes. The foundation of the course is research-based; topics will be approached from the context of empirical research that has been conducted. The types of research designs that are typically used in team research are addressed. There are hands-on activities, so that students can put the theoretical material into context and into practice. This course is ideal for students who plan to work in business settings or in team-oriented fields (e.g., engineering, the military, or become involved in human resources or team training. Prerequisites: Junior standing.

• PY 420 - Special Topics

Hours: 3

Pre-announced special areas in seminar discussion, laboratory work, or practicum. May be taken twice for credit. Open to students who have completed 15 hours of psychology.

• PY 422 - Individual Research

Hours: 3

With advice of instructor, design and execution of original experiment in psychology. May be taken twice for credit. Open to students who have completed 15 hours of psychology. Prerequisites: 15 hours PY and approval of instructor.

• PY 426 - History and Systems in Psychology

Hours: 3

Survey of psychological theory and experimentation regarding human behavior and mental processes from ancient times to the present. Open to students who have completed 15 hours of psychology. Prerequisites: 9 hrs. PY 300-level or above.

• PY 433 - Abnormal Psychology

Hours: 3

Survey of major psychological approaches to conceptualizing abnormal behavior, with discussion of present diagnostic categories of psychological disorders. Open to students who have completed 15 hours of psychology. Prerequisites: PY 101 and 102. Strongly Recommended PY 301.

• PY 434 - Psychology and Law

Hours: 3

This seminar is a survey of the major topics represented in the field of Psychology and Law. We will focus on how psychological research (across subdisciplines such as clinical, social, cognitive, and community psychology) can contribute to a better understanding of issues related to law or legal process, how the legal system can be informed by the results of psychological research, and how psychological research can be more reactive to legal issues. Open to students who have completed 15 hours of psychology. Prerequisites: PY 300, PY 302.

• PY 436 - Biological Psychology

Hours: 3

Neural and endocrinological systems underlying behavior. Open to students who have completed 15 hours of psychology. Prerequisites: (either a or b): (a) 15 hrs. of PY or approval of instructor; (b) BYS 119 and BYS 120 and 6 hours of PY or approval of instructor. Same as BYS 436.

• PY 437 - Psychobiology of Stress and Illness

Hours: 3

Overview of physiological stress responses and their influence on health behavior and illness. Open to students who have completed 15 hours of psychology. Prerequisites: 9 hours PY or BYS. Same as BYS 437.

• PY 490 - Readings in Psychology

Hours: 3

Supervised in-depth readings in area of particular interest to student. May be taken twice for credit. Open to students who have completed 15 hours of psychology. Prerequisites: 12 hrs. PY 300-level or above and approval of instructor.

• PY 491 - Special Topic in Psychology

Hours: 1

Pre-announced special areas in seminar discussion, laboratory work, or practicum. May be taken twice for credit. Open to students who have completed 15 hours of psychology. Prerequisites: 9 hours PY 300-level or above.

PY 492 - Special Topic in Psychology

Hours: 2

Pre-announced special areas in seminar discussion, laboratory work, or practicum. May be taken twice for credit. Open to students who have completed 15 hours of psychology. Prerequisites: 9 hours PY 300-level or above.

PY 498 - Human Research I

Hours: 3

Capstone course for the PY major. Human behavior observation and/or experimentation. Students engage in data collection and analysis, and report their findings in a research paper and an oral presentation. Open to students who have completed 15 hours of psychology. Prerequisites: PY 302 with a grade of "C" or better; 9 hours PY 300-level or above and senior/graduate standing. Offered Fall Semester only.

PY 499 - Human Research II

Hours: 3

Continuation of PY 498. Open to students who have completed 15 hours of psychology. Prerequisites: PY 499 and approval of instructor. Offered Spring Semester only.

Sociology

SOC 100 - Introduction to Sociology

Hours: 3

Perspective methods, concepts, and general findings of the sociologist. Historical and conceptual development of sociology.

SOC 102 - Analysis of Social Problems

Hours: 3

Sociological interpretation of contemporary social problems as they relate to significant trends in complex societies.

SOC 105 - Introduction to Cultural Anthropology

Hours: 3

Origin and development of human ways of life with emphasis on cross-cultural variations in human behavior, belief systems, social institutions, and cultural change.

SOC 150 - Sociological Perspectives on Technology and Science

Hours: 3.

Introduces sociological approach to science and technology; how social factors affect science and technology, and how science and technology affect our lives; the relationship of science and technology to social issues such as those related to class, race, gender, or religion. Prerequisites: None.

• SOC 202 - Research Methods

Hours: 3

Broad and balanced background in various types of social research methods. Fundamental logic and specific techniques in conducting research. Open only to UAH Sociology majors.

• SOC 206 - Marriage and Family

Hours: 3

The family as a social institution, its structure and function in contemporary societies, dating, marital interaction, life cycle, and socialization process.

• SOC 302 - Sociological Theory

Hours: 3

Development of discipline of sociology in terms of major trends of sociological theory, past and present, and major theoretical problem areas. Nature of sociological theory in relation to other disciplines. The department strongly recommends that the following 400-level courses be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor. Strongly Recommended It is Strongly Recommended that this course be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor.

• SOC 303 - Statistics for the Social Sciences

Hours: 4

This course is an introduction to social statistics with an emphasis on quantitative analysis of survey and census data. Topics covered include descriptive statistics, random sampling, estimation and hypothesis testing with an emphasis on t-tests, chi-square, correlation and regression. This course will provide students with a working familiarity of SPSS, analysis of social science data-sets, ability to read and comprehend published statistics, and write-up statistical results. Prerequisites: 3 hours college math.

• SOC 306 - Sociology of Gender

Hours: 3

An examination of the different perspectives used in the sociological analysis of gender and of the current research addressing gender stratification. The analysis includes the institutional consequences of gender construction in the United States and cross-culturally, as well as the effects on women and men as members of society. (These courses are particularly recommended for future teachers:
SOC 306, SOC 310, SOC 319, SOC 330, SOC 350, SOC 375)

SOC 319 - Deviance and Social Control

Hours: 3

Examines several approaches to studying deviant behavior and its social control, with emphasis on the social construction of deviance and societal reactions to it. The focus is generally on deviation and control in the U.S. (These courses are particularly recommended for future teachers:
SOC 306, SOC 310, SOC 319, SOC 330, SOC 350, SOC 375)

SOC 320 - Sociology of Religion

Hours: 3

Among other issues, examines sociological theories of religion, religious organization, religion and social change, and new religious movements, with emphasis on religion in the U.S. Strongly Recommended that this course be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor.

SOC 325 - The Sociology of Education

Hours: 3

Education as a social institution; its structure, function, and role in contemporary life. Same as ED 325.

SOC 330 - Race and Ethnicity

Hours: 3

Among other issues, examines the historical relationship between race, ethnicity, and economic class/opportunity; and the social construction of ethnicity and race. The emphasis is on race and ethnicity in the U.S. with some discussion of international issues. (These courses are particularly recommended for future teachers:
SOC 306, SOC 310, SOC 319, SOC 330, SOC 350, SOC 375)

SOC 340 - Special Topics

Hours: 1-3

Nontraditional topics of current sociological interest. Title of course and number of credit hours when offered will appear in course schedule along with prerequisites necessary for admission to course. May be taken more than once for credit as long as subtitles differ.

SOC 350 - Social Stratification

Hours: 3

Theoretical questions and frameworks for understanding social stratification. Comparison of different types of stratification systems across time and in different societies. (These courses are particularly recommended for future teachers:
SOC 306, SOC 310, SOC 319, SOC 330, SOC 350, SOC 375)

SOC 369 - Environmental Sociology

Hours: 3.

Emphasizes the reciprocal impacts of social factors and environmental problems - that is, the effect that humans have on the natural environment and the effect of the environment on human societies. Also focuses on cultural controversies regarding contemporary social problems related to the environment (e.g. climate change, energy extraction). Prerequisites: SOC 100.

SOC 375 - Social Psychology

Hours: 3

Fundamental principles of group processes, social influence, and group structure. Development of group solidarity, cohesion, intergroup conflict and cooperation, communication, leadership, opinion, propaganda, and suggestion. (These courses are particularly recommended for future teachers:
SOC 306, SOC 310, SOC 319, SOC 330, SOC 350, SOC 375) Prerequisites: SOC 100 or PY 101,102. Same as PY 375.

SOC 376 - Mass Media in America: Theory and Criticism

Hours: 3

Mass communication theory, history of American mass media, and criticism of contemporary forms and functions of mass media of communication in the United States. The department strongly recommends that the following 400-level courses be reserved for those who have
taken several sociology courses and have junior or senior standing, or have permission of the instructor. Same as CM 430. Strongly Recommended It is Strongly Recommended that this course be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor.

SOC 390 - Readings and Individual Research

Hours: 3

Supervised readings or in-depth research or both in area of specialized interest to student or instructor. May be taken twice for credit with advisor's approval. Permission of instructor

SOC 395 - Community Services Internship

Hours: 3.

This experiential-learning course is aimed at students who envision working in social service or non-profit organizations upon graduation. "Service" here refers to the engagement of a student with a social service, civic, or other community-oriented organization - usually on an unpaid or volunteer basis. The academic component involves readings in sociology and assignments (often a term paper) agreed to by the student, Sociology Department Internship Coordinator, and a representative of the organization. The readings and assignments are expected to align with the interests of the student and her or his activities with the organization. This course must be initiated by the student by contacting an organization as well as the Internship Coordinator.

Restriction: Department Chair Approval Required: Majors only; Junior Standing: minimum 2.5 GPA. Prerequisites: Soc 100; 9 credit in sociology at UAH. Prerequisite with concurrency: SOC 202 and SOC 303. Strongly Recommended Restriction: Department Chair Approval Requiared: Majors only; Junior Standing: minimum 2.5 GPA.

SOC 410 - Sociology of Childhood

Hours: 3.

Environmental influences on socialization of infants and children. Various family roles, school, peer group, and culture as they affect the growing child. (These courses are particularly recommended for future teachers:
SOC 306, SOC 310, SOC 319, SOC 330, SOC 350, SOC 375)

• SOC 415 - Cultural Change

Hours: 3

Critical exploration of the processes of modernization and globalization and their impact on cultures, economies, and environments of developing societies. Topics include history and theories of development and case studies that examine the linkages among gender, class, culture, and development.

• SOC 430 - Advanced Special Topics

Hours: 3.

Nontraditional topics of current sociological interest. Title of course and number of credit hours when offered will appear in course schedule along with prerequisites necessary for admission to course. May be taken more than once for credit as long as subtitles differ. These courses will differ from SOC 340 Special Topics in terms of level of expectations, prerequisites, or both. Prerequisites: SOC 100, plus others depending on course.

• SOC 435 - Sociology of Social Movements

Hours: 3

This course explores various organized movements for social change. Questions addressed include the origins and causes of such movements, the cultural, social and political contexts that impact movements, how movements mobilize people to become active, and strategies and tactics. Other topics include organizational factors and resource mobilization, social networks, collective identity and community building, social movement framing (i.e. persuasive rhetoric and argumentation), ideology, the decline of movements, and what "success" means for a social movement. The department strongly recommends that the following 400-level courses be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor. Prerequisites: SOC 300 and SOC 333 or permission of instructor.

• SOC 439 - Complex Organization in Industrial Society

Hours: 3

Mainstream and critical sociological theories for understanding complex organization in industrial societies. Specific areas covered include: historical development, structure and processes, contradictions and conflict, and alternative forms. The department strongly recommends that the following 400-level courses be reserved for those who have
taken several sociology courses and have junior or senior standing, or have permission of the instructor. Prerequisites: Senior standing or permission of instructor. Strongly Recommended It is Strongly Recommended that this course be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor.

• SOC 444 - Sociology of Culture

Hours: 3

Explores meaning-making within the United States' social structure. Students examine the cultural dimensions of important social

processes including race, power, resistance, class, gender, family, etc. Includes theoretical and empirical analyses of both high and popular cultural forms, discursive practices, semiotics, signs and symbols, and processes of cultural production (at home, work, in art, music, theater, etc.). The department strongly recommends that the following 400-level courses be reserved for those who have
taken several sociology courses and have junior or senior standing, or have permission of the instructor. Strongly Recommended It is Strongly Recommended that this course be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor.

• SOC 455 - Sociology of Work and Occupations

Hours: 3

Contemporary work situations and experiences. Alienation in work, impact of technological change and bureaucratization, primary work groups and work culture, professionalization, unionization, workers' self-management experiments, and work-leisure relationship. The department strongly recommends that the following 400-level courses be reserved for those who have
taken several sociology courses and have junior or senior standing, or have permission of the instructor. Strongly Recommended It is Strongly Recommended that this course be reserved for those who have taken several sociology courses and have junior or senior standing, or have permission of the instructor.

• SOC 480 - Sociology of Science and Technology

Hours: 3

Survey of the social forces that shape the nature and direction of science and technology. Involves a critical look at modern science and technology.

Nursing

• NUR 201 - Multidimensional Aspects of Health Care Career Options

Hours: 3

This course is designed for the student who wishes to explore a career in the healthy care professions as a potential career path. Particular emphasis will be placed on the role of health care providers working in partnership with clients to promote health states and prevent illness.

• NUR 302 - Nursing and Health Promotion

Hours: 3

Focus on nursing, health, and wellness across the life span. Emphasis on health promotion and prevention of illness. Strategies to optimize health are presented. Perceptions and beliefs related to health, illness, disease, and cultural diversity are explored as are mechanisms for promoting health through politics and the health care delivery system. Prerequisites: Admission to Upper Division.

• NUR 303 - Health Assessment

Hours: 3

Lecture/Lab 2 lecture /1 lab Focus on holistic health assessment of culturally diverse clients across the lifespan. Communication and psychomotor skills are developed in clinical laboratory settings. Prerequisites: Admission to Upper Division.

NUR 304 - Applied Pathophysiology Across the Lifespan

Hours: 3

Application of anatomy and physiology to specific pathophysiological processes within a nursing framework. Prerequisites: Admission to Upper Division.

NUR 305 - Nursing Process for Mental Health and Illness

Hours: 6

Lecture/Lab 4 lecture/2 clinical Nursing process and promotion of mental health across the lifespan including restoration of mental health. Clinical laboratory experiences provide opportunities for application of individual and group interventions in a variety of settings. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 303, NUR 302, NUR 321.

NUR 307 - Scholarly Inquiry in Nursing

Hours: 3

Focuses on the various modes of inquiry used in the development of nursing science. Emphasis on the critical examination of nursing research including methodologies, utilization, and theoretical bases. NUJ Major code restriction. Prerequisites: Admission to Upper Division

NUR 308 - Nursing Care of Adults with Alterations in Health I

Hours: 7

Lecture/Lab 4 lecture/3 clinical Nursing process applied to adult clients and families experiencing health problems requiring simple to complex nursing intervention. Clinical experiences in selected health care settings. Emphasis on the beginning role of the professional nurse. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 303, NUR 304, NUR 310, NUR 321. Prerequisite with concurrency: NUR 302.

NUR 310 - Professional Practice in Nursing I

Hours: 6

Lecture/Lab 2 lecture/4 clinical Provides a foundation for professional nursing practice. Professional nursing practice, professional accountability, and clinical skills of nursing practice are addressed, with special emphasis on the development of interpersonal and psychomotor skills basic to professional nursing. Open to admitted upper division students only. College laboratory and clinical experiences are included. Prerequisite with concurrency: NUR 303, NUR 304.

NUR 321 - Pharmacology in Nursing

Hours: 3

This course is designed to introduce essential pharmacologic concepts, critical thinking, and judgment skills so that the student is prepared to provide drug therapy that is safe and appropriate to patients from all populations. Open to students who have been admitted to the upper division nursing program. Prerequisites: Completion of Anatomy and Physiology sequence with a grade of "C" or better. Keep Admission to Upper Division.

Prerequisite with concurrency: NUR 304.

• NUR 336 - Spirituality in Nursing

Hours: 3

Spirituality aspects of client, family and community care are the focus of this course. The course reviews the history of spirituality in nursing care. The nurses' role in meeting the spiritual needs of clients throughout the lifespan is explored. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

• NUR 339 - Information Management in Healthcare

Hours: 3

This course is designed to introduce information management, including decision supoort systems. The use of information management nomenclature and naming protocols is integrated into the learning activities. The role of the nurse as advocate in improving patient outcomes using data management is explored. Safety, ethical, and legal concerns are addressed. This is a required course for registered nurse students in the fall. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

• NUR 390 - Independent Study

Hours: 1-4

Individualized independent study of a specific nursing problem under sponsorship of a nursing faculty member with special preparation in the field. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

• NUR 401 - Nursing Care of Adults with Alterations in Health II

Hours: 7

Lecture/Lab 4 lecture/3 clinical Nursing process applied to clients experiencing alterations in health requiring complex and collaborative nursing management. Clinical experiences in the acute care environment. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 305, NUR 307, NUR 308.

• NUR 402 - Population Based Health Care

Hours: 3

Promotion of health, prevention of disease in at-risk aggregate populations. Examines complex problems and health care policy. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 305, NUR 308. Prerequisite with concurrency: NUR 307.

• NUR 403 - Family-Centered Parent-Infant Nursing

Hours: 4

Lecture/Lab 3 lecture/1 clinical Nursing process used to promote health and facilitate adaptation for childbearing families. Clinical experiences in hospital and community settings. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 305, NUR 307, NUR 308.

• NUR 404 - Family-Centered Nursing Care of Children

Hours: 4

Lecture/Lab 3 lecture/1 clinical Nursing process for promoting health and facilitating adaptation in childbearing families and care of children. Clinical experiences in selected agencies. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 305, NUR 307, NUR 308.

• NUR 405 - Community Health Nursing

Hours: 6

Lecture/Lab 4 lecture/2 clinical Nursing process for client and community to promote community health. Clinical experiences in selected community settings. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 401/402/403/404/406.

• NUR 406 - Leadership and Management in Nursing

Hours: 3

Describes and analyzes selected theories of management and leadership in health care systems with focus on broadening students' knowledge base and skills as they relate to entry-level nursing management. Organization structures and dynamics as well as pertinent issues and trends are addressed. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 305, NUR 308. Prerequisite with concurrency: NUR 307.

• NUR 407 - Professional Practice in Nursing II

Hours: 7

Lecture/Lab 3 lecture/4 clinical Provides opportunities for professional nursing practice. Area of practice is determined jointly by student and faculty, guided by preceptor, and evaluated collaboratively by faculty and student. Seminars involve analyzing clinical experience utilizing the nursing process. Prerequisites: NUR 401, NUR 402, NUR 403, NUR 404. Pre- or corequisite: NUR 405, NUR 406, NUR 408.

• NUR 408 - Professional Practice in Nursing III Seminar

Hours: 1

The purpose of this course is to facilitate the synthesis of knowledge and application of critical thinking to decisions about patient care. Test taking skills and time management concepts will be applied in preparation for the RN licensure exam. (Grading System to A-F Sp/2010) Corequisite: NUR 407.

NUR 410 - Transition into Professional Roles

Hours: 4

For the registered nurse student, designed to synthesize previous experiences in nursing with selected theoretical knowledge. Examines the multi-dimensional role of the professional nurse in health systems. Through analysis of paradigm case(s) and development of a professional portfolio, the student evaluates his/her professional practice and develops goals designed to guide learning and professional development. Philosophical, social, political, legal, and ethical issues inherent in the practice of professional nursing in health systems. Thirty-two hours of nursing credit for prior learning will be conferred upon successful completion of this transition course.

NUR 411 - Theoretical Applications in Nursing Practice

Hours: 5

Designed for registered nurse students to synthesize knowledge gained from previous nursing experience when analyzing theories, issues and concepts that influence professional nursing practice. Theoretical concepts, which influence critical thinking are applied to the nursing process. Analysis of normal processes and professional nursing responses to alterations in life processes across the lifespan are examined. Caring for diverse clients is emphasized. Ethical and legal issues which impact the care for client systems are examined when synthesizing theoretical and nursing practice issues. Open to students admitted to the upper division only. Prerequisites: NUR 339, NUR 410 (prerequisite or concurrent).

NUR 412 - Caring for Families, Aggregates and Populations: Theoretical Applications

Hours: 7.

Lecture/Lab 5 lecture/2 clinical Designed for registered nurse students to apply theoretical concepts related to primary, secondary, and tertiary care of aggregates. Emphasis is on application of the nursing process in promoting community health for at-risk aggregate populations and is delivered in an on-line format. Course objectives are designed to meet the individual learning needs of the student in delivering and managing care of selected families with emphasis on the aggregate. Open to students admitted to the upper division only. Prerequisites: NUR 339, NUR 410.

NUR 413 - Nursing Leadership in Professional Practice

Hours: 3

Course focuses on the development and enhancement of leadership skills for the professional nurse in a variety of culturally diverse health care systems. Exploration of theories related to organizational models, change, and critical thinking; leadership in directing and controlling care; ethical, legal, and political influences on leadership; and enhancing self-awareness of leadership styles. Students are provided opportunities to apply nursing leadership concepts through a case study experience and in a clinical practice setting by conducting a clinical project. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 410.

NUR 414 - Health Assessment for the Practicing Professional Nurse

Hours: 3

Lecture/Lab 2 lecture/1 lab Focus on holistic health assessment of culturally diverse clients across the lifespan. Communication and psychomotor skills are developed in clinical laboratory settings. Open to students who have been admitted to the upper division nursing program. Prerequisites: Successful completion of Anatomy and Physiology sequence with a grade of “C” or better. Admission to Upper Division.

NUR 415 - Honors Directed Research

Hours: 2

This course allows for implementation of the student's research proposal as developed in the honors section of NUR 307 Scholarly Inquiry in Nursing. The focus is on data collection and preliminary data analysis. The seminar format will provide students access to expert researchers. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 307H.

NUR 416 - Honors Research Seminar

Hours: 1

The focus of this seminar is completion of final research report as begun in NUR 307 and NUR 415. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 415.

NUR 418 - Global Health Studies

Hours: 3

This course will focus on a selected international health care system. The international system will be compared with the US Health Care System in relation to economic, social, cultural, policy, and environmental influences. Culmination of the course will center on international experiences with health care facilities, policy making bodies, historical, and cultural introductions in another country. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

NUR 419 - Scholarly Inquiry in Nursing

Hours: 3

Focuses on the various modes of inquiry used in the development of nursing science. Emphasis on the critical examination of nursing research including methodologies, utilization, and theoretical bases. Open to all university students. Prerequisites: Successful completion of undergraduate statistics course, PYS 300 or SOC 333: Statistics.

NUR 420 - Evidence Based Nursing Practice

Hours: 3

This course focuses on developing the nurse to be an "evidence user" for the purpose of improving healthcare outcomes. Emphasis is on the critical analysis of evidence to be used in formulating nursing decisions and the design of client care guidelines. Open to students who have been admitted to the upper division nursing program. Prerequisites: NUR 307.

NUR 426 - Space Life Sciences

Hours: 3

Theories and concepts of contemporary issues in health and nursing related to space life sciences. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

NUR 427 - Introduction to Forensics

Hours: 3

This course provides an overview of the field of forensic nursing. Concepts of care for victims and family members of violence, abuse, traumatic accidents, and criminal activity are discussed. Current healthcare practices and medical/legal/ethical issues are reviewed This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

NUR 428 - Gerontological Nursing

Hours: 3

Nursing care of older adults in multiple settings. Issues and trends are incorporated. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

NUR 430 - The Healthcare Workforce – Issues and Leadership Strategies

Hours: 3

Description and analysis of contemporary issues regarding the healthcare workforce. Particular focus will be placed on the multifaceted nature of healthcare workforce shortages. Various models for analysis of workforce issues will be used and strategies being used will be examined. An evaluation of the nurse leader role in creating positive work environments and implementing solutions concludes the student experience. This Course is an Accepted Elective in the Nursing Program (not all electives are offered each year)

NUR 434 - Palliative Care

Hours: 3

Palliative care is when there is no longer a medical treatment or cure for a physical problem. This palliative care course includes meeting the physical, memotional, social, cultural and spiritual needs of individual and their families. A course focus will be on coping, grief, bereavement, pain relief, and managing living implications for individuals with life-threatening illnesses. There will be recognition of the importance of individuality, vulnerability, and resilience in the quality of living during the dying process.

NUR 437 - Nursing as a Political Force

Hours: 3

Overview of the legislative process and legislation relative to health care issues. The role of the professional nurse in the political climate is explored.

Science

SC 100 - Introduction to Science Research

Hours: 1

An introduction to science research and research in science and mathematics at UAHuntsville for first year students who have been admitted to the Zhan Undergraduate Research Scholars Program.

SCI 101-109 - Exploring Space Science and Engineering

Hours: 1.

Each course examines an aspect of space exploration including, but not limited to, space science, human factors, medicine and engineering. Each course focuses on a single aspect. No more than three of the courses in the SCI 101-109 group may be taken for credit. The courses are offered through distance learning. Successful completion of ESS 100. Restriction: Available only to students that have successfully completed Advanced Space Academy at the US Space and Rocket Center in Huntsville, AL. A maximum of three credits can be earned from courses in this group. All courses in this group must be completed prior to full time employment in a institution of higher education. Prerequisites: ESS 100

Atmospheric Science

ATS 401 - Survey of Atmospheric Science

Hours: 3

General survey of the field of atmospheric science. Quantitative examination of atmospheric physical properties, including atmospheric composition, structure and dynamics. Detailed inspection of evolving atmospheric structures using real-time data systems. Topics include atmospheric thermodynamics, atmospheric dynamics, cloud physics, atmospheric radiation, and related topics in atmospheric remote sensing. Prerequisites: ESS 111, MA 172 and PH 112, or permission of instructor. Same as ESS 401.

ATS 410 - Operational Weather Forecasting

Hours: 3

Operational Meteorology covers subjective and objective methods of atmospheric prognosis, including techniques for forecasting operationally-important weather elements. The course explores interpretation, use and systematic errors of computer-generated products, human factors with forecasting, and application of meteorological theory in an operational setting. Course instruction is accomplished through analysis of various weather events from beginning to completion. Prerequisites:

ESS 111, 112, 401, MA 120 or 171, PH 101 or 111

ATS 420 - Introduction to Atmospheric Chemistry and Air Pollution

Hours: 3

This self-contained introductory course in atmospheric chemistry and air pollution is designed to provide students the basics of atmospheric chemistry and air pollution concepts. Topics include air pollutants, air-pollution meteorology, atmospheric gases and aerosols, and atmospheric processes. This course will also develop the necessary fundamentals for those wishing to take the advanced (600-level) courses in atmospheric chemistry and air pollution. Prerequisites: PH 112, CH 121 and ESS 321 or consent of instructor. Same as ESS 420.

ATS 441 - Atmospheric Thermodynamics and Cloud Physics

Hours: 3

General aspects of thermodynamic and cloud physical processes occurring within the atmosphere; atmospheric statics and stability, saturation point analysis, aerosols, nucleation, and the behavior/growth of cloud particles and hydrometers. Prerequisites: MA 238, PH 112. Same as ESS 441.

• ATS 451 - Atmospheric Fluid Dynamics I

Hours: 3

Fluid dynamics in the atmosphere. Coriolis accelerations, scale analysis, and appropriate approximations of the complete governing equations. Numerical analysis and interpretation of weather phenomena. Prerequisites: MA 238, PH 112. Same as ESS 451.

• ATS 452 - Synoptic Meteorology

Hours: 3

Analysis, interpretation, and forecasting synoptic-scale and mesoscale phenomena, including air masses, frontal systems, cyclones, anti-cyclones, tropical cyclones, and associated mesoscale phenomena. Emphasis on the use of remotely sensed data from satellites, radars, and profilers using state-of-the-art workstations. Prerequisites: ATS 441, 451. Same as ESS 452.

• ATS 454 - Forecasting Mesoscale Processes

Hours: 3

Detection and forecasting of atmospheric mesoscale phenomena including the structure and evolution of clouds, precipitation (including floods), thunderstorms and severe weather. Includes basics on instruments used to detect mesoscale phenomena, most notably satellite and radar. Prerequisites: ATS 451. Same as ESS 454.

• ATS 461 - Atmospheric Radiation I

Hours: 3

Fundamentals of terrestrial atmospheric radiation. Specific topics include: solar radiation at the top of the atmosphere, radiative transfer equation, gaseous absorption, scattering by molecules and particles, band models, transmittance along an inhomogeneous path, and microwave radiative transfer. Prerequisites: MA 238, PH 112. Same as ESS 461.

Biological Sciences

• BYS 100 - Introduction to Health Professions

Hours: 1

Career options for undergraduate students interested in health professions. Basics of health-care delivery systems and terminology of health care. No BYS major or minor credit. Primarily for freshmen and sophomores.

BYS 119 - Principles of Biology

Hours: 4

Lecture/Lab One two-hour lab per week Introduction to biological principles with a focus on cellular mechanisms.

BYS 120 - Organismal Biology

Hours: 4

Lecture/Lab One two-hour lab per week Discussion of biological function with special emphasis on contrasting strategies employed by organisms in meeting similar biological needs. Prerequisites: BYS 119.

BYS 200 - Dinosaur Biology

Hours: 2

Introduction to the major areas of scientific interest in dinosaur biology; origin of the dinosaurs, their size, thermal biology, behavior and functional anatomy, relationships, and extinction. Lecture, discussion, and laboratory. Field trips may be required.

BYS 214 - Infection and Immunity

Hours: 4

Lecture/Lab Two 2-hour labs a week Principles of microbiology with emphasis on infectious disease of humans; epidemiological and immunological aspects. No credit for students who have credit for BYS 321 or advanced microbiology courses. Recommended for students in the College of Nursing. Prerequisites: BYS 119, CH 101 or 121.

BYS 215 - Human Anatomy and Physiology I

Hours: 4.

Structure and function of the human body with emphasis on their relationship to disease. Part I of a two course sequence. Anatomy and physiology of major organs and organ systems and their relationship to each other. Emphasizes relationships of human systems to applications and simulations. Prerequisites: BYS 119, CH 101 and CH 105.

BYS 216 - Human Anatomy and Physiology II

Hours: 4.

Structure and function of the human body with emphasis on their relationship to disease. Part II of a two course sequence. Anatomy and physiology of major organs and organ systems and their relationship to each other. Emphasizes relationships of human systems to applications and simulations. Prerequisites: BYS 215.

BYS 219 - Genetics and Evolution

Hours: 4

Lecture/Lab Two 2-hour labs per week Hereditary basis of all living organisms, including the study of (a) genes as the discrete nature of inheritance, (b) genes in organisms and (c) genes in populations. Mendelian principles and evolutionary processes. Includes replication, transcription and translation of DNA, RNA and proteins. Prerequisites: BYS 120, MA 107 or 112 and CH 101 or 121.

• BYS 238 - Local Flora

Hours: 2

Laboratory course involving identification of local angiosperms, primarily dicots. Basics of taxonomic classification and use of technical characteristics in identification. Field trips required. Offered Spring or Summer.

• BYS 300 - Cell and Developmental Biology

Hours: 4

Lecture/Lab One lab per week Introduces the student to topics in cell and developmental biology. Subjects include cell structure, organelles, cytoskeleton, secretory pathway, cell division, cell cycle, cell interaction and control of differentiation. Prerequisites: BYS 219, and CH 121 or 201.

• BYS 301 - Elementary Biochemistry

Hours: 3

Biochemistry and energetics of living cells, metabolism, structure and function of carbohydrates, lipids, proteins and nucleic acid. Enzymes, coenzymes, vitamins, blood, endocrine glands, DNA synthesis and gene expression, nutrition, drugs and biochemistry of specialized tissues. Prerequisites: BYS 120 and CH 201 or 331. Offered Spring. Same as CH 301.

• BYS 311 - An introduction to Molecular Understanding of Biological Systems

Hours: 3

Introduction to a molecular understanding of genes, gene expression and genetic engineering in selected procaryotic and eucaryotic systems. Includes examples of biotechnology applications. Prerequisites: CH 331 or equivalent.

• BYS 312 - Principles of Ecology

Hours: 4

Lecture/Lab One lab a week

Population structure and growth, competition, predation, symbiosis, biogeochemical cycling and energy flow, disturbance and community dynamics, biodiversity and conservation. Field trips required.
Field trips required. Prerequisites: BYS 120, BYS 219 and CH 101 or CH 121
Prerequisite with concurrency: BYS 300 Strongly Recommended CH 101 or 121 recommended.

BYS 313 - Anatomy and Physiology I

Hours: 4

Lecture/Lab Lecture and one lab a week. Structure and function of the human body. Anatomy and physiology of the membranes, cell and epithelial transport, the nervous and muscular systems. Appropriate for students preparing for professional schools or graduate study in biological sciences. Not intended for students preparing for professional schools or graduate study in physiology or development. Prerequisites: BYS 119,120, and 219. Prerequisite with concurrency: BYS 300 Offered Fall. Strongly Recommended CH 201 or 331

BYS 314 - Anatomy and Physiology II

Hours: 4

Lecture/Lab Lecture and one lab a week.

Continuation of BYS 313 stressing structural and functional relationships of major organs, organ systems, focusing on heart, brain, lungs, kidney and the gastrointestinal tract.

Not intended for students preparing for professional schools or graduate study in physiology or development. Prerequisites: a C grade or better in BYS 313 Offered Spring.

BYS 315 - Ichthyology

Hours: 4

Classification, anatomy, physiology, and ecology of freshwater and marine fishes. Emphasis on fishes of north Alabama. Laboratory and field trips required. Prerequisites: BYS 120. Prerequisite with concurrency: BYS 300.

BYS 317 - Vertebrate Zoology

Hours: 5

Lecture/Lab Two three-hour labs a week Morphology of vertebrate animals. Relationship of organs and systems and their phylogenetic significance. Prerequisites: BYS 120. Prerequisite with concurrency: BYS 300.

BYS 318 - Vertebrate Reproduction

Hours: 3

General treatment of the major concepts and controversial areas of comparative vertebrate reproduction: ecological and evolutionary aspects, development of reproductive functions and sexual behavior, seasonal breeding and other topics of current interest. Prerequisites: BYS 120 or 313 BYS 219. Prerequisite with concurrency: BYS 300.

BYS 321 - General Microbiology I

Hours: 4

Basic foundation in microbiology for 1) undergraduate biology majors, 2) chemistry majors taking the ACS Biochemistry track, and 3) pre-medical, pre-dental, pre-optometry, or pre-pharmacy students majoring in other fields. Topics: structure, biochemistry, and genetics of microorganisms, control of microbial growth, and microorganisms as pathogens. Laboratory exercises focus on

basic and diagnostic methods in microbiology, environmental factors controlling microbial growth and survival, and the characteristics of medically important microorganisms. Prerequisites: BYS 120, 219, CH 101 or CH 121. Prerequisite with concurrency: BYS 300.

• BYS 322 - General Microbiology II

Hours: 3

Emphasizes diversity of microorganisms with respect to ecology, physiology, and phylogeny.

Prerequisites: BYS 219, 321. Prerequisite with concurrency: BYS 300.

• BYS 331 - Global Climate Change and Infectious Diseases

Hours: 3

Global warming trends and causes, greenhouse gases, impacts of climate change, causes of past climates, El Nino events, growing resistance of pathogens and vectors to drugs and insecticides, biodiversity global analysis of emerging and re-emerging diseases and their causes. Prerequisites: BYS 219. Prerequisite with concurrency: BYS 300.

• BYS 347 - Biophysical Chemistry I

Hours: 3

First and second laws of thermodynamics. Free energy and equilibrium. Colligative properties of solutions. Ionic equilibria. Electrochemistry. Reaction kinetics. Enzyme catalysis. Adsorption and surface tension. Prerequisites: CH 332, MA 172, PH 112. Same as CH 347.

• BYS 348 - Biophysical Chemistry II

Hours: 3

Viscosity, diffusion, sedimentation, electrophoresis, determination of molecular weight by osmotic pressure. Light scattering and photochemistry. Elementary IR, UV-VIS, ESR, NMR spectroscopy. Fluorescence. Optical rotation. Prerequisites: CH 347. Same as CH 348.

• BYS 361 - General Biochemistry I

Hours: 3

Molecules that comprise living systems. Nomenclature, structure, properties, and functions in metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. Enzymatic properties and function, major catabolic pathways, their interrelations and control mechanisms. Glycolysis, Kreb's cycle, and oxidative phosphorylation. Prerequisites: BYS 120, CH 223, 224, 332, and 335; or BYS 311, CH 332, and 335. Same as CH 361.

• BYS 362 - General Biochemistry Laboratory

Hours: 1

Lecture/Lab One 3-hour lab a week Practical experience in isolation, qualitative identification, and quantitative estimation of

biomolecules. Prerequisites: CH 223 and 224. Prerequisite with concurrency: CH 361. Same as CH 362.

BYS 363 - General Biochemistry II

Hours: 3

A continuation of BYS 361 to include fatty acid and amino acid oxidation, biosynthesis of biomolecules, integration of metabolism, DNA and RNA metabolism, protein biosynthesis, and genes. Prerequisites: BYS 361. Same as CH 363.

BYS 364 - Biogeography

Hours: 3

Why plants and animals live where they do. Principles governing plant and animal distribution and dispersal, using the communities of North America as prime examples. Prerequisites: BYS 120; 219. Prerequisite with concurrency: BYS 300. Strongly Recommended 312 recommended.

BYS 365 - General Biochemistry Laboratory II

Hours: 1

Experimental course illustrating the topics in BYS 363. Prerequisites: BYS 361 and BYS 362. Corequisite: BYS 363. Same as CH 364.

BYS 400 - Neuroscience

Hours: 3

An introductory survey of the field of neuroscience, from basic neuroanatomy & physiology to current hot topics, such as neurodegenerative disease, learning and memory, conciousness, cognitive theory and neurocomputing. Prerequisites: BYS 300.

BYS 401 - Exercise Physiology

Hours: 4

Lecture/Lab One lab per week Basic human physiology as differentiated by the effects of exercise. Physiology of major systems of the body that may act as a limiting factor, or enhance the performance, of human movement. Prerequisites: BYS 219, BYS 313 and 314. Prerequisite with concurrency: BYS 300. Strongly Recommended BYS/CH 301.

BYS 402 - Kinesiology and Biomechanics

Hours: 4

Lecture/Lab One lab per week A study of the structural and functional relationships of the human skeletal, muscular and neural systems as they relate to movement of the human body. Prerequisites: BYS 219, BYS 313 and 314. Prerequisite with concurrency: BYS 300. Strongly Recommended PH 101 or PH 111.

BYS 403 - Advanced Exercise Physiology

Hours: 4

Lecture/Lab One lab per week Human physiology, as differentiated by the effects of environmental variables such as altitude, thermal stress and terrain on the effects of major physiological systems of the body as well as a more in-depth analysis of resistance training, aerobic and anaerobic training. Special aids to performance, body composition, aging and integration of multiple systems such as cardiopulmonary systems, the neuromuscular systems, and how each of these variables may effect the performance of human activity. Prerequisites: BYS 219, BYS 313, 314, 401 and BYS/CH 301. Prerequisite with concurrency: BYS 300. Strongly Recommended 361 is strongly recommended.

BYS 405 - Psychopharmacology

Hours: 3

Introduction to drug classification and action with emphasis on physiological and psychology interactions. Prerequisites: 9 hrs. BYS or PY.

BYS 419 - Microbial Genetics

Hours: 3

Transmission, expression, and evolution of genes in microorganisms. Studies of chromosomes, plasmids, transposons, bacteriophages, and other genetic elements. Prerequisites: BYS 219, BYS 321. Prerequisite with concurrency: BYS 300.

BYS 430 - Immunology

Hours: 4

Lecture/Lab One 3-hour lab a week Innate, humoral and cell-mediated immunity. Immune deficiencies and hypersensitivities. Autoimmunity, transplantation and tumor immunology Prerequisites: BYS 219, 321. Prerequisite with concurrency: BYS/CH 361 is strongly recommened.

BYS 436 - Biological Psychology

Hours: 3

Functional analysis of neural and endocrine systems underlying behavior. Prerequisites: (either a or b): (a) 15 hrs. of PY or approval of instructor; (b) BYS 120 or BYS 313, and 6 hrs. of PY or approval of instructor. Same as PY 436.

BYS 437 - Psychobiology of Stress & Illness

Hours: 3

Overview of psychological stress responses and their influence on health, behavior and illness. Prerequisites: 9 hrs. of BYS or PY or approval of instructor. Same as PY 437.

BYS 464 - Evolution

Hours: 3

Principles of evolution and speciation. Nature of species, selection and adaptation, divergence and cladogenesis, isolation, hybridization, and phylogeny. Prerequisites: BYS 120, 219. Prerequisite with concurrency: BYS 300. Strongly Recommended BYS 312 recommended.

• BYS 465 - Molecular Methods in Ecology and Evolution

Hours: 4.

This laboratory course is intended as an intense introduction to molecular methods applicable to research in orgnismal biology. Modern research in econolgy and evolution often utilizes molecular techniques. The topics of the course include: molecular variability in natural populations at the DNA level and its use for ecological and evolutionary inferences such as detecting selection, or phylogenetic inferences; bioinformatics analysis, including GenBank, BLAST and various software packages and their application for ecological and evolutionary research; gene expression analysis in response to environmental stress. The techniques coverd by the course include isolation of DNA and RNA, PCR and its applications, cloning, DNA sequencing, genotyping, gene expression analysis, bioinformatics, and ecological and evolutionary analysis of molecular data. The course will be composed of lecture twice a week and a lab once a week. Prerequisites: BYS 120, BYS 219 & BYS 300.

• BYS 490 - Senior Seminar

Hours: 2

Student discussions, readings, and presentations of topical biological subjects using current scientific literature, monographs, and journals. Capstone course emphasizing refinement of oral and written communication skills and critical thinking. Pass/fail grading. All students are required to take the ETS Major Field Test in Biology, and the results of the test will be factored into the grade for this course. Prerequisites: BYS 119, 120, 219, 300 and senior standing.

• BYS 491 - Special Topics in Biological Sciences

Hours: 1-4

Directed readings and/or written reports on topics of interest to individual students carried out under supervision of an instructor. Prerequisites: Permission of instructor required before registration.

• BYS 492 - Undergraduate Research

Hours: 2-4

For advanced-level biological sciences students with biological sciences GPA of 3.5 or above. Individual investigations into biological problems under direct supervision of instructor. May also be taken at the Marine Environmental Sciences Consortium, Dauphin Island, Alabama. Prerequisites: Permission of instructor required before registration.

• BYS 499H - Undergraduate Honors Research and Thesis

Hours: 2-4

Individual investigations into biological problems under direct supervision of instructor. For honors students majoring in the biological sciences. Prerequisites: Approval of instructor, chair, and director of honors program; Senior standing.

MS 202 - Marine Biology

Hours: 4

Survey of invertebrates, vertebrates, and marine plants as communities with local examples of groups. Examination of marshland, estuarine, beach, dune inlet and neritic habitats, and niches. Lectures, laboratory, and field work. This Course is offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. This course can be included in a biological sciences major or minor. Prerequisites: General Biology.

MS 204 - Commercial Marine Fisheries of Alabama

Hours: 2

Biology, harvesting technology, and processing of commercially valuable fish and shellfish species of Alabama. This Course is offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. This course cannot be taken for credit toward a biological sciences major or minor but can be used for a marine science minor.

MS 301 - Marine Technical Methods I

Hours: 2

Research equipment, methods, and techniques in marine science. Training in operation and field maintenance of major pieces of sampling gear. This Course is offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. This course cannot be taken for credit toward a biological sciences major or minor but can be used for a marine science minor. Prerequisites: Introductory biology, chemistry, or physics.

MS 302 - Marine Technical Methods II

Hours: 2

Equipment and techniques in laboratory analysis of water and other marine samples. Emphasis on water quality parameters. This Course is offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. This course cannot be taken for credit toward a biological sciences major or minor but can be used for a marine science minor. Prerequisites: Introductory biology, chemistry, or physics.

MS 303 - Coastal Climatology

Hours: 2

Physical factors that result in climactic conditions in and near coastal region. Emphasis on northern Gulf of Mexico. This Course is offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. This course cannot be taken for credit toward a biological sciences major or minor but can be used for a marine science minor.

MS 304 - Coastal Zone Management

Hours: 2

Examination of ecological features and physical management policies design for coastal communities and a review of the federal and state programs that impinge upon coastal ecological communities. This Course is offered only at the Marine Environmental Sciences Consortium Sea Lab at Dauphin Island, Alabama. This course can be included in a biological sciences major or minor.

Chemistry

CH 101 - Introduction to Chemistry

Hours: 3

Lecture/Lab Includes one two-hour recitation per week Properties of solids, liquids, gases, and solutions, atomic theory and bonding, concentration concepts, and physical and chemical properties of the more common elements and their compounds. CH 101 does not count toward the chemistry major or minor. Chemistry majors or minors taking CH 101 get elective credit only. CH 101 may be used with CH 105 and CH 201 to fulfill the laboratory science requirement of the GER. No placement examination is required for enrollment in CH 101. The student may opt to take CH 101 even if he or she has achieved a satisfactory score on the placement examination for enrollment in CH 121. Student must have successfully completed MA 110 or be currently taking MA 112 or higher. Prerequisite with concurrency: CH 105.

CH 105 - Introductory Chemistry Laboratory

Hours: 1

Laboratory fundamentals and basic chemical principles. A student enrolled in a B.S. degree program who plans to take CH 121 and CH 125 and has had chemistry laboratory experience may be exempt from CH 105 by permission of Chemistry Department chair. CH 105 may not be counted toward the chemistry major or minor. Chemistry majors or minors receive only elective credit. Prerequisite with concurrency: CH 101.

CH 121 - General Chemistry I

Hours: 3

For science and engineering majors. Properties of gases, liquids, solids, and solutions. Nature of the chemical bond, kinetics, chemical equilibrium, electrochemistry, thermochemistry. Chemical properties of elements, their periodic groups, and their compounds. Prerequisite with concurrency: CH 101 or placement test and MA 113, MA 115, or math placement in MA 120, MA 171 or higher, and CH 125.

CH 122 - General Chemistry for Engineers

Hours: 3

This course is designed as one semester presentation of key aspects in general chemistry and is recommended for all engineering majors except chemical engineers. Covers topics on atoms and molecules; reactions and stoichiometry; gases; the periodic table; atomic structure, chemical bonding and molecular structure; materials; energy, entropy, and free energy; kinetics and quilibrium; and electochemistry. Substitutes for CH 121 when transferred to any other curriculum. Restriction: NO CHEMICAL ENGINEERING MAJORS. Prerequisites: MA 113 or MA 115 with a grade of C or better; or placement in MA 171.

Corequisite: CH 125. Offered Fall 2010.

CH 123 - General Chemistry II

Hours: 3

Continuation of 121 with in-depth study of topics listed. Prerequisites: CH 121. Prerequisite with concurrency: CH 126.

CH 125 - General Chemistry Laboratory I

Hours: 1

Complements the lecture material for CH 121. Includes the determination of chemical and physical properties of materials, synthesis and characterization, and introduction to spectroscopy. Prerequisite with concurrency: CH 121.

CH 126 - General Chemistry Laboratory II

Hours: 1

Complements the lecture material of CH 123. Includes an introduction to qualitative and quantitative analytical techniques. Prerequisite with concurrency: CH 123.

CH 191 - Fundamentals of Chemical Research

Hours: 1-3

Personalized programs to introduce beginning students to undergraduate research. Introduction to laboratory research techniques. Approval of supervising faculty member and chemistry chair required. Registration utilizes last digit of course number to designate semester-hour credit.

CH 192 - Fundamentals of Chemical Research

Hours: 1-3

Personalized programs to introduce beginning students to undergraduate research. Introduction to laboratory research techniques. Approval of supervising faculty member and chemistry chair required. Registration utilizes last digit of course number to designate semester-hour credit.

CH 193 - Fundamentals of Chemical Research

Hours: 1-3

Personalized programs to introduce beginning students to undergraduate research. Introduction to laboratory research techniques. Approval of supervising faculty member and chemistry chair required. Registration utilizes last digit of course number to designate semester-hour credit.

CH 201 - Elementary Organic Chemistry

Hours: 3

Nomenclature, structure, functional groups, and properties of organic compounds. Recommended for nursing majors, some biology majors, and as a sequence to CH 101/105 for an 8-hour laboratory science requirement for non-science majors. Also recommended for students who would benefit from an introduction to organic chemistry before taking CH 331/332 sequence. Does not count in chemistry major or minor. Prerequisites: CH 101 and CH 105 or CH 121 and 125. Prerequisite with concurrency: CH 205.

CH 205 - Elementary Organic Chemistry Laboratory

Hours: 1

Laboratory component of CH 201. Includes reactions of organic compounds and functional group modifications. Prerequisite with concurrency: CH 201.

CH 223 - Quantitative Analysis

Hours: 3

Introduction to quantitative analytical chemistry including instrumentation. Data treatment, ionic equilibria, elementary electrochemical, spectrochemical, gravimetric, and volumetric techniques. Prerequisites: CH 126. Prerequisite with concurrency: CH 224.

CH 224 - Quantitative Analysis Laboratory

Hours: 1

Introduction to quantitative analytical chemistry laboratory. Experiments include pH measurements, spectrochemical, gravimetric, and volumetric titrations. Prerequisites: CH 126. Prerequisite with concurrency: CH 223.

CH 301 - Elementary Biochemistry

Hours: 3

Biochemistry and energetics of living cells, metabolism, structure and function of carbohydrates, lipids, proteins and nucleic acid. Enzymes, coenzymes, vitamins, blood, endocrine glands, DNA synthesis and gene expression, nutrition, drugs and biochemistry of specialized tissues. No credit given to chemistry majors or minors. Credit in CH 361 precludes credit in CH 301. Prerequisites: BYS 120 and CH 201 or 331. Offered Spring. Same as BYS 301.

CH 315 - Chemistry Teaching Methods

Hours: 3

Designed for students pursuing a Class B High School Teacher's Certificate. The course explores methods of presentation of chemical principles, including chemical demonstrations. Prerequisites: CH 201 or 223 and permission of the instructor.

CH 331 - Organic Chemistry I

Hours: 3

Lecture/Lab Includes one two-hour recitation per week Chemistry of organic compounds. Synthetic methods, theory, and reaction mechanisms. Prerequisites: CH 123, 126.

CH 332 - Organic Chemistry II

Hours: 3

Lecture/Lab Includes one two-hour recitation per week Continuation of CH 331. Prerequisites: CH 331.

• CH 335 - Organic Chemistry Laboratory I

Hours: 1

Techniques of organic chemistry including synthesis, separation, and identification of organic compounds with use of chemical and spectroscopic methods. Prerequisite with concurrency: CH 331.

• CH 336 - Organic Chemistry Laboratory II

Hours: 1

Continuation of CH 335. Prerequisites: CH 335. Prerequisite with concurrency: CH 332.

• CH 337 - Organic Chemistry Laboratory III

Hours: 2

Advanced organic chemistry laboratory treating reactions and techniques not covered in CH 335 and 336. Pursuit of a special open-ended problem by each student. Prerequisites: CH 336 and approval of instructor.

• CH 341 - Physical Chemistry I

Hours: 3

An introduction to physical chemistry encompassing: the kinetic theory of gases, the laws of thermodynamics, chemical equilibrium, phase equilibria, elementary theories of electrolyte solutions, and electrochemistry. Credit in CH 341 precludes credit in CH 347. Prerequisites: CH 123, MA 201 and PH 112.

• CH 342 - Physical Chemistry II

Hours: 3

A survey of additional fundamental concepts of physical chemistry including: chemical kinetics, quantum chemistry, atomic structure, chemical spectroscopy (i.e. IR, Raman, NMR, EMR, etc.), and surface and colloid chemistry. Credit in CH 342 precludes credit in CH 348. Prerequisites: CH 341.

• CH 343 - Introduction to Quantum Chemistry

Hours: 3

Quantum mechanical treatment of atoms, molecules, and spectroscopy. Prerequisites: CH 341, MA 238.

• CH 345 - Experimental Physical Chemistry I

Hours: 1

Laboratory and computer investigations into physical chemistry. Report writing, data and error analysis, error propagation, linear and nonlinear regression using IGOR or similar software, thermodynamics. Prerequisites: CH 223, 224. Prerequisite with concurrency: CH 341 or 347.

• CH 346 - Experimental Physical Chemistry II

Hours: 1

Laboratory investigations into kinetics and spectroscopy. Prerequisites: CH 345 or comparable course. Prerequisite with concurrency: CH 342 or 348.

• CH 347 - Biophysical Chemistry I

Hours: 3

Computers for data analysis and simulations. First and second laws of thermodynamics. Free energy and equilibrium. Calorimetry. Protein stability. Binding and Interactions. Solution thermodynamics. Electrolytes. Electrochemistry. Prerequisites: CH 332, MA 172, PH 112. Same as BYS 347.

• CH 348 - Biophysical Chemistry II

Hours: 3

Biochemical reaction kinetics. Enzyme catalysis. Quantum mechanics. Statistical thermodynamics. Spectroscopy, including UV-VIS, Fluorescence. Circular dichroism, NMR. Structure determinations. Prerequisites: CH 347. Same as BYS 348.

• CH 361 - General Biochemistry I

Hours: 3

Molecules that comprise living systems. Nomenclature, structure, properties, and functions in metabolism of amino acids, proteins, carbohydrates, lipids, and nucleic acids. Enzymatic properties and function; major catabolic pathways, their interrelations and control mechanisms. Glycolysis, Kreb's cycle, and oxidative phosphorylation. Prerequisites: BYS 120, CH 223, 224, 332, and 335; or BYS 201, CH 332, and 335. Same as BYS 361.

• CH 362 - General Biochemistry Laboratory I

Hours: 1

Lecture/Lab One 3-hour lab a week Practical experience in isolation, qualitative identification, and quantitative estimation of biomolecules. Prerequisites: CH 223, 224. Prerequisite with concurrency: CH 361. Same as BYS 362.

• CH 363 - General Biochemistry II

Hours: 3

A continuation of CH 361 to include fatty acid and amino acid oxidation, biosynthesis of biomolecules, integration of metabolism,

DNA and RNA metabolism, protein biosynthesis, and genes. Prerequisites: CH 361. Same as BYS 363.

CH 364 - General Biochemistry Laboratory II

Hours: 1

Experimental course illustrating the topics in CH 363. Prerequisites: CH 361 and CH 362. Prerequisite with concurrency: CH 363. Same as BYS 365.

CH 401 - Inorganic Chemistry

Hours: 3

Fundamental topics in inorganic chemistry. Atomic structure, chemical bonding, symmetry, acid-base theories, non-aqueous solvents, coordination chemistry, crystal field and ligand field theory, main group and transition metal chemistry, organometallics, catalysis, and bioinorganic chemistry. Prerequisites: CH 336.

CH 402 - Inorganic Chemistry Laboratory

Hours: 1

Laboratory techniques of inorganic chemistry including synthesis, purification, isolation, and identification of inorganic compounds. Prerequisites: CH 401.

CH 421 - Instrumental analysis

Hours: 4

Introduction to modern analytical instrumentation including IR, UV and atomic absorption spectrophotometers, nuclear magnetic resonance, electroanalytical equipment, and gas and liquid chromatographs. Lecture and laboratory. Prerequisite with concurrency: CH 345.

CH 440 - Polymer Synthesis and Characterization

Hours: 3

Synthesis of commercially relevant and novel polymers. Polymer characteristics and a discussion of the structural dependence of polymer properties Course completion and/or grade requirements for undergraduate credit will differ from those for graduate credit. Students who have successfully completed CH 440 cannot also receive credit for CH 540 or MTS 640. Prerequisites: CH 331. This course is also taught to graduate students as CH 540 and MTS 640.

CH 480 - Selected Topics in Chemistry

Hours: 1-3

Special offerings to students in areas of interest not covered in present curriculum. Prerequisites: Senior standing and approval of instructor.

CH 491 - Introduction to Chemical Research

Hours: 1-3

Personalized programs to round out the undergraduate curriculum of students with various goals. Registration utilizes last digit of course number to designate semester-hour credit. Student normally may elect only up to 6 hours. Prerequisite with concurrency: CH 345 and senior standing. Approval of supervising faculty member and chemistry chair required.

CH 492 - Introduction to Chemical Research

Hours: 1-3

Personalized programs to round out the undergraduate curriculum of students with various goals. Registration utilizes last digit of course number to designate semester-hour credit. Student normally may elect only up to 6 hours. Prerequisite with concurrency: CH 345 and senior standing. Approval of supervising faculty member and chemistry chair required.

CH 493 - Introduction to Chemical Research

Hours: 1-3

Personalized programs to round out the undergraduate curriculum of students with various goals. Registration utilizes last digit of course number to designate semester-hour credit. Student normally may elect only up to 6 hours. Prerequisite with concurrency: CH 345 and senior standing. Approval of supervising faculty member and chemistry chair required.

Computer Science

CS 100 - Introduction to Computers and Programming

Hours: 3

History of computation and the information age. Overall structure of computer problem solving and methods of constructing of computer solutions. Impact of computers on the individual and society. Applications of computers in business, medicine, and humanities. Introduction to Visual Basic.

CS 102 - Introduction to C Programming

Hours: 3

Program design and implementation in the C programming language. Basic program structure, data types, control structures, and file organization. System libraries, input/output features. Cannot be counted toward a CS major.

CS 103 - Introduction to Programming using Java

Hours: 3

Program design and implementation in the Java programming language, using hands-on programming assignments, class demonstrations and lectures. Problem analysis and some testing techniques. Basic features of program structure, data types, control structures, methods and file organization. Java's built-in class libraries, input/output features. Cannot be counted toward CS major.

CS 105 - Computer Science Seminar ? Ethics and Professionalism

Hours: 1

Covers issues associated with the ethical use of computers in the current information age. Ethics, professionalism, software piracy, copyrighting software, ethical standards and the impact of computers on society will be covered. Familiarization with the local computing environment will also be covered.

CS 121 - Computer Science I

Hours: 3

Review of hardware and software components of computer systems. Review of problem solving techniques and algorithm development. Principles of software design, implementation, and testing. Introduction to object oriented design and the C++ programming language. Extensive programming assignments to provide experience in the application of design and implementation principles. Prerequisites: CS 102 or other college-level programming course, MA 112. Prerequisite with concurrency: MA 113.

CS 143 - Introcution to Technologies for Multimedia and Gaming

Hours: 3

Introduction to terminology, technologies and tools for multimedia and gaming with emphasis on the elements including text, sound, images, animation, and video, and how they are represented, captured, edited, stored, and published. General overview of multimedia and gaming hardware/software technologies, multimedia authoring, and publishing on the world wide web. Offered Fall 2010.

CS 214 - Introduction to Discrete Structures

Hours: 3

Review of set algebra including mappings and relations. Algebraic structures including semigroups and groups. Elements of theory of directed and undirected graphs; Boolean algebra and propositional logic and applications of these structures to various areas of computer science. Prerequisites: CS 121 and MA 171.

CS 221 - Computer Science II: Data Structures

Hours: 3

Continuation of CS 121 with emphasis on advanced features of the C++ programming language, including pointers, recursion, classes, inheritance, and polymorphism. Introduction to fundamental data structures including linked lists, stacks, queues, and binary search trees. Basic sorting and searching algorithms. Practical experience in the design, development, and documentation of significant object-oriented programs. Prerequisites: CS 121, MA 113. Prerequisite with concurrency: MA 171.

CS 307 - Object-Oriented Programming in C++

Hours: 3

Emphasis upon object-oriented concepts and design in developing student programs in C++. Comparison with other object-

oriented languages. Inheritance. Prerequisites: CS 221.

• CS 308 - Computer Organization and Assembly Language Programming

Hours: 3

Computer hardware organization, including functions of central processing unit, instruction representation and execution. Programming experience in a representative assembly language, including floating point programming. Overview of software systems: loaders, assembler, compiler, interpreters, operating systems. Functional description of input/output and mass storage devices. Structure and operation of assemblers. Prerequisites: CS 309.

• CS 309 - Switching Theory

Hours: 3

Boolean algebra, Boolean function minimization techniques, design and analysis of combinational circuits, design and analysis of sequential circuits, asynchronous circuits, timing and loading problems, designing with integrated circuits. A lab section must be scheduled for this course. Prerequisites: CS 121. Prerequisite with concurrency: CS 214.

• CS 317 - Introduction to Design and Analysis of Algorithms

Hours: 3

Introduction to complexity analysis of algorithms with emphasis on efficient methods for searching, sorting, finding spanning trees and shortest paths in graphs. Basic algorithm design techniques such as divide & conquer, dynamic programming, and backtracking. Introduction to the classification of problems; i.e. NP, intractable, and unsolvable. Prerequisites: MA 244, CS 214 and 221.

• CS 321 - Introduction to Object-Oriented Programming in Java

Hours: 3

Writing substantial object-oriented programs in Java, including their design, documentation and testing. Advanced data structures (e.g., balanced trees, hash tables). Graphical interface programming using the Java abstract windowing toolkit. Comparison with other object-oriented languages, notably C++. Prerequisites: CS 221 or proficiency in another object-oriented programming language.

• CS 325 - Professionalism and Computing Ethics

Hours: 3

The course focuses on two major aspects of professionalism and computer ethics. The first concerns the rule of values and normative principles in the practice of computing or more specifically software development. The second concerns the impacts of computer technologies on society. Prerequisite with concurrency: CS 321. Offered Fall 2010.

• CS 390 - UNIX Programming

Hours: 3

Strategies for the design and development of systems and programs in the UNIX environment. UNIX operating system fundamental concepts including file and terminal I/O, processes, interprocess communication and signals. Pattern searching, filter and pipes. Shell programming, including control flow and interrupt handling. Program and system development tools awk, C, make, sed, yacc, and others. Prerequisites: CS 221.

• CS 391 - Introduction to Network Administration Principles for Windows

Hours: 3

Introduction to network administration principles used for installing and administrating networks based on Windows. Covers OS installation, general network topologies and protocols, along with Windows architecture for both client and server. Management of users, network file and security systems, Windows Registry, DHCP, WINS, print servers, backup systems, and disaster-recovery are covered. Special attention is given to the design and implementation of a Windows NT Domain. Prerequisites: CS 221.

• CS 392 - Introduction to Network Administration Principles for UNIX

Hours: 3

Introduction to network administration principles used for installing and administrating networks based on UNIX. Covers Linux OS installation, general network topologies and protocols, along with UNIX architecture for both client and server. Management of users, network file and security systems, kernel configuration, print servers, X Windows servers, domain name service, mail servers, as well as Web and ftp servers are covered. Special attention is given to the design and implementation of a UNIX Domain. Prerequisites: CS 390.

• CS 396 - Special Topics

Hours: 3

Course offered by an instructor in a specialized area of computer science. Prerequisites: Approval of instructor.

• CS 397 - Special Topics

Hours: 3

Course offered by an instructor in a specialized area of computer science. Prerequisites: Approval of instructor.

• CS 398 - Special Topics

Hours: 3

Course offered by an instructor in a specialized area of computer science. Prerequisites: Approval of instructor.

• CS 403 - Introduction to Formal Languages and Automata Theory

Hours: 3

Introduction to concepts and formalisms of formal languages and automata theory. Includes fundamental mathematical concepts, grammars and corresponding automata, and deterministic parsing of programming languages. Prerequisites: CS 317.

CS 413 - Introduction to Digital Computer Design

Hours: 3

Logic design of functional digital units, design of computer subsystems: register transfer, bus structure, timing and control. Design of processor, memory, arithmetic, and I/O units. Interrupt handling. Introduction to advanced architectures and interconnection networks. Shared memory systems. cache coherence. Memory models and memory consistency. A lab section must be scheduled for this course. Prerequisites: CS 308, 309.

CS 424 - Programming Languages

Hours: 3

Principles of modern programming language features and design. Imperative vs. declarative language styles. General purpose language features, e.g., operators, expressions, recursion, object-orientation. Special purpose language features, e.g., support for graphical interfaces, concurrency, non-determinism. Relationship of language design and implementation. Formal grammars, BNF notation. Brief history of programming languages. Taught as CS 424/524. Course completion and/or grade requirements for graduate credit will differ from those for undergraduate credit. Students may not receive credit for both CS 424 and CS 524. Prerequisites: CS 317 and proficiency in a modern programming language.

CS 445 - Introduction to Computer Graphics

Hours: 3

Introduction to the underlying theory and mechanics of computer graphics. Brief historical perspective progressing through extended discussion on topics such as display hardware technology, 2D raster operations, 2D and 3D geometric transformations, and 3D projection and viewing techniques. A significant number of programming projects are assigned. Same conceptual material as CS 545. Student cannot receive credit for both CS 445 and 545. Prerequisites: CS 221 (or programming proficiency in C or C++) and MA 244.

CS 470 - Introduction to Computer Networks

Hours: 3

Introduction to the organization and operation of computer networks. Physical, Data Link, Network, Transport, and Application-layer protocols and algorithms; LAN and WAN systems; TCP/IP; wired and wireless organizations; security approaches. Taught as CS 470/570. Course completion and/or grade requirements for graduate credit will differ from those for undergraduate credit. Students may not receive credit for both 470 and 570. Prerequisites: CS 413 or 513.

CS 487 - Database Systems

Hours: 3

Introduction to the basic concepts of database management systems with a focus on relational and object-oriented systems. Database design including semantic models and normalization. Design issues including query languages, internal storage, recovery, concurrency, security, integrity, and query optimization. Prerequisites: Senior standing or permission of instructor.

CS 490 - Introduction to Operating Systems

Hours: 3

History and principles of operating systems. Emphasis on fundamental concepts of process management, memory management, I/O management, and file systems. Topics include process states, threads, CPU scheduling, concurrent processing, virtual memory, disk scheduling. Brief overview of modern operating systems including multiprocessor, distributed, and real time systems. Contemporary operating systems such as UNIX and Windows NT will be used as examples. Students will be assigned substantial programming projects and will be expected to complete at least one graded written assignment. Prerequisites: CS 413.

CS 495 - Independent Study

Hours: 3

Individual directed study under the supervision of an instructor. Prerequisites: Approval of instructor.

CS 496 - Special Topics

Hours: 3

Course offered by an instructor in a specialized area of computer science. Prerequisites: Approval of instructor.

CS 497 - Special Topics

Hours: 3

Course offered by an instructor in a specialized area of computer science. Prerequisites: Approval of instructor.

CS 498 - Special Topics

Hours: 3

Course offered by an instructor in a specialized area of computer science. Prerequisites: Approval of instructor.

CS 499 - Senior Project: Team Software Development

Hours: 3

A combination of lectures on proven software engineering approaches, and team working sessions. Each student will participate in a sizable, complex software development project based on a team approach. Each team will be required to provide oral and written documentation of their work. Prerequisites: CS 317.

Earth System Sciences

ESS 100 - Introduction to Space Science

Hours: 1

Introduction to a variety of space science subjects, including physiology in space, computer systems, materials in space, robotics, thermodynamics, astrophysics, and solar physics. Laboratory experiments and simulated missions. Offered in cooperation with the Alabama Space and Rocket Center. Open only to students enrolled in Space Academy II.

• ESS 103 - Environmental Earth Science Foundations & Applications

Hours: 4

Instruction focuses on the principles and foundations of earth and environmental sciences. Course consists of lectures and laboratory assignments designed to teach concepts in earth system science in addition to the use and applications of basic tools for students in earth sciences. These applied science labs will include a wide range of areas in environmental earth science focusing especially on land processes. Examples include: ecosystems, geology, soil science, water, pollution, agriculture, population, natural disasters, and energy. The course is designed to guide instruction based on applications and real-world examples. Restriction: Students must enroll in both lecture 103 and lab 103L sections.

• ESS 111 - Climate and Global Change

Hours: 4

Introduction to earth's atmosphere and climate system. Structure and interaction of the components of this system. Natural and human-induced changes in these components, including the greenhouse effect, ozone depletion, air pollution, acid rain, effects of volcanoes, urban heat island processes, continental drift effects, glacial melting and sea level changes, atmospheric and ocean circulations and climatel, and solar activity variability.

• ESS 112 - Severe and Hazardous Weather

Hours: 4

Weather systems, severe weather, hurricanes, weather forecasting. Interpretation of current conventional surface-based, satellite, and radar weather observations. Prerequisites: ESS 111.

• ESS 210 - Collapse of Civilizations

Hours: 3.

This course investigates why some cultures succeed and others fail. Many ancient societies experienced factors which led to their collapse, including environmental damage, climate change, overpopulation, and warfare. However, other societies found solutions to these problems and survived. From the archeological record of past civilizations we will examine the factors which lead to collapse in an attempt to address a question that is relevant to the contemporary worldhow can our world best avoid destroying itself?

• ESS 303 - Classification and Physical Causes of Climates

Hours: 3

Basic atmospheric structure and physical processes, surface processes, climate history and climate change, land use and land change, microclimates, topoclimates, Ecoclimatology. Prerequisites: ESS 103, ESS 111, MA 120 or MA 171, and PH 101 or PH 111.

ESS 305 - Hydrology

Hours: 3.

Introduction to the hydrologic cycle and basic concepts of how water on the Earth moves, distributes, circulates and interacts with the environment. Major topics are water properties, precipitation, infiltration, evapotranspiration, groundwater and runoff. Oceanographic concepts are introduced including currents, waves, tides, and coastal sediment processes. The response of water to environmental changes and conservation/management strategies are discussed. Prerequisites: ESS 103, ESS 111, MA 120 or 171, and PH 101 or 111, or consent of instructor

ESS 307 - Environmental Archeology

Hours: 3.

Archeologists today need a wide range of scientific approaches in order to delineate and interpret the ecology of their sites. This approach is revolutionizing archeology and making archeological information relevant to the modern-day world. The analytical techniques that will be investigated in this course include climate modeling, climate reconstruction, geomorphology, sedimentology, soil science, paleobotany, paleoecoloy, remote sensing and GIS. This information provides a cross-cultural understanding of the response by humans to natural and human-induced environmental changes. Investigating human impacts on ancient environments offers an almost unique opportunity to link insights derived from the past to pressing contemporary issues. The archeological record, combined with recent data from ice-cores and lake-core sediments, offers sufficient time depth and records of the influence of diverse human strategies on the natural world to make them an invaluable source of insight for researchers and policy-makers today. Prerequisites: ESS 103 or consent of instructor

ESS 312 - Principles of Ecology

Hours: 4.

Lecture/Lab One 3 hour lab a week. Ecological principles controlling plant and animal populations. Development of ecosystems, communities and habitats. Field trips required. Prerequisites: BYS 120. Strongly recommend CH 101 or 121. Same as BYS 312.

ESS 321 - Pollution Problems

Hours: 3.

Quantitative descriptions of environmental conditions, regulations, and abatement technologies. Specific pollution problems with air, water, noise, and radiation; assessment of environmental impacts of development or construction projects. Prerequisites: ESS 103, ESS 111, MA 120 or MA 171, CH 101 or 121, PH 101 or 111.

ESS 370 - Introduction to Remote Sensing

Hours: 3.

This course investigates the basic physical principles of remote sensing systems and discuss the processing, interpretation, and applications of airborne and satellite data. Remote sensing is the art and science of obtaining information about an object without being in direct physical contact with it. No prior training in remote sensing is required. Remote sensing can be used to measure and monitor important biophysical characteristics and human activities on Earth. This information is critical in addressing the global environmental threats of the next few decades. Prerequisites: ESS 103, ESS 111, MA 120 or 171, PH 101 or 111.

ESS 401 - Survey of Atmospheric Science

Hours: 3.

General survey of the field of atmospheric science. Quantitative examination of atmospheric physical properties, including atmospheric composition, structure and dynamics. Detailed inspection of evolving atmospheric structures using real-time data systems. Topics include atmospheric thermodynamics, atmospheric dynamics, cloud physics, atmospheric radiation, and related topics in atmospheric remote sensing. Prerequisites: ESS 111, MA 172, PH 112, or permission of the Instructor.

• ESS 402 - Scientific and Societal Aspects of Natural Disasters

Hours: 3.

Students will understand causes of major natural events and evaluate effects of disasters on populations and possible mitigation measures. GIS software will be used to show progression of events and/or their impacts, with course case studies. Prerequisites: Departmental approval for undergraduates.

• ESS 407 - Environmental Threats, Public Policy and Decision Making

Hours: 3.

Researchers, policymakers and environmental campaigners have identified 25 potential future threats to the global environment. Some of these threats include climate, energy, water, food, environment, poverty, terrorism, disease, education, democracy, and population. This course examines the nature and consequences of these threats and their potential impacts for the survival of the human race. More importantly, potential solutions to these threats and how public policy and decision making is affected will be duscussed. Prerequisites: ESS 103 or consent of instructor

• ESS 409 - Applications of Computers in Meteorology

Hours: 3.

Survey of data types and languages commonly used in the meteorological community along with practical applications to meteorology. Course is designed to prepare students for graduate work and research in atmospheric science. Prerequisites: CS 102, MA 172, PH 112 or consent of instructor

• ESS 410 - Operational Weather Forecasting

Hours: 3.

Operational Meteorology covers subjective and objective methods of atmospheric prognosis, including techniques for forecasting operationally-important weather elements. The course explores interpretation, use and systematic errors of computer-generated products, human factors with forecasting, and application of meteorological theory in an operational setting. Course instruction is accomplished through analysis of various weather events from beginning to completion. Prerequisites: ESS 111, 112, 401, MA 120 or 171, PH 101 or 111.

• ESS 411 - Introduction to Geographical Information Systems

Hours: 3

Introduces vector, raster, and tabular concepts, emphasizing the vector approach. Topics include spatial relationships, map features, attributes, relational databases, layers of data, data ingesting, digitizing from maps, projections, output, application and availability of public data sets. Prerequisites: CS 102 or permission of Instructor. Same as ATS 411, CE 411.

ESS 413 - Geographical Information Systems and Image Processing

Hours: 3.

Data processing with focus on ERSA ArcGIS and ENVI software packages. Provides basic concepts central to GIS data management and creation, as well as those needed in the scientific manipulation of satellite imagery. Topics include image interpretation, classification, enhancement, multispecial transformations, raster data, vector data, digitizing, projections, data query, and map creation. Prerequisites: CS 102 or permission of Instructor.

ESS 414 - Geospatial Applications

Hours: 3.

Builds on basic concepts in GIS and Remote Sensing. Tecqniques in GIS are approached through real world case studies in applied earth sciences including: geology, ecology, natural disasters, demography, climate, and archaeology among others. GIS technology used to locate and download geospatial data, and address public policy and decision making questions through production of presentation-quality maps. Software emphasized includes: ESRI's, ArcGIS, ENVI, and MS Excel, among others. Prerequisites: ESS 413 or permission of Instructor.

ESS 415 - Advanced Topics in GIS

Advanced continuation of concepts applied in Geospatial Applications. Students will learn through modules of real world scientific research how to use further tools in ArcGIS, including: 3D Analyst, Spatial Analyst, Network Analyst. Topics include web data dissemination, spatiotemporal analysis, and some basic spatial statistics measures.

Prerequisites: ESS 414.

ESS 420 - Introduction to Atmospheric Chemistry and Air Pollution

Hours: 3

This self-contained introductory course in atmospheric chemistry and air pollution is designed to provide students the basics of atmospheric chemistry and air pollution concepts. Topics include air pollutants, air-pollution meteorology, atmospheric gases and aerosols, and atmospheric processes. This course will also develop the necessary fundamentals for those wishing to take the advanced (600-level) courses in atmospheric chemistry and air pollution. Prerequisites: PH 112, and CH 121 and ESS 321 or consent of instructor. Same as ATS 420.

ESS 441 - Atmospheric Thermodynamics and Cloud Physics

Hours: 3.

General aspects of thermodynamics and cloud physical processes occurring within the atmosphere; atmospheric statics and stability, saturation point analysis, aerosols, nucleation, and the behavior/growth of cloud particles and hydrometers. Prerequisites: MA 238, PH 112. Same as ATS 441.

ESS 451 - Atmospheric Fluid Dynamics I

Hours: 3

Fluid dynamics in the atmosphere. Coriolis accelerations, scale analysis, and appropriate approximations of the complete governing equations. Numerical analysis and interpretation of weather phenomena. Prerequisites: MA 238, PH 112. Same as ATS 451.

• ESS 452 - Synoptic Meteorology

Hours: 3.

Analysis, interpretation, and forecasting synoptic-scale and mesoscale phenomena, including air masses, frontal systems, cyclones, anti-cyclones, tropical cyclones, and associated mesoscale phenomena. Emphasis on the use of remotely sensed data from satellites, radars, and profilers using state-of-the-art workstations. Prerequisites: ATS 441, 451. Same as ATS 452.

• ESS 454 - Forecasting Mesoscale Processes

Hours: 3.

Detection and forecasting of atmospheric mesoscale phenomena including the structure and evolution of clouds, precipitation (including floods), thunderstorms and severe weather. Includes basics on instruments used to detect mesoscale phenomena, most notably satellite and radar. Prerequisites: ATS 451. Same as ATS 454.

• ESS 461 - Atmospheric Radiation I

Hours: 3

Fundamentals of terrestrial atmospheric radiation. Specific topics include solar radiation at the top of the atmosphere, radiative transfer equation, gaseous absorption, scattering by molecules and particles, band models, transmittance along inhomogeneous path, and microwave radiative transfer. Prerequisites: MA 238, PH 112. Same as ATS 461.

• ESS 490 - Selected Topics in Earth System Science

Hours: 1-3.

Special offerings to students in areas of interest not covered in the present curriculum. Prerequisites: Permission of Instructor.

• ESS 495 - Directed Study

Hours: 2-4

Specialized research for undergraduates often is offered to undergraduates who have senior standing

• ESS 499 - Undergraduate Research Capstone

Hours: 3.

Individual investigations into Earth system science problems under direct supervision of various faculty members.

Mathematical Sciences

MA 004 - Basic Algebra

Hours: No credit

For students with a deficiency in high school credit in algebra or who need an algebra review.

MA 033 - High School Geometry

Hours: No credit

For students with a deficiency in high school credit in geometry. Prerequisites: Basic algebra.

MA 107 - Algebra with Applications

Hours: 3

Algebra review, functions and graphs, linear models, exponential and logarithmic functions, mathematics of finance, sets and probability. No credit given to students who have received credit for another MA course. Prerequisites: Placement.

MA 110 - Finite Mathematics

Hours: 3

Algebra review, elementary functions, matrices, logic, sets, counting, and an introduction to probability and statistics. MA 110 is an AGSC core course. Prerequisites: Placement.

MA 112 - Precalculus Algebra

Hours: 3

Real number systems, exponents, radicals, factoring, absolute value, inequalities, function notation, functions, inverse functions, graphing techniques, polynomial and rational functions, operations with complex numbers, conic sections, and theory of equations. No credit given to students who have completed an MA course numbered above MA 112. MA 112 is an AGSC core course. Prerequisites: Placement.

MA 113 - Precalculus Trigonometry

Hours: 3

Exponential and logarithmic functions, trigonometric functions of angles and real numbers, graphing trigonometric functions, inverse trigonometric functions, solving trigonometric equations, verifying identities, laws of sines and cosines, vectors, trigonometric form of complex numbers, DeMoivre's theorem, summation notation, arithmetic and geometric sequences and series. No credit given to students who have completed an MA course numbered above MA 113. MA 113 is an AGSC core course. Prerequisites: MA 112 with a grade of C or better, or placement.

MA 115 - Precalculus Algebra and Trigonometry

Hours: 4

The algebra of functions, including polynomial, rational, exponential, and logarithmic functions; systems of equations and inequalities; trigonometric and inverse trigonometric functions; trigonometric identities and equations; a brief introduction to DeMoivre's Theorem, vectors, polar coordinates, and the binomial theorem. This course is intended for students who plan to take at least MA 171 (Calculus A), but who do not need the full two-semester sequence in precalculus (MA 112, 113). MA 115 is an AGSC core course. Prerequisites: Placement.

• MA 120 - Calculus with Applications

Hours: 3

Limits, continuity, differentiation, applications of the derivative, integration, the fundamental theorem of calculus, applications of the integral. No credit given to students who have already received credit for a calculus course. MA 120 is an AGSC core course. Prerequisites: MA 107 or MA 110 or MA 112 with a grade of C or better, or placement.

• MA 171 - Calculus A

Hours: 4

Limits, derivatives, applications of the derivative, definite and indefinite integrals, exponential and logarithmic functions, and inverse functions. MA 171 is an AGSC core course (AGSC number 125). Prerequisites: MA 113 or MA 115 with a grade of C or better, or placement.

• MA 172 - Calculus B

Hours: 4

Techniques of integration, applications of the integral, polar coordinates, sequences, series, and conic sections. MA 172 is an AGSC core course (AGSC number 126). Prerequisites: MA 171 with a grade of C or better.

• MA 201 - Calculus C

Hours: 4

Vectors, vector-valued functions, partial derivatives, multiple integrals, vector fields, line and surface integrals. MA 201 is an ACSC core course (AGSC number 227.). Prerequisites: MA 172 with a grade of C or better.

• MA 230 - Mathematics for Elementary School Teachers

Hours: 3

The course emphasizes the use of logical thinking in mathematics and the development of students' understandings of algorithm design. Directed at providing the elementary education student the mathematical background necessary for an understanding of the mathematical principles that are introduced to children in the elementary grades. Emphasis on sets, logic, an understanding of the number system (integers, fractions, decimals, percents), and number theory. Open only to students majoring in elementary education. Prerequisites: One MA course at the 100 level or above with a C or better, or placement.

• MA 231 - Mathematics for Elementary School Teachers II

Hours: 3

The course emphasizes the use of rational numbers, real numbers, algebra, statistics, probability, geometric shapes, measurement, and geometry (using triangle congruence and similarity, coordinates, and transformations). Prerequisites: MA 230 with a grade of C or better.

• MA 238 - Applied Differential Equations

Hours: 3

This course provides an elementary introduction to the techniques and necessary theory for solving the basic differential equations usually encountered by beginning science and engineering students. General topics include analytical and graphical methods for solving and analyzing first-order differential equations; Euler's numerical method; the basic theory of higher-order, linear differential equations, with major emphasis on equations with constant coefficients; variation of parameters; the Laplace transform as a tool for solving differential equations. MA 238 is an AGSC core course. Prerequisites: MA 172. Prerequisite with concurrency: MA 201.

• MA 244 - Introduction to Linear Algebra

Hours: 3

Systems of linear equations, matrices, matrix operations, determinants, vector spaces, bases, dimension of a vector space, inner product, Gram-Schmidt process, linear transformations, change of basis, similar matrices, eigenvalues and eigenvectors, diagonalization, symmetric matrices, and applications. MA 244 is an AGSC core course (AGSC number 237). Prerequisites: MA 172 or MA 120.

• MA 281/ST281 - Elements of Statistical Analysis

Hours: 3

Descriptive statistics, fundamentals of probability theory, fundamentals of statistical inference, including estimation and hypothesis testing, and use of a typical statistical package such as MINITAB. Prerequisites: MA 113, Precalculus Trigonometry or MA 115, Precalculus Algebra and Trigonometry or placement. No credit given to students who have sucessfully completed MSC 287.

• MA 299 - Mathematics Project

Hours: 1

Individualized special projects in mathematics and its applications for inquisitive and well-prepared sophomore-level undergraduate students. No credit allowed toward a major or minor in mathematics. S/U grading. Prerequisites: Approval of department chair and instructor.

• MA 301 - Introduction to Elementary Number Theory

Hours: 3.

Fundamental properties of integers, divisibility, linear Diophantine equations, congruency. Euler ø-function, Chinese Remainder Theorem, Fermat Theorems, Wilson Theorem, and applications to Cryptography. Prerequisites: MA 244.

MA 330 - Foundations of Mathematics

Hours: 3

Logic and methods of proof, set theory, combinations and permutations, equivalence relations and functions, mathematical induction and recurrence relations, cardinality (finite, countably infinite, and uncountable sets), and decimal representation of the rational and real numbers. Prerequisites: MA 172 and MA 244.

MA 385 - Introduction to Probability and Statistics

Hours: 3

This course is a calculus-based introduction to probability with special emphasis on the interplay between probability and statistics. Topics include descriptive statistics; probability spaces; discrete distributions (including the binomial, geometric, hypergeometric, and Poisson); continuous distributions (including the uniform, exponential, and normal); joint distributions; mean, variance, and general expected value; independence and correlation; the law of large numbers; and the central limit theorem. Prerequisites: MA 120 or MA 172, and one MA course at the 200-level or above.

MA 399 - Mathematics Project

Hours: 1

Individualized special projects in mathematics and its applications for inquisitive and well-prepared junior-level undergraduate students. S/U grading. No credit allowed toward a major or minor in mathematics. Prerequisites: Approval of department chair and instructor.

MA 415 - Introduction to Numerical Methods

Hours: 3

Derivation and analysis of approximate methods for the solution of nonlinear equations, interpolation and integration of functions, and techniques for the solution of systems of linear equations and for approximating solutions of elementary differential equations. Emphasis is placed on obtaining an intuitive understanding of both the problem at hand and the numerical method used to solve it. Prerequisites: MA 201, MA 244, CS 121.

MA 420 - Intermediate Differential Equations

Hours: 3

This is a second course in differential equations. Course topics include series solutions for second order differential equations and the method of Frobenious; eigenvalue and eigenvector methods for solving systems of linear first order equations; the qualitative theory of nonlinear equations; boundary value problems and the Sturm-Liouville theory. Prerequisites: MA 201, MA 238, and MA 244.

MA 433 - Introduction to Geometry

Hours: 3

Axiomatic development of geometry, introduction to non-Euclidean geometries with emphasis in elliptic and hyperbolic geometries, selected topics in Euclidean geometry. Prerequisites: MA 244 and MA 330.

MA 442 - Algebraic Structures with Applications

Hours: 3

Mappings, binary operations, equivalence relations, groups and subgroups, Lagrange's theorem, homomorphisms and isomorphisms, normal subgroups and quotient groups, rings, fields, ordered integral domains, fields of quotients, error correcting codes, linear codes, and decoding. Prerequisites: MA 244 and either MA 330 or MA 385.

MA 450 - Combinatorial Enumeration

Hours: 3

Counting, pigeonhole principle, permutations and combinations, generating functions, principle of inclusion and exclusion, Polya's theory of counting. Prerequisites: MA 385 or MA 442. Prerequisite with concurrency: MA 442 may be taken as a prerequisite with concurrency.

MA 452 - Introduction to Real Analysis

Hours: 3

Sequences, limits, continuity, differentiation of functions of one real variable, Riemann integration, uniform convergence, sequences and series of functions, power series, and Taylor series. Prerequisites: MA 330.

MA 453 - Introduction to Complex Analysis

Hours: 3

Complex algebra, analytic functions, Cauchy-Riemann equations, exponential, trigonometric, and logarithmic functions, integration, Cauchy integral theorem, Morera's theorem, Liouville's theorem, maximum modulus theorem, residue theory, Taylor and Laurent series, and applications. Prerequisites: MA 201 and one MA course at the 300 level or above.

MA 456 - Methods of Partial Differential Equations

Hours: 3

Survey of theory and methods for solving elementary partial differential equations. Topics include first-order equations and the method of characteristics, second-order equations, reduction to canonical form, the wave equation, the heat equation, Laplace's equation, separation of variables, and Fourier series. Prerequisites: MA 238 and MA 244.

MA 458 - Applied Linear Algebra

Hours: 3

Fundamental concepts of linear algebra are developed with emphasis on real and complex vector spaces, linear transformations, and matrices. Systems of equations, inverses of matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, normal matrices, canonical forms of matrices, applications to systems of linear differential equations, and use of computer software such as MATLAB Prerequisites: MA 238 and MA 244.

MA 460 - Introduction to Fourier Analysis

Hours: 3

Brief development of trigonometric and exponential Fourier series, derivation of the classical Fourier transform from Fourier series, classical properties of Fourier transforms, transforms of functions, convolution, elementary development of the delta function, transforms of periodic functions, use of transforms to solve systems. Prerequisites: MA 238 and MA 244.

MA 465 - Introduction to Mathematical Modeling

Hours: 3

Applying mathematics by formulating, analyzing, and criticizing mathematical models of various phenomena. Examples will be chosen from the physical, biological, and social sciences. Emphasizes development and use of simple mathematical models by having students study general modeling principles and case studies (some open-ended) drawn from various sources. Prerequisites: MA 201, MA 238, and MA 244.

MA 487 - Introduction to Mathematical Statistics

Hours: 3

This is an introductory, calculus-based course in mathematical statistics. Topics include a review of basic probability, including probability spaces, independence, distributions and expected value; the fundamental theorems of probability, including the law of large numbers and the central limit theorem; estimation, including point estimation and interval estimates for means, variances, and proportions; hypothesis testing, including tests for means, variance, and goodness of fit; an introduction to correlation and regression; theory of inference, including sufficiency and power. Prerequisites: MA 201 and either MA 385 or ISE 390. Same as ST 487.

MA 490 - Selected Topics in Undergraduate Mathematics

Hours: 1-3

Requested undergraduate topics. Prerequisites: Approval of instructor.

MA 499 - Mathematics Project

Hours: 1

Individualized special projects in mathematics and its applications for inquisitive and well-prepared senior level undergraduate students. No credit allowed toward a major or minor in mathematics. S/U grading. Prerequisites: Approval of department chair and instructor.

ST 281 - Elements of Statistical Analysis

Hours: 3

Descriptive statistics, fundamentals of probability theory, fundamentals of statistical inference, including estimation and hypothesis testing, and use of typical statistical package wuch as MINITAB.

This course is taught as MA 281/ST 281. Prerequisites: MA 113, Precalculus Trigonometry or MA 115, Precalculus Algebra and Trigonometry or placement. No credit given to students who have successfully completed MSC 287.

• ST 487 - Introduction to Mathematical Statistics

Hours: 3

See MA 487. This course is taught as MA 487/ST 487.

Physics

• AST 100 - Survey of Astronomy

Hours: 3

One semester survey for non-majors. Topics from visible phenomena in the sky to the latest astronomical discoveries: properties of planets, origin of the solar system, life cycle of stars, galaxies and quasars, origin of the universe, life in the universe.

• AST 106 - Exploring the Cosmos I

Hours: 4

Introduction to astronomy with emphasis on quantitative aspects of physical phenomena occurring in the universe. Motions of celestial bodies, development of astronomy, gravity and motion, light and telescopes, properties of gases and radiation, Earth and Moon, eclipses, survey of the solar system. Laboratory included. AST 106 and 107 satisfy GER laboratory science requirements. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: High school algebra and trigonometry. Offered Fall.

• AST 107 - Exploring the Cosmos II

Hours: 4

Continuation of AST 106. The Sun, stars and stellar evolution, white dwarfs, neutron stars, black holes, binary stars, the Milky Way galaxy, galaxies, quasars and other active galaxies, cosmology, life in the universe. Laboratory included. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: AST 106. Offered Spring.

• AST 210 - Introduction to Astrobiology

Hours: 3

Astrobiology is the scientific study of the origin, evolution, proliferation and search for life in the universe, an interdisciplinary topic at the intersection of astronomy, physics, biology, chemistry, atmospheric science, and other sciences. This course introduces the major fileds of current research in astrobiology; the requirements for life as we know it, the origin and evolution of life on Earth, the possibilities of life elsewhere in the universse, and the search for extraterrestrial - microbial or intelligent - life. Prerequisites: MA 171; and PH 111 or CH 121 or BYS 119; AST 106 and AST 107 strongly encouraged but not required. Offered Fall 2010.

AST 371 - Introduction to Astrophysics

Hours: 3

Gravitation: two-body problem, binary stars. Radiation theory. Spectral classification, Hertzsprung-Russell diagram, and introduction to stellar structure and evolution. Large-scale structure, and the evolution of the universe. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 111, MA 201. AST 106, AST 107, and PH 113 are highly suggested. Offered Spring.

AST 471 - Stellar Astrophysics

Hours: 3

Structure and physical processes of stars from the interior to the atmosphere: energy production and transfer, atmospheric properties, and observed spectral features. Models for stellar structure. Star formation and evolution, including the effects of a companion. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: AST 371, PH 351. PH 421, PH 431 and PH 451 are suggested. Offered Fall.

OPT 341 - Geometrical Optics

Hours: 3

Introduction to the concepts and principles of geometrical optics. The nature of light, basic radiometry, rays and wave fronts, Fermat's principle, Snell's law, thin and thick lenses, paraxial rays, ray transfer matrix and ray tracing, optical imaging and imaging system design, aberrations, optical instrumentation, prisms, and dispersion. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113 Prerequisite with concurrency: PH 305 or MA 244. Offered Fall.

OPT 342 - Physical Optics

Hours: 3

Electromagnetic waves, superposition of waves, interference of light, Young's double slit experiment, Michelson interferometer, Fabry-Perot interferometer, coherence, diffraction, diffraction gratings, polarization and its matrix treatment, and polarization generation. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites:

OPT 341

Offered Spring.

OPT 411 - Geometrical Optics Laboratory

Hours: 2

Introduction to optical laboratory techniques, focus and alignment with incoherent and coherent sources, the nodal slide, thin lenses, thick lenses, and lens systems, the effects of apertures and stops, reflection, refraction and dispersion, aberrations, elements of radiometry. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: OPT 341. Prerequisite with concurrency: OPT 441 is suggested. Offered Fall.

OPT 412 - Physical Optics Laboratory

Hours: 2

Introduction to physical optics phenomena, Young's double slit experiment, Lloyd's mirror, Fresnel biprism, Newton's rings, intensity distribution in fringe systems, Michelson interferometer, Fabry-Perot interferometer, Fresnel and Fraunhofer diffraction, diffraction by circular, rectangular and multiple openings, diffraction gratings. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: OPT 342. Prerequisite with concurrency: OPT 442 is suggested. Offered Spring.

• OPT 441 - Optical Systems Design

Hours: 3

Intermediate geometrical optics, first-order optics, linear transformations, paraxial optics, reflection and transmission at an interface, polarized light, Jones and Mueller calculi, matrix methods, ray tracing, apertures and stops, third order optics and aberrations. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: OPT 342. Offered Fall, even years. Same as OPE 441.

• OPT 444 - Optoelectronics

Hours: 3

Review of polarized light and the Jones and Mueller calculi. Propagation of light in birefringent material, modulation of light using electro-optic effect, Kerr effect, acousto-optic effect, and Faraday effect. Elements of photo-detection and detectors, signal processing, and signal-to-noise ratios. Design and analysis of beam scanners, optical rf-spectrum analyzer, optical sensors, and optical communication systems. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: OPT 342. Offered Fall, even years. Same as OPE 451.

• OPT 445 - Introduction to Lasers

Hours: 3

Introduction to the concepts and principles of lasers. Stimulated emission, light amplification, optical pumping, optical resonator theory, cavity modes, gas lasers, solid state lasers, laser applications, Gaussian beams, coherence, and holography. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 432. Prerequisite with concurrency: PH 351. Offered Fall, odd years.

• OPT 446 - Radiometry , Detectors, and Sources

Hours: 3

Theory and practice of radiometry and photometry. Blackbody radiation and Lambertian sources. The propagation of radiant energy in free space and through optical systems. Detector classes, responsivity, bandwidth, and noise. Power spectral density, properties of sources, photon noise. Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: OPT 342. Offered Spring, even years.

• OPT 447 - Polarized Light and Polarimetry

Hours: 3

Linear, circular, and elliptical polarization of light. Mueller and Jones calculi, Stokes vectors, measuring polarized light, polarizers and retarders. Interference of polarized light, polarization properties of crystals and thin films, polarization ray tracing.

Prerequisites may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: OPT 342. Offered Fall, odd years.

PH 100 - Conceptual Physics

Hours: 4

Survey course of classical and modern physics. Physical laws are approached conceptually and intuitively, with a minimum of mathematics. Topics include motion, gravitation, energy, electricity and magnetism, quantum mechanics, physics of everyday phenomena, and a few philosophical and historical implications. PH 100 satisfies GER laboratory science requirements when a two-course sequence is not required. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: High-school algebra. Offered Spring.

PH 101 - General Physics I

Hours: 4

Introductory non-calculus based course. The basic laws of physics and their application to specific problems: Newtonian mechanics, energy, conservation laws, and thermodynamics.

Laboratory included. PH 101 and 102 satisfy the laboratory science requirement. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: High school algebra. Offered Fall.

PH 102 - General Physics II

Hours: 4

Continuation of PH 101. Electrostatics, currents, magnetic phenomena, relativity, waves, quantum nature of matter. Laboratory included. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 101. Offered Spring.

PH 110 - Frontiers in Science

Hours: 3

Introduction to the frontiers and problems facing modern physical science today. Working physicists from local companies, national labs, and the University present the role and impact physics plays in their jobs. This course exposes the student to such diverse topics as modern cosmology, relativity, quantum theory, industrial physics, biophysics, complex modeling, medical physics, etc. The importance of seeing the diversity of physics applications and the possible future employment opportunities serves as a motivator for mastering the problem solving and conceptual skills that lie ahead in the student's undergraduate studies. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisite with concurrency: MA 171. Offered Fall.

PH 111 - General Physics with Calculus I

Hours: 3

For science and engineering students. The basic laws of physics and their application to specific problems: vectors, Newtonian mechanics, energy, conservation laws, simple harmonic motion, statics, fluids. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: MA 171. Corequisite: PH 114. Offered All terms.

PH 112 - General Physics with Calculus II

Hours: 3

Continuation of PH 111. Heat and thermodynamics, basic electricity, electric and magnetic fields. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: MA 172, C or better in PH 111. Corequisite: PH 115. Offered All terms.

PH 113 - General Physics with Calculus III

Hours: 3

Continuation of PH 111 and 112. Wave motion, optics, relativity, quantum effects, atomic and nuclear structure, and elementary particles. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: MA 201, C or better in PH 112. Corequisite: PH 116. Offered All terms.

PH 114 - General Physics Laboratory I

Hours: 1

Laboratory instruction in support of material covered in PH 111. Corequisite: PH 111. Offered All terms.

PH 115 - General Physics Laboratory II

Hours: 1

Laboratory instruction in support of material covered in PH 112. Corequisite: PH 112. Offered All terms.

PH 116 - General Physics Laboratory III

Hours: 1

Laboratory instruction in support of material covered in PH 113. Corequisite: PH 113. Offered All terms.

PH 251 - Special Relativity

Hours: 1

Einstein's theory of special relativity as the central organizing principle of physics presented from the spacetime approach. Invariance, the geometry of Minkowski spacetime, and non-Euclidean geometry. The Principle of Relativity; clock synchronization and the different types of time; Lorentz transformations as rotations in Minkowskian geometry; counter-intuitive effects measured by observers in relative motion; causality and the speed of light; relativistic dynamics; applications. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 112, MA 172. Prerequisite with concurrency: PH 113. Offered Spring.

PH 301 - Intermediate Mechanics

Hours: 3

Review of Newtonian mechanics, natural and driven oscillations, variational calculus and Lagrange's equations, application to central force motion, rigid body rotation and coupled oscillators. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 111, MA 238 (or PH 305). Offered Spring.

PH 305 - Mathematical Methods in Physics

Hours: 3

Application of analytical techniques to solve problems in physics. Complex analysis, Fourier series, linear algebra, differential equations and vector calculus. Applications to mechanics, electricity and magnetism, optics, and thermodynamics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 112. Offered Spring.

PH 306 - Computational Physics

Hours: 3

Computational and numerical techniques for problem solving. Applications to classical mechanics, electrodynamics, quantum mechanics, optics, astrophysics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites:

MA 238 or MA 244, CS 102 or CS 121 or CPE 112.

Offered Fall.

PH 310 - Intermediate Laboratory I

Hours: 2

Experiments in classical physics. Introduction to statistical methods. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113. Offered Fall.

PH 311 - Intermediate Laboratory II

Hours: 2

Experiments in modern physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 310, PH 251. Offered Spring.

PH 337 - Electronics

Hours: 4

Introductory course for all science students. Basic AC and DC circuits, operational amplifier circuits, transistor circuits, power supplies, digital logic and their use in laboratory instruments. Laboratory included. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 112. PH 305 is suggested. Offered Fall, odd years.

PH 351 - Introduction to Modern Physics

Hours: 3

Kinetic theory. Blackbody radiation. Quantum physics: wave packets, the uncertainty principle, Schroedinger's equation and solutions for simple systems, application to atomic, nuclear, and solid-state physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 238 or 244. Prerequisite with concurrency: PH 251. Offered Fall.

PH 416 - Senior Laboratory

Hours: 2

Advanced experimental techniques in various sub-fields of physics. Prerequisites: PH 311. Offered Fall, Spring.

PH 420 - Senior Thesis

Hours: 3

Research performed under direction of a faculty member. Final research report required. Offered All terms.

PH 421 - Thermal and Statistical Physics

Hours: 3

States of model system, entropy and temperature, Boltzmann distribution, thermal radiation and Planck distribution, chemical potential and Gibbs distribution, ideal gas, Fermi and Bose gases, heat and work, semiconductor statistics, kinetic theory. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 351. Prerequisite with concurrency: PH 301. PH 306 is suggested. Offered Spring, even years.

PH 431 - Intermediate Electricity and Magnatism I

Hours: 3

Electostatics: electric fields, electric potential, Poisson's equation. Electric fields in matter. Magnetostatics: currents, magnetic fields. Magnetic fields in matter. Prerequisites: PH 305, MA 201. Prerequisite with concurrency: MA 238.

PH 432 - Intermediate Electricity and Magnetism II

Hours: 3

Continuation of PH 431. Maxwell's equations for time-varying fields. Electromagnetic waves. AC circuits. Radiation. Relativistic electrodynamics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 431. Offered Spring, odd years.

PH 451 - Introductory Quantum Mechanics I

Hours: 3

Waves and particles: deBroglie waves, wave-packets, and the uncertainty principle. Postulates of quantum mechanics. Schrodinger's equation: simple systems in one, two and three dimensions, the hydrogen atom. Angular momentum and spin. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 305 (or MA 238 and 244), PH 351. Prerequisite with concurrency: PH 306 is suggested. Offered Fall.

• PH 452 - Introductory Quantum Mechanics II

Hours: 3

Multiparticle systems. Atomic structure. Approximation methods. Scattering. Applications to nuclear, atomic, and molecular systems. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 451. Offered Spring.

• PH 453 - Introduction to Particle Physics

Hours: 3

Survey of elementary particle physics with emphasis on the Standard Model of quarks, leptons, and gauge bosons. Lorentz transformations, four-vectors and relativistic kinematics, angular momentum and spin. Lifetimes, cross-sections, and Feynman rules. Quantum electro- and chromo-dynamics, Dirac equation, renormalization. Physics beyond the Standard Model. Prerequisite with concurrency: PH 451. Offered Fall, even years.

• PH 474 - Introduction to General Relativity

Hours: 3

An introductory course on general relativity and gravitational physics. General relativistic phenomena as inferred from the behavior of particles and light rays for a selection of spacetimes. Major properties of such objects as black holes, wormholes, gravitational waves, and the universe as a whole. Course uses the Physics First approach, and introduces a minimum of new math as required for discussion of the physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 251, PH 301. Offered Spring.

• PH 480 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

• PH 481 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 482 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 483 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 484 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 485 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 486 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 487 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 488 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 489 - Selected Topics

Hours: 1-3

Offered upon demand. Topics include physics, optics, astrophysics, astronomy, computational physics, and space physics. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Prerequisites: PH 113, MA 201. Offered All terms.

PH 499 - Physics Practicum

Hours: 3

"Capstone" course designed to provide real-world research experience for graduating seniors. Students work individually with faculty members on projects. Required for all physics majors. Oral presentation and final research report required. Prerequisite may be waived by the instructor or department chair for auditors or students with equivalent experience. Corequisite: All required courses on the POS must be taken prior to, or concurrently with, this course. Offered All terms.

Professional and Continuing Studies

Health and Physical Education

HPE 100 - Aerobics I

Hours: 2.

Improve cardiovascular fitness, flexibility, muscular strength and endurance, balance, and postural alignment. This class will focus on aerobic activity, specifically in the form of low- and high-impact aerobics. A wide variety of exercises will be included to provide a total-body workout.

Fee

$24.

HPE 101 - Aerobics II

Hours: 2.

A continuation of Aerobics I. Improve cardiovascular fitness, flexibility, muscular strength and endurance, balance and postural alignment. This class will focus on aerobic activity, specifically in the form of low- and high-impact aerobics. A wide variety of exercises will be included to provide a total-body workout.

Fee

$24.

HPE 102 - Step Aerobics I

Hours: 2.

Enjoy a moderate-impact aerobic activity that is both interesting and challenging to a wide variety of participants. Students will learn balance and postural alignment while developing cardiovascular fitness, muscle tone and muscular endurance. Step Aerobics I uses aerobic steps and risers to work the heart and burn fat.

Fee

$24.

HPE 103 - Step Aerobics II

Hours: 2.

A continuation of Step Aerobics I. Enjoy a moderate-impact aerobic activity that is both interesting and challenging to a wide variety of participants. Students will learn balance and postural alignment while developing cardiovascular fitness, muscle tone and muscular endurance. Step Aerobics II uses aerobic steps and risers to work the heart and burn fat.

Fee

$24.

HPE 104 - Kardio Kickbox

Hours: 2.

Explore an alternative to regular aerobics training. Kardio Kickbox uses the movements of Tae Kwon Do, Karate, and Boxing as the foundation for an aerobics program that increases cardiovascular conditioning and muscular strength. Several potentially useful self-defense techniques will also be covered. All equipment is provided.

Fee

$24.

HPE 109 - Speed & Plyometric Training

Hours: 2.

Perform drills utilizing body mass and the force of gravity to improve muscular elasticity and “recoil” elements. Repetitive exercises such as depth-jumps, drop-jumps, etc. will provide the proper neuromuscular training for enhancing strength, speed, and power performance.

Fee

$24.

HPE 110 - Walk, Jog, Run

Hours: 1.

Enjoy the health benefits of a beginner/intermediate level course with emphasis placed on giving a positive introduction to walking, jogging, and running as a way to enhance fitness and promote weight control and providing a viable option for a lifetime fitness activity.

Fee

$12.

HPE 111 - Butts & Guts Workout

Hours: 2.

Experience an abdominal and lower-body workout. This intensive class is targeted at strengthening and toning your waist, hips, and legs. A variety of exercises will be performed both with and without weights.

Fee

$24.

HPE 112 - Fitball Conditioning

Hours: 2.

Resembling a large beach ball, the fit ball is a large rubber ball filled with air. Initially used for rehabilitation, the fit ball has become an important fitness tool used to improve muscular strength, flexibility, balance and coordination. All equipment is provided.

Fee

$24.

HPE 113 - Body Sculpting

Hours: 2.

Experience a new type of aerobic/strength training workout using light free weights and resistance bands to sculpt and strengthen all of the major muscles of the body. Firm and add shape to “trouble spots” on the arms and legs. Body Sculpting accommodates all fitness levels, and all necessary equipment is provided.

Fee

$24.

HPE 117 - Weight Training I

Hours: 2.

Provides students with an understanding of weight training concepts and enhances knowledge of muscular development. Students will learn to strength train effectively and efficiently while increasing their overall strength. Students will also learn how to control their body weight as well as overall physical and mental fitness. Topics include major muscle groups, basic weight training concepts, physiological benefits of exercise, safe exercise techniques, and designing a personalized weight training program.

Fee

$24.

HPE 117 - Weight Training I for Women Only

Hours: 2.

Provide female students with a better understanding of weight training concepts and enhanced knowledge of muscular development. Students will learn to train effectively and efficiently while increasing their overall strength. Students will also learn how to control their body weight as well as improve overall physical and mental fitness. Topics include major muscle groups, basic weight training concepts, physiological benefits of exercise, safe exercise techniques, and designing a personalized weight training program.

Fee

$24.

HPE 118 - Weight Training II

Hours: 2.

Provides students a continuation of the understanding of weight training concepts and knowledge of muscular development. Students will learn to strength train effectively and efficiently while increasing their overall strength. Students will also learn how to control their body weight as well as overall physical and mental fitness. Topics include major muscle groups, basic weight training concepts, physiological benefits of exercise, safe exercise techniques, and designing a personalized weight training program.

Fee

$24.

HPE 118 - Weight Training II for Women Only

Hours: 2.

Provides female students a continuation of the understanding of weight training concepts and will enhance knowledge of muscular development. Students will learn to train effectively and efficiently while increasing their overall strength. Students will also learn how to control their body weight as well as overall physical and mental fitness. Topics include major muscle groups, basic weight training concepts, physiological benefits of exercise, safe exercise techniques, and designing a personalized weight training program.

Fee

$24.

HPE 119 - Weight Training III

Hours: 2.

Provides students with a deeper understanding of weight training concepts and knowledge of muscular development. Students will learn to strength train effectively and efficiently while increasing their overall strength. Students will also learn how to control their body weight as well as overall physical and mental fitness. Topics include major muscle groups, basic weight training concepts, physiological benefits of exercise, safe exercise techniques, and designing a personalized weight training program.

Fee

$24.

HPE 119 - Weight Training III for Women Only

Hours: 2.

Provides female students with a deeper understanding of weight training concepts and will enhance knowledge of muscular development. Students will learn to train effectively and efficiently while increasing their overall strength. Students will also learn how to control their body weight as well as overall physical and mental fitness. Topics include major muscle groups, basic weight training concepts, physiological benefits of exercise, safe exercise techniques, and designing a personalized weight training program.

Fee

$24.

HPE 120 - Beginning Swimming

Hours: 1.

Learn the basics of swimming. No experience required. Topics include acclimation to water, understanding basic fears, developing confidence, principles of buoyancy, combined backstroke, entries, treading water and basic safety and rescue techniques.

Fee
$12.

• HPE 121 - Intermediate Swimming

Hours: 1.

Progress in your swimming with a review of front crawl, back crawl, breaststroke, and side stroke and receive an introduction to conditioning and training. Intermediate Swimming works toward improving skills and endurance and introduces new swimming strokes, bringing higher efficiency in the water.
Fee
$12.

• HPE 122 - Advanced Swimming

Hours: 1.

Perfect your swimming with a review of the common strokes (Front Crawl, Back Crawl, Breaststroke, Side Stroke, and Treading Water), conditioning and training, and basic water safety and rescue. Students will work to further stroke development and improve stroke efficiency and learn conditioning and training to improve swimming fitness.
Fee
$12.

• HPE 127 - Ladies' Self-Defense

Hours: 1.

Explore the concepts, strategies, and methods of self-defense. Topics and skills covered include wrist escapes, falling skills, various strikes and kicks, groundwork, weaponry, escape tactics, and improving situational awareness.
Fee
$12.

• HPE 129 - Kung Fu

Hours: 2.

Explore the techniques of Bajiquan Kung Fu, which is a traditional Chinese martial art that is now practiced throughout the world. Suitable for beginners, students will learn the power methods of Kung Fu, which is developed through many forms of training modalities.
Fee
$24.

• HPE 130 - Beginning Karate

Hours: 2.

Learn introductory karate techniques and acquire basic skills required to perform these techniques. The objective of Beginning Karate is to prepare the student who is advancing to the intermediate level but also to teach defensive skills.

Fee

$24.

• HPE 131 - Intermediate Karate

Hours: 2.

Expand on your knowledge of beginning karate and learn intermediate kicks such as front leg kicks, roundhouse kicks with back fist reverse punch and back leg sidekicks. You will continue learning stances and self-defense techniques and will also participate in controlled free sparring.

Fee

$24.

• HPE 132 - Advanced Karate

Hours: 2.

Perfect your karate techniques with learned skills being sharpened and toned. Training aids, such as heavy bag, speed bag, punching targets and double-ended bags will be used. Students will spar using all techniques learned.

Fee

$24.

• HPE 134 - Tai Chi

Hours: 2.

Learn an ancient Chinese exercise and martial art which is used to develop one's internal energy, health, and well-being. The 37 postures of the short form in the Yang style will be executed. Through the slow, silent, rhythmic movements of Tai Chi you will develop a general toning of the body while relaxing and quieting your mind. This is an excellent class for stress reduction!

Fee

$24.

• HPE 135 - Intermediate Tai Chi

Hours: 2.

Further your knowledge and skills of Tai Chi with Intermediate Tai Chi Chuan which focuses on the intermediate practice of the Tai Chi Chuan system of Martial Arts. Students will learn the standard 24 movement form along with structural alignment principles, intermediate-level pushing hands skills, martial applications, energy development and philosophy. Students will also be exposed to other styles of martial arts for comparative purposes.

Fee

$24.

• HPE 136 - Yoga

Hours: 1.

Explore the “union” of yoga, which refers to techniques that work toward balancing the body, mind, and spirit to create wholeness and health. Yoga tones muscles and relaxes the body. It is an in-depth study of the postures of Hatha Yoga, which focuses primarily on postures and breath control.

Fee
$12.

• HPE 137 - Judo/Jujitsu

Hours: 2.

An introduction to the Japanese martial art of Judo and the Brazilian style of Jujitsu. Focus will be on both the competition aspect of Judo and the self-defense aspects of each art including throws, take-downs, joint manipulation and chokes.
Fee
$24.

• HPE 138 - Intermediate Yoga

Hours: 1.

Provides students a continuation of the understanding and practice of Hatha Yoga. Continue to explore the “union” of yoga, which refers to techniques that work toward balancing the body, mind, and spirit to create wholeness and health. Yoga tones muscles and relaxes the body. This course will further your study of the postures of Hatha Yoga, which focuses primarily on postures, concentration, and breath control.
Fee
$12.

• HPE 140 - Beginning Ballroom Dance

Hours: 2.

An introduction to the most popular smooth and rhythm ballroom patterns danced in America including the Waltz, Fox Trot, Tango, Cha-Cha, Rumba, Samba, Merengue, Bolero, Polka, Swing, and Mambo. Learn the appropriate skills necessary to become a social dancer, including leading, following, etiquette, and partner dancing.

Fee
$24.

• HPE 142 - Swing Dance

Hours: 2.

Enjoy the traditional swing dance technique that is danced throughout America. Three styles of swing will be taught during this course: (1) East Coast, Triple-Step Swing, (2) East Coast, Single-Time Swing, and (3) West Coast Swing. Time will be spent learning and practicing swing patterns and developing swing techniques.
Fee
$24.

HPE 143 - Latin Dance

Hours: 2.

Learn the most popular Latin dance patterns currently performed in America including the Salsa, Samba, Mambo, Cha-Cha, and many other popular Latin dances. Lectures and skill training will be given to perform several Latin patterns, partner dancing, and rules of etiquette.

Fee

$24.

HPE 144 - Country/Western Dance

Hours: 1.

Learn the appropriate skills necessary to perform the most popular country and western dance patterns. Couple, partner, and line dances will be taught. Included will be the Texas Two-Step, Sweetheart Schottische, and the Montgomery County Cha-Cha. Leading and following techniques will be emphasized.

Fee

$12.

HPE 145 - Line Dance

Hours: 2.

Learn the skills and develop the techniques of the popular forms of line dancing. Individual, group, single-line, and multiple-line dances will be taught. Line dancing does not require a partner. A variety of popular music will be played, including Blues, Latin, Country/Western, Rock, Waltz, etc.

Fee

$24.

HPE 150 - Beginning Racquetball

Hours: 2.

Learn the basics of racquetball, including rules, equipment, and skills. Singles (2 players), Cut throat (3 players) and Doubles (4 players) versions of racquetball will be taught. Doubles games during class times will be played when both safety and the skill level of the players are acceptable to the instructor.

Fee

$24.

HPE 151 - Intermediate Racquetball

Hours: 2.

Progress in your skill and knowledge of racquetball while Singles (2 players), Cut throat (3 players) and Doubles (4 players) versions of racquetball are reviewed. Doubles games during class times will be played when both safety and the skill level of the players are acceptable to the instructor, with students of similar abilities paired together.

Fee

$24.

HPE 152 - Advanced Racquetball

Hours: 2.

Perfect your skill and knowledge of racquetball while Singles (2 players), Cut throat (3 players) and Doubles (4 players) versions of racquetball are reviewed. Doubles games during class times will be played when both safety and the skill level of the players are acceptable to the instructor, with students of similar abilities paired together.

Fee

$24.

HPE 153 - Beginning Tennis

Hours: 1.

Learn the fundamentals of tennis. Forehand, backhand, serve, volley, footwork, and ground strokes will be practiced. There will be both singles and doubles play and a class tournament. Highlights include understanding the rules, regulations, and strategies of the game.

Fee

$12.

HPE 154 - Intermediate Tennis

Hours: 1.

Improve your game by focusing on tennis skills learned in Beginning Tennis. Highlights include improving tennis fitness and skills and developing a working knowledge of basic tennis strategy.

Fee

$12.

HPE 155 - Advanced Tennis

Hours: 1.

Continue to perfect your tennis game and review the basic fundamentals¾forehand, backhand, serve and volley. There will be singles and doubles play and a doubles tournament. Highlights include mastering the rules, regulations, and advanced strategies of the game.

Fee

$12.

HPE 156 - Golf I

Hours: 1.

Learn the basics of golf, including rules, proper stance, grip, and swing for all clubs. Course fee includes range balls and one green fee. Clubs are available if needed.

Fee

$87 ($12 course fee, $75 off-campus fee)

HPE 157 - Golf II

Hours: 1.

Prerequisites: Build on the knowledge and skills gained from Golf I, including rules, proper stance, grip, and swing for all clubs. Course fee includes range balls and one green fee. Clubs are available if needed.

Fee

$87 ($12 course fee, $75 off-campus fee)

HPE 167 - Rock Climbing

Hours: 2.

Learn the fundamental knowledge and skills of rock climbing. This understanding will be accomplished through lectures and climbing drills designed to allow students to rock climb safely. Basics including safety, equipment and techniques for belaying, anchors, rope, climbing, and leading will be covered.

Fee

$124 ($24 course fee, $100 off-campus fee)

HPE 169 - Basketball

Hours: 1.

Learn the fundamentals of recreational basketball. This course provides instruction for the development of skills, techniques, knowledge, and conditioning for the game of basketball as a recreational sport. Shooting, dribbling, offensive and defensive techniques, rules, and team play concepts will be covered.

Fee

$12

HPE 170 - Volleyball

Hours: 1.

Learn the fundamental skills of volleyball including passing, setting, hitting, blocking, and serving with advanced skills in spikes and positioning also being covered. Scrimmage games will be played to practice learned skills. This course will cover the rules of volleyball and its advantages as a lifetime sport, with a focus on skill development.

Fee

$12.

HPE 171 - Intermediate Volleyball

Hours: 1

Intermediate Volleyball is a continuation course advancing on the learned fundamentals and skills of Beginning Volleyball. Basic skills will be improved, including passing, setting, serving, spiking, defensive skills, and court positioning concepts. Games will be played to further skill development.

Fee

$12.

HPE 172 - Beginning Bowling

Hours: 1.

Learn the basics for participation in this lifetime sport. Topics include: ball selection, scoring, rules, grip, spot bowling for strikes and spares, stance, swing, approach, and practice. Students will learn the fundamentals of bowling, including the rules, skills, and movement patterns.

Fee

$57 ($12 course fee, $45 off-campus fee)

HPE 173 - Intermediate Bowling

Hours: 1.

Progress in bowling with this continuation course, which includes a review of the following: ball selection, scoring, rules, grip, spot bowling for strikes and spares, stance, swing, approach and practice. Plus, a continuation of theories and skills needed to excel in bowling will be covered.

Fee

$57 ($12 course fee, $45 off-campus fee)

HPE 174 - Billiards

Hours: 1.

Learn the basics of pocket billiards. Students are taught based on individual strengths and weaknesses. Each session consists of group and one-on-one instruction targeted to improve student ability. Each of today's popular pocket billiard games (eight ball, nine ball, 14.1 continuous play, snooker and equal offense) will be reviewed and played during the course. One formal tournament will be conducted during the last three class periods.

Fee

$62 ($12 course fee, $50 off-campus fee)

HPE 199 - Special Topics in HPE

Hours: 1-3.

Fee

$12 course fee per credit hour.

HPE 200 - Contemporary Nutrition

Hours: 2.

This online course provides instruction on the basic principles of nutrition and how they relate to the growth, development, and maintenance of the human body, and the application of these principles to one's personal life or teaching others.

Fee

$24.

HPE 205 - First Aid and CPR

Hours: 1.

Learn to recognize and respond to emergency situations. First Aid and CPR also provides skills and knowledge necessary for caring for injuries or sudden illnesses.

Fee

$12.

• HPE 210 - Beginning Athletic Training

Hours: 3.

Providing a major link between sport programs and the medical community for the implementation of injury prevention, emergency care, and rehabilitation procedures, Beginning Athletic Training engages students in the process of reviewing, analyzing, discussing, and synthesizing athletic training and presents the knowledge and techniques necessary to prevent and/or care for common athletic injuries.

Fee

$36.

• HPE 215 - First Responder/Professional CPR

Hours: 2.

Learn the concepts and skills needed to function as a First Responder and Professional Rescuer. Emphasis is placed on preparing for, recognizing, and providing emergency care in various situations where needed. Additionally, this course fully addresses the objectives in the U.S. Department of Transportation's National Standards Curriculum.

Fee

$24.

• HPE 220 - Basic Scuba

Hours: 2.

Learn the fundamentals and safety aspects necessary for certification as a scuba diver. Basic skills, theories, techniques, and fundamentals of scuba diving are introduced, practiced, and refined. Classroom and pool training are included. Basic Scuba includes classroom lectures and in-water training. Students must provide mask, fins, and snorkel, and must be 15 years old by the first day of class. Open water dives are available for those wishing to obtain open water certification as a scuba diver, but are not included in the class fee.

Fee

$114 ($24 course fee, $90 off-campus fee)

• HPE 221 - Advanced Scuba

Hours: 1.

You must be a fit and strong swimmer to take this challenging adventure course. The Advanced Scuba class includes classroom lectures, in-water training, and optional open water dives. Open water dives, which are not included in the class fee, are necessary to obtain open water certification as a scuba diver. Students must provide mask, fins, and snorkel, and must be 15 years old by the first day of class.

Fee

$37 ($12 course fee, $25 off-campus fee)

• HPE 230 - Private Pilot Ground School

Hours: 3.

Whether you are aspiring to an aviation career, or just want to learn the requirements to become a pilot, you will gain a better appreciation and understanding of aviation and piloting airplanes. Prepare to successfully complete the Federal Aviation Administration's (FAA) Private Pilot - Airplane Knowledge Test. Passing this test is one of the prerequisites for obtaining a Private Pilot's license from the FAA. This course is designed in accordance with Part 141 - Pilot Schools Training Requirements of the Federal Aviation Regulations.

Cover the twelve federally mandated aeronautical knowledge areas required for private pilot certification. The subject areas covered in private pilot school range from aviation terminology, basic aerodynamics, Federal Aviation Regulations, aircraft control and performance, the National Airspace System and Air traffic Control, navigation, aviation weather, flight planning and cross-country flight operations. FAA-approved and aviation-industry endorsed curriculum training techniques and materials are used. The comprehensive Student Kit is authored by Gleim Aviation, the industry standard in pilot training, and supplemented by in-flight photography and multimedia to reinforce the basic knowledge requirements and examples presented. This kit costs approximately $150 and is available at the UAHuntsville or Off Campus bookstore.

Fee
$36.

• HPE 231 - Instrument Airplane (IFR) Rating Ground School

Hours: 3.

Add utility to your private pilot certificate. This advanced aviation course is designed for the private pilot seeking an instrument rating. Students will be equipped with the training necessary to satisfy the prerequisites for the FAA Instrument-Airplane Knowledge test. A kit for approximately $130 will need to be purchased if not attained previously.

Prerequisites: HPE 230 (Private Pilot Ground School) or instructor approval.
Fee
$36.

• HPE 240 - Health and Wellness Concepts

Hours: 2.

This online course provides students with instruction on the role and importance of individual and societal health and wellness; laboratory experiences provide opportunity for assessment of individual health behaviors and physical fitness. Topics covered include: wellness, physical fitness, behavior modification, weight management, stress management, disease prevention, addictive behavior, and sexual health.
Fee
$24.

• HPE 250 - Essentials of Personal Training

Hours: 2.

Learn theoretical knowledge and practical skills in preparation for a national certification exam in personal training. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the client-trainer relationship, conducting health and fitness assessments, and designing and implementing appropriate exercise programming.
Fee
$24.

• HPE 255 - Group Fitness Instruction

Hours: 2.

Learn theoretical knowledge and practical skills in preparation for a national certification exam in group fitness instruction. Topics include guidelines for instructing safe, effective, and purposeful exercise, essentials of the instructor-participant relationship, the principles of motivation to encourage adherence in the group fitness setting, effective instructor-to-participant communication techniques, methods for enhancing group leadership, and the group fitness instructor's professional role.

Fee

$24.

• HPE 300 - Nutrition for Fitness and Sport

Hours: 3.

Explore the theoretical and applied nutritional sciences as they relate to fitness and sport. This online course allows students to develop practical skills applicable to solving nutritional problems in exercising populations. Students will gain knowledge of nutritional requirements and practices as they relate to fitness and athletic performance.

Fee

$36.

• HPE 311 - Advanced Athletic Training

Hours: 3.

An in-depth study of the physiology of injuries, prevention, rehabilitation, protective devices, therapeutic exercise, and physical therapy modalities as they relate to athletic injuries with special emphasis placed on emergency procedures. Legal concerns and the administration of sports medicine will also be covered. Prerequisites: HPE 205 (First Aid and CPR) or HPE 215 (First Responder, Professional CPR), and HPE 210 (Beginning Athletic Training). Note: HPE 205 or HPE 215 can be taken concurrently with HPE 311.

Fee

$36.

• HPE 312 - Athletic Training Practicum

Hours: 3.

Participate in the part of sports that is concerned with all aspects of athlete's health and safety. An athletic trainer's major responsibilities include prevention of injury, injury evaluation, first aid, rehabilitation, organization, administration, education, and counseling. Hands on knowledge will be acquired through Beginning and Advanced Athletic Training. This course is a planned, supervised work experience in an athletic training program. Prerequisites: HPE 205 (First Aid and CPR) or HPE 215 (First Responder, Professional CPR), and HPE 210 (Beginning Athletic Training).

Fee

$36.

• HPE 315 - Advanced Strength Training and Conditioning

Hours: 3.

Learn the advanced concepts of strength training and athletic conditioning entirely online in this comprehensive overview. Emphasis is placed on the exercise sciences (including anatomy, exercise physiology, and biomechanics) and nutrition, exercise technique, program design, organization and administration, and testing and evaluation. Additionally, this course is designed to prepare students for the nationally accredited Certified Strength and Conditioning Specialist (CSCS) certification exam. Prerequisites: BYS 313 (Anatomy and Physiology I) - concurrent allowed.

Fee

$36.

HPE 351 - Exercise Testing and Prescription

Hours: 3.

Learn the techniques evaluating aerobic capacity, muscular strength and endurance, flexibility, and body composition. The development of exercise prescriptions based on evaluation results will be emphasized. Prerequisites: HPE 205 (First Aid and CPR) or HPE 215 (First Responder, Professional CPR).

Fee

$36.

HPE 440 - Management of Sport and Physical Education

Hours: 3.

This course provides the student with the knowledge of sport management and administration in both athletics and leisure-based sports. Topics include management concepts, roles and responsibilities, fiscal management, fund-raising, legal issues, event scheduling, and decision making.

Fee

$36

HPE 445 - Principles of Coaching

Hours: 3.

Gain the knowledge and skills specific to coaching such as developing a coaching philosophy and objectives, motivating athletes, and team management. Emphasis is placed on sport at the high school and club level with consideration given to coaching youth, recreational, and intercollegiate. This course provides ASEP (American Sport Education Program) certification which is required by AHSAA (Alabama High School Athletic Association) and most other state sport associations.

Fee

$36

HPE 450 - Exercise Physiology Internship

Hours: 3.

Experience a practical understanding of wellness/fitness programs including the supervision and implementation of individual exercise programs, health education projects, administrative duties, and care/maintenance of facilities. Emphasis will be given to laboratory work in exercise testing. Prerequisites: HPE 205 (First Aid and CPR) **or** HPE 215 (First Responder, Professional CPR), HPE 210 (Beginning Athletic Training), and HPE 351 (Exercise Testing and Prescription).

Fee

$36.

HON 100 - Honors Lecture Series

Hours: 1

Regularly scheduled to enrich the experiences of Honors College students using lectures, concerts, exhibits, and other events. Provides exposure to a broad range of academic disciplines. Prerequisites: Admission to Honors College.

HON 120 - Honors Inquiry

Hours: 1.0.

Principles and practice of legitimate inquiry in academic disciplines as well as in public policy. Evaluation of arguments offered in the popular press. Principles of valid reasoning and the process of supporting accepted ideas in academic disciplines through the use of evidence, such as published papers/monographs and expert opinions.

HON 200 - Honors Leadership Practicum

Hours: 1.0.

Students will learn how to use communicaiton, leadership and motivational skills to improve the Honors mentoring program and build an Honors community on campus. Students will perform research on leadership and community-building techniques using both technology and hands-on skills. Planning, conducting and evaluating their own mentoring and community-building activities. Students will document their process, including a communication plan, implementation plan and evaluation procedures.

Restriction: sophomore standing, membership in the Honors Program, permission of instructor.

HON 399 - Honors Interdisciplinary Seminar

Hours: 3

Interdisciplinary study of a selected topic. The seminar will facilitate serious appraisal of an issue that crosses disciplinary boundaries and that can be explored using different scholarly methodologies. Topic changes each time course is offered.

HON 400 - Honors Internship

Hours: 1-6

Active involvement in a business enterprise, professional organization, or government agency that has particular interest and relevance to the student's course of study. The outside entity must identify a mentor who will keep in regular contact with the study. The outside entity must identify a mentor who will keep in regular contact with the student . Requires the student to maintain a log of activities and produce a semester-end report. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. Approval of the Director of the Honors College. Restriction: Open only to active members of the Honors College.

HON 498 - Honors Project Preparation

Hours: 1

General considerations in preparing and pursuing quality undergraduate research. Developing a research project proposal. Course grade will be given on a satisfactory (S) /unsatisfactory (U) basis. Intended to be taken just prior to starting one's Honors Research/Creative Project. Course may not be repeated. Prerequisites: Admission to the Honors Program.

HON 499 - Honors Thesis

Hours: 1-3

Individual research under direction of a faculty advisor. May be taken for up to 6 semester hours of credit.

OCS 001 - ACCESS-On Campus Internship

Hours: 3.

The ACCESS program is an on-campus degree related work program in the Office of Career Development's Experimental Learning Program. The title of the program stands for Academic and Career Collaborative Experience for Student Success. Student must get approval from the Office of Career Services.

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Management, Marketing, and Information Systems

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Chemical and Materials Engineering

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Civil and Environmental Engineering

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Electrical and Computer Engineering

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Industrial and Systems Engineering and Engineering Management

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Mechanical and Aerospace Engineering

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Liberal Arts

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Art and Art History

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Communication Arts

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Education

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English

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Foreign Languages and Literatures

Go to information for this department.

History

Go to information for this department.

Music

Go to information for this department.

Philosophy

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Political Science

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Psychology

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Sociology

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Nursing

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Science

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Atmospheric Science

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Biological Sciences

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Chemistry

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Computer Science

Go to information for this department.

Earth System Sciences

Go to information for this department.

Mathematical Sciences

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Physics

Go to information for this department.

Professional and Continuing Studies

Go to information for this school/college.

Health and Physical Education

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Academic Policies and Procedures

- Confidentiality of Student Records
- Academic Responsibility
- Academic Honesty
- Course Placement and Credit by Examination
- Registration
- Academic Achievement

Confidentiality of Student Records

The Family Educational Rights and Privacy Act of 1974 (FERPA) is a federal law that protects the confidentiality of student education records. To implement FERPA, the University has formulated and adopted a written institutional policy governing the handling of these records. Copies of this policy document are available to students in Charger Central (UC 118), and it should be referred to for a more comprehensive treatment of this subject.

The term "education records" under FERPA includes, generally, any record, whether in a printed, handwritten, audio, video, or computer media format, maintained by the University and containing information directly related to a student in his/her role as a student. Certain records are, however, excluded by FERPA from this broad definition, such as those made by instructional, supervisory, and administrative personnel and kept in their sole possession, those made by the UAH Police Department, and those made by a physician or other professional medical personnel in connection with treatment of the student.

Under FERPA and University policy, a student has a right of access to his/her education records and may inspect and review the information contained in them. To exercise this right, the student should present a request to the University office where the record is located, and a response will be made no later than 45 days later. In certain cases, a copy of the record may be provided, with a copying fee, as an alternative to actual inspection. Some records are not within this right of review, such as financial information from the student's parents and confidential letters or statements of recommendation where the student has waived the right of access.

A student who believes his/her education records contain information that is inaccurate, misleading, or in violation of his/her privacy rights may bring the matter to the attention of the appropriate records official. If by informal discussion with this official the student does not obtain the corrective action desired, the student will then be entitled, upon request, to a hearing at which he/she may challenge the objectionable item. Additional information about hearing procedures will be given to the student at that time. The decision of the hearing official or panel shall be final. If the decision is adverse to the student, he/she may insert in the educational record an explanatory statement relating to the disputed item.

A student's privacy interest in the education record is further protected by the rule against unauthorized disclosure. Generally, the University may not, without the student's consent, release the education record or any personally identifiable information in it to other individuals or entities.

Disclosure in certain circumstances, however, is specifically excepted by FERPA from the foregoing rule. These circumstances include disclosure to certain parties, such as University officials who have a legitimate educational interest in the information, officials of institutions where the student is seeking to enroll, parties to which the student is applying for financial aid, the parent of a dependent student, etc.; disclosure to comply with a judicial order or lawfully issued subpoena; disclosure in connection with a health or safety emergency involving the student or other individuals; or disclosure, with limitations as to the information and the recipients thereof, of the results of certain disciplinary proceedings, under the University's Code of Student Conduct.

Under the first exception above, "University official" includes any UAH employee; any employee of other institutions in the University of Alabama System, any member of The Board of Trustees of The University of Alabama; any student carrying out an official institutional function, such as service on a University committee, board, etc.; or any person or entity that is, by contract, performing an institutional service or function for which an employee would otherwise be used. A "legitimate educational interest" means that the official has a reasonable need for access to the record to perform appropriate tasks clearly within the area of responsibility of the official, to perform a task related to the education or discipline of the student, or to provide a benefit or service relating to the student. Personally identifiable information will be transmitted by the University under these exceptions only upon the condition that the recipient not permit any non-

University party to have access to it without the student's consent.

The University may also release what is called "directory information" without obtaining the student's consent. Directory information is limited to the following: the student's name, address (local and permanent), telephone number (local and permanent), e-mail address, date and place of birth, enrollment status (full-time or part-time), class standing (freshman, sophomore, junior, senior, or graduate student), major field of study, participation in officially recognized activities and sports, weight and height statistics of athletic team members, dates of attendance, degrees and awards/honors received, the previous educational institution most recently attended, and a photograph of the student. However, a student may prevent the release of even this information, if he/she wishes, by so indicating at the time of registration on a form provided for this purpose. A request for nondisclosure of directory information must be renewed each semester.

Any student who believes that his/her rights under FERPA have been violated by the University may notify and request assistance from the Provost and Vice President for Academic Affairs. The student may also file a complaint with the Family Policy Compliance Office, 400 Maryland Avenue, SW, Washington, D.C., 20202-5920.

Academic Responsibility

Students at the University of Alabama in Huntsville have the following academic responsibilities:

1. To enroll in only those courses for which the stated prerequisite(s) (if there are any) has/have been satisfactorily completed. Failure to comply with this procedure may result in administrative withdrawal.
2. To attend all meetings of each class in which they are enrolled. Instructors will announce at the beginning of the semester if they consider attendance in computing final grades.
3. To observe all regulations of their college and select courses according to the requirements of that college.
4. To consult their advisors on all matters pertaining to their academic careers, including changes in their programs.
5. To answer promptly all written notices from advisors, faculty, deans and other University officers.
6. To maintain the integrity of the classroom by practicing academic honesty. Students should refer to the student handbook for details regarding academic dishonesty.
7. To file an "Application for Degree" in the Office of Student Records by the published deadline.
8. To be personally responsible for fulfilling all requirements for graduation and observing all regulations at UAHuntsville.

Academic Honesty

Plagiarism and other forms of cheating are subject to penalties as outlined in the Student Handbook.

Course Placement and Credit by Examination

Instructional and Testing Services

Callie Loyd, Director
Shelley Lawson, Coordinator
Sabrina Blackwood, Coordinator

225 Wilson Hall
Telephone: (256) 824-6725
Email: testing@uah.edu
Website: www.uah.edu/testing

This office administers the tests used for admissions, credit by examination, and placement to include: the ACT Assessment and Residual ACT, the SAT, the College Level Examination Program (CLEP), the General Educational Development (GED) Testing Program, the Graduate Record Examination Subject Test (GRE Subject), the Miller Analogies Test (MAT), the internet-based TOEFL (iBT TOEFL) and the UAHuntsville Chemistry, Composition and Mathematics Placement Tests, Pearson Vue tests (please see www.uah.edu/testing) for more information about Pearson Vue Testing.). The UAHuntsville English Language Placement Test (ELPT), used for English as Second Language Placement, is also administered. UAHuntsville does not currently administer the following examinations: Graduate Management Admissions Test (GMAT), Graduate Record Examination General Test (GRE), Law School Admissions Test (LSAT), or Medical College Admissions Test (MCAT.) To determine test locations, dates, fees, etc., candidates should check directly with the respective test company. Links to test company websites are available at www.uah.edu/testing.

Comprehensive information pertaining to the examinations offered through Instructional & Testing Services is available at www.uah.edu/testing.

Course Placement and Placement Testing

All students who are beginning college-level course work in **English, Mathematics, Foreign Language** and **Chemistry** are placed at the level best suited to their academic preparation and background. Initial placements are determined by a combination of factors depending on the subject area. ACT scores and high school grades determine placement in English. Students who were placed into EH 100 may opt to take the Composition Placement Test for entry into EH 101. Students may call Testing Services at 256-824-6725 to schedule an appointment to take the Composition Placement Test. This test may only be taken once.

ACT scores, AP Calculus exam scores and/or previous college level mathematics courses (which have been accepted by the Math Department for transfer credit) determine placement in Mathematics. Students who have no means of math placement or who wish to take a higher-level course than the one in which they were placed can take the Mathematics Placement Test. See www.uah.edu/testing for online test registration. This test may be taken twice.

Students who wish to place out of Chemistry 101 and into Chemistry 121 can only do so by taking the UAH Chemistry Placement Test. Call Testing Services at 256-824-6725 to schedule an appointment for Chemistry Placement Testing. This test may only be taken once.

Students with prior knowledge of French, German, or Spanish may demonstrate competence at an advanced level in five ways: 1) performance on a computer based placement test, 2) high school coursework, 3) CLEP examination, 4) AP examination, and 5) native language experience. Students should contact the Foreign Language department at 256-824-6871 or 256-824-1022 to inquire about their placement policies.

Students will be notified at the time of the tests when they can expect to receive the test results. There is no charge for the Chemistry Placement Test, Composition Placement Test, Foreign Language Placement Test or the Mathematics Placement Test. If a student has not received initial course placements before enrollment, he or she should contact the Office of Admissions.

Credit by Examination

At UAHuntsville a student may obtain a maximum of one-fourth (normally 32 semester hours) of required degree credits by examination. There are four alternatives by which a student may gain credit through examination at UAHuntsville: 1) departmental examinations, 2) the Advanced Placement (AP) Program, 3) the College Level Examination Program (CLEP), and 4) International Baccalaureate (IB). Credit by examination is not granted in the following cases: 1) if a student has been enrolled in a comparable course for more than three weeks; 2) to remove a failure already recorded for a course; or 3) to satisfy the residency requirement for graduation.

1) Credit by Department Examination

Departmental examinations for credit in specific courses may be given by a department upon application by the student and with the approval of the department chair. Students may apply for such a test if they have taken college-level work in secondary school, in a non-collegiate class or on a tutorial basis, or through private study. Credit, if awarded, will be recorded without grades or quality points and will not, therefore, be included in calculation of the grade point average. The amount of credit allowable through departmental examinations is determined by the appropriate academic dean and the department chair concerned.

Departments offering credit by examination on tests constructed by the department:

Biological Sciences	Contact Department Chair
Computer Science	All 100 and 200 level courses
Electrical and Computer Engineering	CPE 112, CPE 212
Foreign Languages	Contact Department Chair
Mechanical and Aerospace Engineering	MAE 110
Music	MU 100, 201, 203
Philosophy	PHL 201, 320
Physics	PH 111, PH 112
Psychology	PY 300, PY 302

2) Advanced Placement Program

Several UAHuntsville departments award credit to students who have earned designated scores on Advanced Placement (AP) Program examinations of the College Entrance Examination Board. AP examinations are usually taken at the end of an AP-designed course of study in high school. If awarded, credit will be recorded without grades or quality points and will not, therefore, be included in calculation of the grade point average. The award of AP credit at UAHuntsville requires a score report from the College Board. Transcripts from other institutions with AP scores are not accepted at UAHuntsville. Credits are periodically reviewed and updated by the academic departments. A summary of awarded credits is also available online at http://www.uah.edu/admissions/apply/adm-college-credit.

AP Credit	
American History	Score of 4 or 5 = HY 221 and 222 (6 hrs.)
Biology	Score of 3 = BYS 119 (4 hrs.)

Biology	Score 4 or 5 = BYS 119 and 120 (8 hrs.)
Calculus AB	Score of 4 or 5 = MA 171 (4 hrs.)
Calculus BC	Score of 3 = MA 171 (4 hrs.)
Calculus BC	Score of 4 or 5 = MA 171 and 172 (8 hrs.)
Chemistry	Score of 3 or higher = CH 121, 125, 123, 126 (8 hrs.)
Computer Science A	Score of 3 = CS 102 (3 hrs.)
Computer Science A	Score of 4 or 5 = CPE 112 (3 hrs.)
Computer Science A	Score of 4 or 5 = CS 102 (3 hrs.) (see advisor re: CS 121)
Economics (Macroeconomics)	Score 4 or 5 = ECN 142 (3 hrs.)
Economics (Microeconomics)	Score 4 or 5 = ECN 143 (3 hrs.)
English Language/Composition	Score of 4 = EH 101 (3 hrs.)
English Literature/ Composition	Score of 4 = EH 101 (3 hrs.)
English Language/Composition	Score of 5 = EH 101 and 102 (6 hrs.)
English Literature/Composition	Score of 5 = EH 101 and 102 (6 hr
English Language/Composition	Score of 4 on both = EH 01 and 102 (6 hrs.)
European History	Score of 4 or 5 = HY 102 (3 hrs.)
Foreign Languages: (French, Spanish, German)	Score of 3 = FL 101 and 102 (6 hrs.)
Foreign Languages: (French, Spanish, German)	Score of 4 = FL 101, 102 and 201 (9 hrs.)
Foreign Languages: (French, Spanish, German)	Score of 5 = FL 101, 102, 201 and 202 (12 hrs.)
Government & Politics: American	Score of 4 or 5 = PSC 101 (3 hrs.)
Government & Politics: Comparative	Score of 4 or 5 = PSC 102 (3 hrs.)
Music Theory	Score 4 or 5 = MU 201 and 203 (4 hrs.)
Physics B	Score or 4 or 5 = PH 101 and 102 (8 hrs.)
Physics C	Score of 4 or 5 = PH 101 and 102 (8 hrs.) or PH 111/ PH 114 (4 hrs.)
Psychology	Score of 4 or 5 = PY 101 (3hrs.)

*Students with a score of 4 on either English Language or English Literature are encouraged to consult with the Director of the Honors Program about the possibility of taking EH 105 to satisfy the composition requirements. Students with a score of 4 on BOTH the English Language and the English Literature AP tests will be awarded 6 hours of credit.

3) College Level Examination Program (CLEP)

The College Level Examination Program is a national program under which a student can receive credit for college level achievement. Anyone who has practical knowledge in an area through independent study, work experience, cultural exposure, or intensive reading, may take these tests. The policy for CLEP credit varies with each institution. The policies listed herein are those of UAHuntsville. See www.uah.edu/testing for test dates, fees, and registration.

Credit by CLEP examination is allowed if the appropriate academic department has approved the CLEP test for use by the University. Credit awarded for CLEP examinations will be recorded on the student's record without grades or quality points and will not, therefore, be included in calculation of the grade point average. If a student does not pass a CLEP test, no record is placed on his or her transcript. Examinations may be retaken six months after initial testing.

Students should check with their program of study and their academic advisor to determine which, if any, CLEP examinations they may take to satisfy either free elective or degree requirements.

Listed below are UAHuntsville courses in which a student may receive CLEP credit, along with specific CLEP test titles and minimum score requirements.

Course Number	**CLEP Subject Test Title**	**Minimum Score Required**
Composition and Literature		
EH 101	College Composition Modular	50 and proficient performance on College Composition Modular Essay
*EH 102	College Composition Modular	65 and superior performance on College Composition Modular Essay

*Students who have already completed EH 101 or a comparable course are not eligible to take the CLEP test for EH 102.

Science

CH 121, CH 123, *CH 125, *CH 126 General Chemistry	48 (Recommended student take the Chemistry Placement Test first)

*Students who have already completed CH121/125 or a comparable course are not eligible to take the CLEP test for CH123/126.

Foreign Language

FL 101 (French)	College French	48
FL 101-102 (French)	College French	50
FL 101(German)	College German	48
FL 101-102 (German)	College German	50
FL 101 (Spanish)	College Spanish	48
FL 101-102 (Spanish)	College Spanish	50

History and Social Science

HY 101	Western Civilization I	56 (plus A/B on departmental essay)
HY 102	Western Civilization II	56 (plus A/B on departmental essay)
HY 221	History of the United States, Part I	60 (plus A/B on departmental essay)
HY 222	History of the United States, Part II	60 (plus A/B on departmental essay)
SOC 100	Introductory Sociology	50
PSC 101	American Government	50 (with essay)
PY 101	Introductory Psychology	60

Business

ACC 211	Financial of Accounting	65
ECN 142	Principles of Macroeconomics	50
ECN 143	Principles of Microeconomics	50
MIS 146	Information Systems & Computer Applications	50

4) International Baccalaureate (IB)

The University of Alabama in Huntsville recognizes International Baccalaureate (IB) credit with a score of 5, 6, or 7 on the higher-level examinations. IB score reports should be sent to the UAHuntsville Office of Admissions for evaluation. Additional credit may be awarded on a course by course basis as approved by the department. Some departments may award credit based on the subsidiary examinations. The academic unit responsible for the student's program of study will determine the application of credits toward specific degree requirements. If awarded, credits will be recorded without grades or quality points, and will not, therefore, be included in the calculation of grade point average.

International Baccalaureate Course	Higher Level Exam Score	Semester Credit	UAHuntsville Course Equivalent	Comments
Anthropology	5-7	3	SOC 200	
Art History	5-7	6	ARH 100, 101	
Art Studio	5-7	6	ARS 123 and 140*	*Depending on Portfolio
			or ARS 106 and 260*	
Biology	5-7	8	BYS 119, 120	
Chemistry	5-6	4	CH 101, 105	
	7	8	CH 101/105, 201/205	
Computer Science	5-7	3	CS 100	
Economics	5-6	3	ECN 142	
	7	6	ECN 142, 143	
English	5-6	3	EH 101	

	7	6	EH 101, 102	
Environmental Systems	5-7	4	ESS 102	
Geography	5-7	3	GY 110	
History, Europe	5-7	3	HY 102	
History, US	5-7	6	HY 221, 222	
History, World	5-7	6	HY 103, 104	
Languages	5-7	15	FL 101, 102, 201, 202, 301	French, German, Spanish
Mathematics	5-6	4	MA 171	
	7	8	MA 171, 172	
Music	5-7	3	MU 100	
Philosophy	5-7	3	PHL 101	
Physics	5-7	8	PH 101, 102	
Psychology	5-7	6	PY 101, 102	
Theater Arts	5-7	3	CM 122	

Registration

Dates, times, procedures and eligibility conditions for registration are published in the *Schedule of Classes*, which is available in Charger Central, the Academic Advising offices, and on the UAHuntsville website. Registrations for Fall and Spring Semesters begin several weeks before the start of the new semester and continue through the fifth day of classes. All financial obligations to the University must be cleared before a student may register for courses. Students should consult with their academic advisor prior to registration. Non-degree students have a lower registration priority.

Concurrent registration for multiple sections of a course is not allowed.

A student who schedules courses during registration makes a financial commitment to the University. Course adjustments, drops and withdrawals must be officially transacted in writing on a Registration/Schedule Adjustment form and recorded by the Office of Student Records by the published deadlines. Adjustments in fees, if any, will be made by the Office of the Bursar. The University assumes no responsibility for students who attend classes without proper registration.

The Semester System

The academic year is divided into two semesters and one summer session. The fall semester begins in late August and ends in December. The spring semester begins in January and ends in May. The summer term consists of 10 weeks with two 5-week mini-sessions. The summer session begins in June and ends in August. (See Academic Calendar.)

A credit hour is an academic unit of credit awarded for the completion of educational activities. The amount of credit awarded depends on the expected amount of time required to complete in-class and out-of-class work during a semester for a course that is passed. For example, each credit hour awarded for a lecture course at UAH requires at least one hour of classroom or direct faculty instruction and a minimum of two hours out of class student work each week for approximately fifteen weeks for one semester. At least three hours of work per week is required for each credit hour awarded for practica, internships, activity courses, laboratory experiences, and distance learning courses, although there will be variations in the amount and type of instruction and the minimum amounts of outside student work to accommodate differences among academic disciplines and the natures of particular subject matters and courses. The institution reserves the right to make credit hour assignments that exceed the minimum time requirements stated. Time expectations for work outside of class are minimums and may be higher depending on the nature and level of the course as well as the ability, commitment, and learning style of the student.

In the Department of Art, an undergraduate studio credit hour at UAH consists of at least 1.66 hours of in class instruction with a minimum expectation of at least 1.33 hours of work outside of class each week. For a three credit hour studio art course this would equate to at least five (5) hours in class and at least four (4) hours outside of class per week during a 15-week semester. Time expectations for work inside and outside of class are minimums and may be higher depending on the nature and level of the course, and for outside work, [also] on the ability, commitment, and learning style of the student.

Student Course Loads

The typical full-time undergraduate course load is 15-18 credit hours each semester. Students should take between 30 and 33 hours annually in order to graduate in four years. The minimum full-time load for an undergraduate student is 12 semester hours a semester. A part-time undergraduate student is one who is enrolled in less than 12 semester hours. Permission of the student's dean is necessary to enroll in 21 hours or more, including concurrent enrollment at other institutions and simultaneous correspondence courses. A student enrolling for a minimum load each semester should not expect to graduate in four years unless he or she enrolls in summer terms in addition to the regular academic year.

Prerequisite, Prerequisite with Concurrency, Co-requisite

Some courses offered at UAHuntsville require students to complete a prerequisite or prerequisites prior to registering for a course, to register for a prerequisite with concurrency, and to register for a co-requisite course. The definitions for these categories are as follows:

Prerequisite – a course must be taken before a target course, i.e., successful completion of EH 101 before registering for EH 102.

Prerequisite with Concurrency – a course must be taken before or at the same time as a target course, i.e., CH 101 and CH 105; PH 111 and PH 114; CE 271 and MA 201. A "W" or "F" grade in one course does not require that a student re-register for both courses. Prerequisite with concurrency courses do not have to be completed at the same time. A student may withdraw from a target course or a concurrent course and continue enrollment in the other course and vice versa. **Note: A student may be asked to withdraw from a required course if in the judgment of the instructor/chair/advisor the student does not have the requisite knowledge to successfully complete the course (i.e., CE 271 and MA 201).**

Co-requisite – a course must be taken simultaneously with a target course, i.e., BYS 119 and 119L; PH 102 and 102L; CPE 112 and 112L: CE 370 and 370L: CHE 442 and 442L: MAE 311 and 311L; NUR 660 and 660L, and etc. Co-requisite courses must be completed at the same time. A student may withdraw from a target course; however, the student must also withdraw from the co-requisite course and vice versa.

Student Classification

An undergraduate is classified as indicated in the following table when a student has completed the number of semester hours shown.

Semester	*Hours Earned*
Freshman	0-31
Sophomore	32-63
Junior	64-95
Senior	96 up

Schedule Adjustments

Through the fifth day of classes, a student may add a course by registering on the web at www.uah.edu, meeting with their advisor, or submitting a Registration/Schedule Adjustment form to Charger Central. Students should consult with their academic advisor and other university officials as indicated on the Registration Form for advice and approval before making any schedule changes.

To add a class after the fifth day of classes requires a written petition to the Office of the Associate Provost for Undergraduate Studies with appropriate documentation to substantiate extenuating circumstances. The petition must include signatures from the instructor, the chair of the department that offers the course, and the dean of the college in which the student is enrolled. A request to change a section after the deadline must be approved by the instructor of the new section, the chair of the department that offers the course, and the dean of the college in which the student is enrolled.

Credit to Audit

A student is permitted to change a course from credit to audit through the fourth week of classes. The instructor is not required to grade any written assignments that may be submitted by an auditing student. A student who elects to audit a course may not at any point after electing to audit, change to "for-credit", i.e., graded status. Any student failing to follow established procedure for change to audit will continue to be enrolled in the class for credit and may receive a failing grade in that course.

Withdrawal Policy

Through the tenth week of the fall or spring semester, a student may withdraw from any course by executing a withdrawal on our website, meeting with their advisor, or submitting a Registration/Schedule Adjustment form to Charger Central. After the tenth week, a student may withdraw from a course only under extenuating circumstances and with the approval of the dean of the college in which the student is enrolled. Avoidance of an undesirable grade does not justify withdrawal. The request for withdrawal approval in this situation must be submitted with a written explanation of the extenuating circumstances and any appropriate documentation to the dean of the college in which the student is enrolled, and it is the duty of the dean to verify that the circumstances justify withdrawal from a course. In addition, students participating in certain programs must secure approval or give adequate notification to the appropriate officers of these programs. It is the joint duty of these programs and the Office of Student Records to insure that students participating in these programs are aware of any such requirements. Class non-attendance does not constitute withdrawal nor does notification to the instructor. Any student failing to follow the established procedure for withdrawal will continue to be enrolled in the class and may receive a failing grade in that course.

Recording of Withdrawals

If the withdrawal process is completed during the first two weeks of the semester, the withdrawing student's name does not appear on the final rolls of the class from which the student withdrew, and that course does not appear on the student's permanent record. If the withdrawal process is completed after the first two weeks, then the withdrawing student's name will be on the final roll of the class from which the student withdrew, and that course will be recorded on the student's permanent record with a final grade of W.

Counseling

Students need to be aware that many potential employers, as well as graduate and professional schools, view an excessive number of W's on a transcript as a flag that the student cannot be counted on to complete demanding projects. Advisors should be informed of this fact and students should be encouraged to discuss with their advisors any plans to withdraw from a course, especially after the first two weeks of the semester.

Retroactive Withdrawal Policy

Undergraduate students may at times experience extraordinary problems during an academic semester. Within two years of having completed such a semester, a student may petition the Dean of Students to withdraw retroactively from ALL classes taken during that semester. A retroactive withdrawal is granted only under exceptional circumstances, such as extraordinary medical or personal problems. The petition should include clear and documented evidence whenever possible. The Dean of Students forwards the petition to the Associate Provost who approves or denies the request. If the Associate Provost grants a retroactive withdrawal, the grades for all courses taken during the semester in question will be changed to W's. Petitions for Retroactive Withdrawals are considered after final grades are posted. Students should be aware that retroactive withdrawals may have an impact on their ability to receive or retain financial aid and timely completion of their degree.

Course Repeat Policy

Students should be aware that course repeats, for any reason, may not be looked upon favorably by some employers and by professional schools, and hence they should avoid the need for repeats.

Students may repeat a course in order to achieve a passing grade or an improved understanding. Students may not repeat a course for which they have higher level credit. For example, a student cannot repeat MA 119 after he/she has credit for Calculus. For other courses, the course repeat policy is as follows. For the first five courses repeated, the original grade will not be calculated into the student's grade point average. Only courses for which the student has received a grade of C, D, or F may be repeated for this purpose. Each course repeat counts against the maximum of five that can replace the previous grade. For instance, a student may use all five repeats in a single course or in five separate courses or any combination of separate courses and multiple repeats of single courses. The transcript will show both the original grades and the course repeat grades, but only the grade points and credit hours earned in the repeated courses count toward graduation and are averaged into the student's GPA. After five course repeats, all other courses repeated at UAHuntsville will result in both the original grade and the course repeat grade being calculated into the student's GPA. This course repeat policy will automatically be applied unless the student files for an exemption in Charger Central (UC 118) upon registration.

Academic Bankruptcy Policy

An undergraduate student may petition the Admissions and Scholastic Affairs Committee to declare academic bankruptcy. The Scholastic Affairs Committee, after reviewing the petition and consulting with the Office of Admissions, will decide whether to grant the student academic bankruptcy. Under this policy, all college-level work completed at UAHuntsville prior to a date specified by the student is eliminated from computation of grade point averages and will not be applied toward a degree at UAHuntsville. Such work will not be expunged from the student's scholastic records and transcripts, although it will be designated as work not included in the computation of grade point averages or applied toward degree requirements. There must be a minimum of two calendar years between the date of petition and the date specified by the student in the bankruptcy petition. Academic bankruptcy will only be granted once during a student's academic career at UAHuntsville.

Grading System

The University of Alabama in Huntsville's grading system includes grades of A, B, C, D, F, I, X, W, S, U, P, AU, N, and NC. Instructors have the option of augmenting the course grades of A, B, C, and D with symbols "+" and "-" signifying, respectively, high and low achievement within the assigned grade. These augmented letter grades become part of the student's permanent record and appear on transcripts, but augmentation of a letter grade does not affect its value for the purposes of the GPA computation.

A Superior achievement. Four quality points given per semester hour.

AU Audit. Course attendance as a listener. No credit given, no quality points assigned, no attendance requirement.

B Above average achievement. Three quality points given per semester hour.

C Average achievement. Two quality points given per semester hour.

D Passing work. One quality point given per semester hour.

F Failing work. No credit given; no quality points assigned.

I Incomplete. Assigned by the instructor when a student, due to circumstances beyond his \or her control, has not satisfied some requirement of the course. The deadline for a student to remedy a grade of I is the last day of class of the next semester enrolled or one calendar year from the date of the grade whichever occurs first. If the grade of I is on a student's record at the time of graduation, it is treated as an F.

N No grade. Assigned by the Office of Student Records when the instructor does not report a grade.

P Passing work. Assigned in some courses. See Pass-Fail Option.

S Satisfactory work. Applicable to noncredit courses and to some specified credit courses, and will not be counted in the GPA.

U Unsatisfactory work. Applicable to noncredit courses and to some specified credit courses.

W Withdrawal. (See Withdrawal Policy.)

X Excused absence from examination. Assigned by the instructor when a student completes all course requirements except the final examination. The final grade becomes an F unless the examination is Completed by the time of the announced deferred examination date at the beginning of the semester of next regular enrollment of the student. (See Examinations and UAHuntsville calendar.) Time schedule permits a student to take only one examination on this date. If a student receives more than one grade of X, he or she should make arrangements directly with other instructors for additional make-up examinations.

Change of Grade

When it is believed that a grading error may have occurred, a student is permitted a maximum of one semester from the date a grade is assigned to request a change of course grade. Grades submitted to the Office of Student Records can normally be changed only by submission by the instructor on a Change of Grade form containing a written explanation of the error. The Change of Grade form must be approved by the department chair and received in the Office of Student Records no later than two semesters from the date the original grade was assigned.

Pass-Fail Option

A student wishing to exercise a P-F option must apply to the Office of Registrar (UC 118) when registering or before the end of the third week of classes. Any undergraduate student not on academic probation may take courses on a P-F basis.

A student is limited to 12 semester hours of credit on a P-F basis over the course of the degree. Courses listed on the Program of Study (major, minor, cognate, track, cluster, specialization, option and concentration) may not be taken P-F. Required courses in English composition and mathematics may not be taken P-F. Departments may limit the P-F to courses outside the department or college. **P-F policies vary from college to college; consult your advisor before selecting this option.**

A grade of P may be changed to a regular grade only if the student changes his or her program to an area in which a regular grade is required. The change must be initiated at the dean's office and must go through the normal grade change procedures. Once a P grade has been changed to a regular grade, the regular grade must remain. Under the P-F system, a grade of P will not be counted in a student's grade-point average; a grade of F will be counted in a student's grade-point average.

Even though a student chooses to take courses on the P-F basis, instructor's grade sheets will reflect the regular grade and the student may be informed of the regular grade upon request.

Examinations

During each semester, one or more announced examinations of class period length may be held. At the end of each semester, a final examination period is scheduled for each course. Absences from a scheduled final examination without previous arrangement with the course instructor (except in extenuating circumstances) will be classified unexcused and a failing grade in the course will be assigned.

Any student whose final examination schedule is such that the student is scheduled to take three examinations during a single day shall have the right to have the middle examination rescheduled. The date and time of the rescheduled examination shall be by mutual agreement between the student and the affected faculty member and must be agreed upon prior to the final week of the semester. It is the student's responsibility to notify the instructor of this type of conflict, and it is the instructor's responsibility to verify that the conflict actually exists. If a student is scheduled to take four examinations during a single day, then the same procedure shall apply except that the student shall now have the right to have both the second and third examinations rescheduled.

Student Grade Report

At the completion of each semester, a report of final grades is mailed to the address furnished by the student.

Grade Point Average

The grade point average (GPA) is computed by dividing the total number of quality points earned at UAHuntsville by the total number of

semester hours attempted at UAHuntsville (transfer grades are not included). Courses in which a grade of NC, W, P, S, X or AU is assigned are not included.

Academic Achievement

Honor Scholar

An undergraduate student in good standing earning 12 or more semester hours in a semester with a GPA of 3.50-4.00 is distinguished by being identified as an honor scholar. A GPA of 4.00 is noted with an asterisk "*".

Scholar

An undergraduate student in good standing earning 12 or more semester hours in a semester with a GPA of 3.00-3.49 will be designated on the list of scholars.

Graduation with Honors

Graduation with honors at the baccalaureate level requires a minimum of 60 semester hours at UAHuntsville. Honors will be determined by the grade-point average for the last 60 semester hours of coursework taken at UAHuntsville or the overall GPA for all coursework taken at UAHuntsville, whichever is higher. The academic terms containing the last 60 hours of coursework taken at UAHuntsville will be identified and the GPA of all UAHuntsville courses taken during those terms to satisfy graduation requirements will be computed and the honors will be determined as follows:

- If the GPA computed as above is 3.90 or above, the student graduates summa cum laude
- If the GPA computed as above is 3.70 or above (but below 3.90), the student graduates magna cum laude.
- If the GPA computed as above is 3.40 or above (but below 3.70), the student graduates cum laude.

Honors Convocation

The University faculty recognizes and honors those students who have attained academic excellence at a convocation held in the spring of each year. At the Honors Convocation, students who have been inducted into the honor societies, who have been named to the dean's list in each college, and who have attained excellence in academic programs are recognized.

Academic Warning, Probation, and Dismissal

In order to be in good academic standing, students must maintain a grade point average above the Academic Action Threshold (AAT), which varies according to classification. For students with 1-31 credit hours, the AAT is 1.9; for students with 32 or more credit hours, the AAT is 2.0. A student whose semester GPA at UAHuntsville falls below the applicable AAT will be placed on academic warning, probation, or dismissal.

Academic Warning. Students are subject to academic warning if they are in good standing and earn less than the applicable AAT for the semester; or if they earn the applicable AAT or greater for the semester but the UAHuntsville cumulative is less than the applicable AAT.

Probation. Students are subject to academic probation if they are on academic warning and the current semester GPA is less than the applicable AAT and the UAHuntsville cumulative is less than the applicable AAT.

Dismissal. Students are subject to academic dismissal if they are on academic probation and the current semester GPA is less than the applicable AAT and the UAHuntsville cumulative is less than the applicable AAT.

A regularly admitted student dismissed for the first time is automatically eligible to re-enter after being out of school one term. A student admitted in any special category and dismissed for the first time must petition the Admissions Committee for permission to re-enter after an absence of at least one term. A student dismissed for the second time is disqualified for readmission. After a period of one year, such student may petition for re-admission. Individual colleges may have additional requirements specific to their programs. Refer to college sections.

Conditional/Probational to Regular Status

Students admitted conditionally or on probation will be evaluated for regular student status after completion of at least 15 semester hours at UAHuntsville. If the student at that time has earned a 2.00 on all UAHuntsville coursework, the Conditional/Probational classification will be changed to regular student status. The deadline to submit a petition for readmission to Charger Central (UC 118) are July 1 for Fall, November 15 for Spring, and April 1 for Summer readmission.

Academic Appeals Process

Academic appeals will originate in written form by the student and will be processed through the chair of the student's major department, the dean of the college, and the Office of the Provost and Vice President for Academic Affairs, in that order. Students classified as "special" will be routed through the most appropriate academic dean, but should begin by contacting the Academic Advisement and Information Center, 824-6290. Students should contact their major advisor for assistance.

Visiting Student Program

A cooperative arrangement exists with Alabama A&M University, Athens State University, Calhoun Community College, Oakwood College and the University of Alabama in Huntsville. A similar arrangement exists with the University of Alabama at Birmingham and the University of Alabama. Under either of these arrangements, a student at any of the participating institutions may request permission to attend a course at one of the other schools. Conditions governing the granting of permission include the following:

1. The student must be a full-time student or a full-time University employee who is a part-time student. The credit hours to be taken at the host institution shall be counted in determining the full time or part-time status of the student.
2. The course desired must be unavailable at the student's home institution.
3. Visiting students are normally limited to one undergraduate course a semester at the host institution except where the second course is a laboratory required to accompany the first course or the second course is a one-hour course in basic military science.
4. The student must have an overall C average, and meet all prerequisites of the host institution.
5. The student's request must be approved by his or her advisor and other appropriate personnel.
6. Students will be admitted by the host institution to a course based upon availability of space for the visitor, to be determined by the class enrollment on the last day of regular registration.

Any student interested in participating in the Visiting Student Program should contact the Office of Student Records for information regarding the procedures to be followed.

Transcripts

Official transcripts are issued and sent by the Office of Student Records to recognized institutions and agencies, which require such documents. Transcripts are issued upon the written request (on a form available in Charger Central) of the student involved and payment of a transcript fee. Faxed transcripts are available for a fee, but are not considered official documents. Transcripts may be issued to individual students; however, they will be marked as issued to student. No transcript will be issued for a person who has a financial obligation to the University.

Correspondence Study and Other Non-resident Credit

Up to 25 percent of the credit applied toward a baccalaureate degree may be earned by means other than residence credit at an approved institution. Examples of other means are credit by examination, correspondence study, educational experiences in the armed forces, and professional certificate programs. Persons interested in taking correspondence study courses through the University of Alabama in Tuscaloosa may obtain a catalog from the Office of Instructional and Testing Services, Room 226, Business Administration Building, or by writing to the College of Continuing Studies, Independent Study Division, University of Alabama, P.O. Box 870388, Tuscaloosa, AL 35487.

Course Numbering System

Range Year	Student Normally Takes Courses
001-099	Refresher (noncredit)
100-199	Freshman
200-299	Sophomore
300-399	Junior (upper level)
400-499	Senior (upper level)
500-599	Advanced undergraduate credit or graduate credit. In the Colleges of Engineering and Business Administration, graduate credit only. In the Colleges of Liberal Arts, Nursing, and Science may be either undergraduate or graduate credit. Check course listing for specific credit level.
600-699	Graduate
700-799	Graduate, Ph.D. level

Application for Graduation

Candidates for graduation must file their application at least one semester prior to the time requirements are expected to be completed. Deadlines are announced each semester and application forms may be obtained in Charger Central. Early application will assist the student by confirming requirements remaining to be completed. Requirements must be completed and certified prior to the published deadline. Diplomas are issued are issued at the end of each semester or during commencement ceremonies.

Total Degree Requirements

1. Minimum requirements for the Bachelor of Arts, Bachelor of Science, Bachelor of Science in Business Administration, and Bachelor of Science in Nursing degrees are 128 semester hours. For the Bachelor of Science in Engineering degree (Electrical Engineering option) 128 semester hours; (Industrial and Systems Engineering option) 130 semester hours; (Chemical Engineering option) 132 semester hours; (Civil Engineering option) 131 semester hours; (Computer Engineering option) 129 semester hours; (Aerospace Engineering option in Mechanical Engineering) 134 semester hours; (Optical Engineering option) 128 semester hours; and (Mechanical Engineering option), 134 semester hours. A minimum of 25 percent of the total requirements and 12 of the last 18 hours must be completed at UAHuntsville. Also, unless otherwise specified by the department involved, a minimum of 12 semester hours of upper-level courses numbered 300 or above must be completed at UAHuntsville in a student's program (6 hours in the major and 6 hours in the minor or cognate studies). A minimum of 30 percent of the total degree requirements must be taken in numbered 300 or above (39 hours for a 128 hour requirement).
2. The maximum amount of correspondence or credit by examination allowed towards a bachelor's degree is 25 percent of the degree requirements.
3. An overall average of C is required for all courses taken at UAHuntsville; and in all courses in the major discipline taken at UAHuntsville; and in all courses in the minor discipline taken at UAHuntsville or in all courses listed in the cognate studies option taken at UAHuntsville.
4. Additional degree requirements for each degree are described in the appropriate sections of this catalog.

Requirements for Programs Leading to the B.A. Degree

Requirements for the B.A. Degree are described in the College of Liberal Arts section of this catalog.

Requirements for Programs Leading to B.S. Degree

Requirements for the B.S. Degree are described in the College of Science section of this catalog.

Requirements for Programs Leading to B.S.B.A., B.S.E., and B.S.N. Degrees

Requirements for professional programs offered are described in the appropriate sections of this catalog. These programs include the Bachelor of Science in Business Administration, the Bachelor of Science in Engineering, and the Bachelor of Science in Nursing.

Time Limit

The degree requirements for graduation are normally those specified in the catalog in effect when a student first registers as a degree-seeking student at UAHuntsville. At any time during the student's enrollment that requirements for graduation are changed, a student may elect to graduate under the new requirements. If the student does not complete requirements for graduation within seven years from the date of entry or seven years from the date of the catalog chosen, the student must then change to the catalog in effect and meet the requirements as specified. If a student breaks enrollment for a period of at least 24 months, the student must then change to the catalog in effect at the time of re-enrollment and meet the requirements as specified. The student's advisor and college dean must approve any exceptions to this policy with the proper notation filed in the student's program of study in the Office of Student Records. At any point at which a change in catalog becomes necessary, a new program of study must be completed and proper notation filed in the Office of Student Records.

The University of Alabama in Huntsville • 301 Sparkman Drive, Huntsville, AL 35899 • Map
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Academic Programs

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- Introduction to University Life

Library

333 Salmon Library
Telephone: (256) 824-6540
Email: library@email.uah.edu
Director: David Moore
Lecturers Coleman, Moore, Olson, Ong.

M. Louis Salmon Library

The M. Louis Salmon Library supports the information, instructional, and research needs of faculty, staff, students, and the surrounding community. It is housed in a 105,000 square feet facility which includes an InfoArcade, and several computer labs, including a math tutorial lab, four general-purpose labs and a 75 seat lecture hall. It also houses the Faculty Resource Center (FRC) for the University. Over 250 workstations are supported in the facility. There is also a coffee shot on the ground floor with a large area for collaborative study, complete with comfortable seating and white boards.

The Library supports the academic and research programs of the University. It has a collection of over 350,000 print volumes, a selective collection of over 500,000 United States government publications, and over 600,000 materials in microform, and manuscript collections. In addition to books and microform materials, the Library offers a broad selection of books, journals, newspapers and other serials in electronic form. Approximately 67,000 online paid periodical titles, over 65,000 electronic books and over 350 databases can be accessed both on and off campus via the Library website at http://lib.uah.edu In addition, the University Archives/Special Collections offer a number of unique collections, including the papers of former Congressman Robert Jones, the personal Library of Willy Ley, the architectural research collection of Harvie P. Jones, and several space-related collections involving such projects as the Saturn V rocket, Skylab and Apollo-Soyuz.

For students in science and engineering and technology, research at UAHuntsville is supported by the Redstone Scientific Information Center (RSIC), located five miles from campus. RSIC was developed to support the wide-ranging research interests of NASA and the United States Army Missile Command and is one of the finest technical libraries in the Southeast. UAHuntsville subscribes to numerous full-text and bibliographical data bases each of which supports specific colleges, including Liberal Arts, Nursing, Administrative Science, Engineering, and Science.

UAHuntsville subscribes to numerous full-text databases each of which supports specific colleges including: Liberal Arts, Nursing, Business Administration, Engineering, and Science. The Library is privileged to provide access to many major online resources including the entire Elsevier collection through Science Direct and Scopus, Springer, CINAHL, the IEEE collection through IEEExplore, ABI/Inform, Bloomberg Terminals, Academic Search Complete, and JSTOR (Journal Storage). The Library is also a member of several consortia that provide access to research materials not owned by libraries in north Alabama. Its membership in the Online Computer Library Center (OCLC) and the Network of Alabama Academic Libraries (NAAL) facilitates rapid document delivery/interlibrary loan service to faculty and students without charge.

Reference services are provided by 6 electronic reference librarians who are able to assist students in finding information in-person, by email, phone, text message, chat, or Twitter. Group Library instruction sessions are provided to teach students how to locate, manage, and evaluate the information they need for class projects and papers. Other Library services include wireless access, federated searching across databases (EBSCO Discovery Service OneSearch), instant linking to the article level in most databases (LinkSource), Turnitin.com training (plagiarism), group study rooms, PC and Mac computers, a scanner workstation, a digital audio/video area, and special computer accommodations for users with disabilities. Printing is available in the InfoArcade and labs.

Loan Periods

Undergraduates may borrow materials for four weeks; graduate students for 90 days. Overdue fines accrue at the rate of twenty-five cents per day. All fines must be paid before registration for the following semester.

Contact Information

For additional information about the Library, inquire at the User Services Desk, (256) 824-6530, the Reference Desk, (256) 824-6529, Interlibrary Loan, (256) 824-6124, Twitter @uahEref, SMS Text to (256) 824-286-2368, Email at erefq@uah.edu. Library home page is: http://lib.uah.edu.

Cooperative Education and Career Development Program

Kellee Crawford, Career Programs Manager
111 Madison Hall
Telephone: (256) 824-6741
Email: chargerjobs@uah.edu
Web page: www.uah.edu/ssc/programs/career-development

The Cooperative Education and Career Development program offers a comprehensive career development process that includes career coaching, major and career assessment, job search assistance, on and off campus recruiting, and multiple experiential learning options for UAHuntsville students. Cooperative Education provides a unique, structured educational experience that allows students to gain practical, professional work experience while completing degree requirements. Through the integration of classroom theory and professional practices, students increase their understanding of the world of work.

The Cooperative Education program offers alternating and concurrent parallel options. Students working on an alternating schedule rotate semesters of full-time study with semesters of full-time work in their majors. Some students may complete continuous parallel (part-time work) assignments concurrently with a reduced class load. Co-op work experiences are progressive in responsibilities, monitored by the University, and directly related to the students' academic and career goals. Students participating in Cooperative Education are required to register their co-op through the Office of Cooperative Education and Career Development.

UAHuntsville has an excellent Co-op program, and our students have been recognized at the university, state, and national levels for their outstanding academic and career achievements.

Co-op is open to all majors at UAHuntsville, and students in all disciplines are potential candidates for Co-op positions. All UAHuntsville students – regardless of race, color, religion, sex, age, national origin, disability or veteran status – are eligible to co-op.

Honors College

Dr. Harry S. Delugach
336 Morton Hall
Telephone: (256) 824-6450
honors.uah.edu

The Honors College at the University of Alabama in Huntsville provides academically talented undergraduate students with opportunities to develop their special talents and skills within an expanded and enriched curriculum. Honors coursework takes the place of regular courses. The courses include special interdisciplinary seminars and opportunities for internships, independent study and research, including the opportunity to work closely with faculty on special student projects. Participating students also benefit from the interaction the Honors College affords with other talented and highly motivated students.

The Honors College serves academically talented students in all the colleges. Entering freshmen are invited to participate based on an evaluation of their ACT or SAT scores and high school grades. Students are encouraged to join the Honors College at the beginning of their freshman year to gain full advantage of the program's benefits and enhanced curriculum. Interested current and transfer students who have maintained a grade-point average of 3.25 or higher and who have completed less than 29 hours of overall coursework can still complete all requirements of the Honors College. Those who have more than 29 hours of credit may complete the Certificate for Completion of the Upper-level Requirements of the Honors College. The Certificate requires 12 hours of Honors course work, including 6 hours at the 300 level or above (including at least 3 hours of HON 399: Honors Interdisciplinary Seminar), plus an approved Honors Thesis. Students are encouraged to contact the Honors Office to determine how they may best participate in the college.

Students who wish to complete the Honors Diploma must earn a minimum of 24 hours in Honors course work by graduation, maintain a 3.25 grade point average, and they must submit an approved Honors Thesis. Theses may be done either in HON 499: Honors

Research/Creative Project or in conjunction with capstone or independent study courses in the student's major or minor.

Students who plan to complete the Honors Thesis through courses in their major or minor submit an Honors Thesis Proposal form identifying those classes so that they may count toward the Honors Diploma. A maximum of 6 semester hours in courses in which the student works on the Honors Thesis may be included in the 24-hour minimum for the Honors Diploma.

Honors courses typically serve in the student's curriculum as courses to satisfy the GER, major and minor requirements, and electives, so they do not constitute additional hours overall. Individual courses of study will vary depending on the student's discipline. To fully complete the Honors College program of study, however, all students need to complete at least two hours of Honors Lecture Series (HON 100) and two Honors courses (6 hours) at the 300-level or above, including an Honors Thesis. Students may count no more than three hours of HON 100 toward the 24-hour requirement. All entering freshman Honors students will enroll in EH 105: Honors English Seminar (3 hours). Students may complete additional hours by taking other designated Honors courses in a wide variety of disciplines. Students may also arrange for Honors credit in any regular academic courses (including in his or her major or minor) with permission from the instructor, whereby a student enters into an Honors Contract for Honors credit for that course.

Most Honors course offerings are through Honors sections taught in regular departments, so students should check the catalog course listings for each department. All courses offered for Honors credit each semester are also listed on the Honors web site. Courses specifically developed for the Honors College are listed below. Non-Honors students who meet appropriate admissions standards for the Honors College may enroll in Honors courses.

HON 100 - Honors Lecture Series

P

Hours: 1

Regularly scheduled to enrich the experiences of Honors College students using lectures, concerts, exhibits, and other events. Provides exposure to a broad range of academic disciplines. Prerequisites: Admission to Honors College.

HON 120 - Honors Inquiry

P

Hours: 1.0.

Principles and practice of legitimate inquiry in academic disciplines as well as in public policy. Evaluation of arguments offered in the popular press. Principles of valid reasoning and the process of supporting accepted ideas in academic disciplines through the use of evidence, such as published papers/monographs and expert opinions.

HON 200 - Honors Leadership Practicum

P

Hours: 1.0.

Students will learn how to use communicaiton, leadership and motivational skills to improve the Honors mentoring program and build an Honors community on campus. Students will perform research on leadership and community-building techniques using both technology and hands-on skills. Planning, conducting and evaluating their own mentoring and community-building activities. Students will document their process, including a communication plan, implementation plan and evaluation procedures.

Restriction: sophomore standing, membership in the Honors Program, permission of instructor.

EH 105 - Honors English Seminar

P

Hours: 3

Interpretive and comparative readings in texts of enduring intellectual, esthetic, and ethical importance; critical and analytic writing and research. Grading Scale: A, B, C, D, F. Minimum grade of C- required to advance to 200-level English classes. Prerequisites: Formal admission to the University Honors College.

EH 209 - Honors Seminar in Literature and Culture I

P

Hours: 3.

Critical analysis of texts from ancient times through the Age of Discovery. The course offers an in-depth examination of important works and their cultural contexts in a seminar format. Prerequisites: EH 105 or admission to the Honors College.

EH 210 - Honors Seminar in Literature and Culture 2

P

Hours: 3.

Critical analysis of texts from the Age of Discovery through the present. The course offers an in-depth examination of important works and their cultural contexts in a seminar format. Prerequisites: EH 105 or admission to the Honors College.

MAE 395 - Selected Topics in Mechanical and Aerospace Engineering

Hours: 1-3

HON 399 - Honors Interdisciplinary Seminar

Hours: 3

Interdisciplinary study of a selected topic. The seminar will facilitate serious appraisal of an issue that crosses disciplinary boundaries and that can be explored using different scholarly methodologies. Topic changes each time course is offered.

HON 400 - Honors Internship

Hours: 1-6

Active involvement in a business enterprise, professional organization, or government agency that has particular interest and relevance to the student's course of study. The outside entity must identify a mentor who will keep in regular contact with the study. The outside entity must identify a mentor who will keep in regular contact with the student . Requires the student to maintain a log of activities and produce a semester-end report. Course grade will be given on a satisfactory (S)/unsatisfactory (U) basis. Approval of the Director of the Honors College. Restriction: Open only to active members of the Honors College.

HON 499 - Honors Thesis

Hours: 1-3

Individual research under direction of a faculty advisor. May be taken for up to 6 semester hours of credit.

For more information concerning the Honors College, please write the Director of the Honors College, The University of Alabama in Huntsville, Morton Hall 336, Huntsville, AL 35899, see the web site at honors.uah.edu or telephone 256-824-6450; email: honors@uah.edu

Prelaw Program

To be admitted to an accredited law school, the student must have a bachelor's degree, an acceptable score on the Law School Admissions Test (LSAT), and, in most cases, an accumulative grade point average of B or better. The LSAT should be taken in June or October of the year before the student plans to enter law school. Applications to law school, together with test scores, transcripts, and recommendations, should be submitted to law schools no later than January 1 of the year the student plans to begin law school.

For specific admission requirements, the student should consult the catalog of the law school he or she wishes to attend. In pursuing a prelaw program at the University of Alabama in Huntsville, the student will find that the best preparation during the first two years is the completion of the general education requirements. The Statement on Prelegal Education of the Association of American Law Schools notes that "What law schools seek in their entering students is not accomplishment in mere memorization but accomplishment in understanding, the capacity to think for themselves, and the ability to express their thoughts with clarity and force." The prelaw student therefore must develop perception and skill in the English language, insight into the institutions and values with which people are concerned, and the power to think clearly, carefully, and independently. Since these skills are fostered by the general education requirements, completion of them should be the primary concern of the beginning prelaw student.

No law school recommends a particular major or minor as preparation for admission. Students should therefore design their program of study with the aim of further development and promotion of the skills listed above. Care should be taken in choosing electives. Aside from the courses in the general education requirements, the prelaw program often includes courses in political science, economics, philosophy (especially logic), American history, English, statistics, and computer science. One course in accounting is recommended. Since admission to law school is highly competitive, completion of recommended programs and requirements will not necessarily insure admission.

All prelaw students should seek academic counseling from the prelaw advisor, Professor Andrew Cling, in the Philosophy Department (MH 325, 824-2334). The official Prelaw Handbook may be consulted in his office or ordered from the Law School Admissions Services, Box 2000, Newtown PA 18940.

Pre-Health Advisement of Programs

Pre-health advisement is offered through the UAHuntsville Office of Pre-Health Advising and Pre-professional Advisory Committee.

Pre-professional health programs of study could include:

- Allopathic medicine
- Osteopathic medicine
- Dentistry
- Optometry
- Veterinary medicine
- Pharmacy
- Physical therapy
- Occupational therapy
- Physician Assistant
- Public Health
- Graduate studies in health related areas like epidemiology, health behavior sciences, rehabilitation sciences, audiology, health care organization, and more.

The Office of Pre-Health Advising offers academic preparatory options, which are flexible and provide a broad enough background to satisfy a wide variety of career objectives, including the diverse fields in the health professions.

For some professional schools, acceptance might be dependent on good grades (i.e. above average), positive recommendations (e.g. employers, faculty), health related experiences (3.g. volunteering, shadowing, internships), quality interview skills and acceptable admissions test scores (e.g. Medical College Admission Test, Dental Admission Test, Optometry Admission Test). The Office of Pre-Health Advising can assist students in building their application for their professional school.

Many students entering professional schools (e.g. medical, dental, optometry) do so after earning an undergraduate and/or graduate degree. No particular academic major or minor is preferred. However, it is very important to consult with the desired professional school to determine specific admission requirements. Competition for admission to professional schools is very intense and students should realize that completion of only the minimum admission requirements does not insure acceptance.

Typical of the requirements for admission start with these courses, but require more to gain admission:

1. English: composition and literature 12hrs
2. General biology with laboratory 8 hrs (Additionally recommended: genetics, biochemistry, microbiology, cell biology, physiology)
3. General chemistry with laboratory 8 hrs
4. General physics with laboratory 8 hrs
5. Organic chemistry with laboratory 8 hrs
6. Two semesters of college mathematics 6 hrs
7. General Social and Behavioral Sciences 6 hrs

Students are advised to choose programs of study according to individual interests and abilities so that they may fulfill their maximum academic potential.

Each professional school of interest will have a different requirements, both in and out of class, and meeting with your Pre-Health Advisor in The Office of Pre-Health Advising and Academic Advisor within your major is important in meeting these requirements.

The Pre-Health Advisor is Dana Parcher and The Office of Pre-Health is located in 302P Shelby Center

Website: www.uah.edu/prehealth

Email: Dana.Parcher@uah.edu

Undergraduate Colleges, Majors and Degrees

The undergraduate academic programs of the University of Alabama in Huntsville are administered by five colleges with the following approved major programs:

College of Business Administration

Areas of study in which majors are currently offered are:

- Accounting
- Information Systems
- Finance
- Marketing
- Management

Courses are also offered in business law and management science.

College of Liberal Arts

Areas of study in which majors are currently offered are:

- Art & Art History
- Concentration in Foreign Languages and International Trade
- Communication Arts
- Elementary Education
- History
- English
- Music
- Foreign Language
- Philosophy
- French
- Political Science
- German
- Psychology
- Russian
- Sociology
- Spanish

Other areas with course offerings are computer-mediated communication, Japanese, Latin, linguistics, statistics, women's studies, and physical education. Secondary Education is done in conjunction with the major area of study.

College of Engineering

Areas of study currently offered are:

- Chemical Engineering
- Electrical Engineering
- Civil Engineering
- Industrial and Systems Engineering
- Mechanical Engineering
- Computer Engineering
- Optical Engineering
- Aerospace Engineering Option in Mechanical Engineering

College of Nursing

All majors receive instruction in the theory of nursing as well as laboratory practice in a variety of clinical settings to prepare them for beginning-level practice in professional nursing. Graduates of this first professional degree are qualified to apply for licensure as registered nurses.

College of Science

Areas of study in which majors are currently offered are:

- Biological Sciences
- Mathematics
- Chemistry
- Physics
- Computer Science

Courses are also offered in atmospheric and environmental science, astronomy, optics, and statistics.

Degrees Offered

Programs are provided as indicated below for the undergraduate degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Science, Bachelor of Science in Business Administration, Bachelor of Science in Engineering, and Bachelor of Science in Nursing.

Bachelor of Arts - Art and art history, biological sciences, communication arts, elementary education, English, foreign language, history, mathematics, music, philosophy, political science, psychology, sociology.

Bachelor of Fine Arts - graphic design, painting/drawing, photography, printmaking, and sculpture.

Bachelor of Science - biological sciences, chemistry, computer science, mathematics, physics.

Bachelor of Science in Business Administration - accounting, finance, management, information systems, marketing.

Bachelor of Science in Engineering - unified programs with professional specializations.

Bachelor of Science in Nursing - unified professional curriculum.

Dual Degree/Second Bachelor's Degree

A student may choose to have a double major and earn one degree. (See Double Major.) The following policy applies to those students who wish to earn two degrees simultaneously (see Dual Degree) or sequentially to a first degree (see Second Bachelor's Degree). As early as possible, a student should meet with an assigned faculty advisor to indicate on the Program of Study form the intent to pursue a second degree. The Program of Study form must specify the requirements for each degree and contain the approval of the appropriate chairs and dean(s).

Dual Degree

If a student elects to earn a second degree simultaneously with a first degree (e.g., B.A. and B.S.), the student must: (1) satisfy all applicable requirements for each degree; (2) earn at least a C average in all UAHuntsville coursework; (3) complete a minimum of 128 hours in the combined degree program; and (4) complete majors and/or minors appropriate to the degrees (a major for one degree may count as a minor for the other degree).

Second Bachelor's Degree

If a student elects to earn a second degree at UAHuntsville after having earned a first degree at UAHuntsville or another institution (e.g., B.A. after earning a B.S.B.A.), the student must: (1) satisfy all applicable requirements for each degree; (2) earn at least an average grade of C in all UAHuntsville coursework; (3) complete a minimum of 25% of the total degree requirements at UAHuntsville for the second degree; and (4) complete majors and/or minors appropriate to the degrees (a major for one degree may count as a minor for the other degree). A specific course required for both the first and second degree does not have to be repeated; however, only courses completed after the first degree will be applied to the minimum number of hours required for the second degree.

Graduation with honors recognition for the second bachelor's degree requires a minimum of 60 semester hours of coursework taken at UAHuntsville above the requirements for the first bachelor's degree. Honors will be determined by the grade-point average for the last 60 semester hours of coursework taken at UAHuntsville above the requirements for the first bachelor's degree or all coursework taken at UAHuntsville above the coursework for the first baccalaureate degree, whichever is higher. Honors calculation for the second bachelor's degree follows the same procedures as graduation honors for the first baccalaureate degree.

Double Major

With approval of the two appropriate departments, a student who wishes to concentrate in two disciplines may pursue a program of study that leads to a B.A. or B.S. degree with a double major. The minor requirement is waived for students with double majors. General education requirements and all requirements stipulated for each of the two majors must be completed. The total requirements of some programs may exceed 128 semester hours.

Declaring a Major

When applying to enter UAHuntsville, prospective students may declare a major or program of study. Some students are not yet decided, and may declare "undecided". The Colleges of Administrative Science, Engineering, Liberal Arts, Science and Nursing assign advisors. Undecided students will be advised by General College Student Advising (GCSA) in room 108, Madison Hall. When a student declares a major, the student will be assigned an advisor by the department chair. At that time the complete advising folder will be transferred from GCSA to the relevant department chair for permanent retention. Sophomores who have not declared a major will continue to have their registration forms signed in GCSA. For procedures in the Colleges of Administrative Science, Engineering, Liberal Arts, and Nursing, contact the advising office of the college.

Minors and Cognates

Most degree programs in the Colleges of Liberal Arts and Science require either a minor or a cognate. Typically minors are offered in all major fields of study and require 18 to 21 hours of work, twelve of which are at the 300/400 level; students should consult their advisors and the appropriate subject area portions of the catalog. Students may also fashion a cognate in lieu of a minor. Cognates are drawn from two or more closely related disciplines and consist of a minimum of 21 hours. Advisors and deans must approve cognates.

Many degree programs that have extensive core requirements for majors do not have a minor or cognate component. Students, however, may opt to add a minor or cognate to their programs of study. Again, students should work closely with their advisors in constructing their programs of study to insure timely completion of their degrees.

Program of Study

The Program of Study form is a document prepared cooperatively by a student and a faculty advisor, with assistance of the Office of Student Records in preparing the evaluation of transfer credits and reviewing general education requirements. Academic departments and colleges must assume responsibility for ensuring that each of their students has an opportunity to develop a Program of Study before the end of the student's sophomore year. Once the Program of Study form has been accurately completed and signed by the appropriate individuals, it becomes a contract between the student and the University with responsibilities bearing on both parties.

Change of College

Students who are pursuing a program of study in one college at UAHuntsville and desire to change to a program in another college may petition to do so by making application at the Office of Student Records. Academic advisement before changing programs may help students avoid losing credits. Application of previously earned credits toward the new program will be determined after the transfer has been approved.

Core Competencies for General Education Requirements

The University of Alabama in Huntsville is committed to four core competencies that serve as the foundation for undergraduate general education requirements. These four core competencies are:

1. Effective communication;
2. Ability to deal with questions of values, ethics, and aesthetics as represented in literature, the humanities, and the arts;
3. Understanding of the scientific method and application of quantitative or inductive reasoning; and
4. Understanding of human behavior and economic, social, and political structures as represented in the disciplines of history and social and behavioral sciences.

These core competencies are consistent with those of a State of Alabama mandated articulation agreement under ACT 94-303, which ensures the transferability of credits from the State's two-year institutions to its four-year institutions.

Army ROTC Program

Through the visiting student program, students at the University of Alabama in Huntsville may enroll in the ROTC Program in the Department of Military Science at Alabama A& M University. A prescribed course of study under the program prepares graduates for positions of officer leadership within the national defense structure. Depending upon qualifications students may enroll either in a basic or advanced course of study in the ROTC Program. Specific requirements and a description of the courses of study are provided in the current Alabama A&M catalog. Students interested in participating in this program should contact the Department of Military Science at Alabama A & M University and the Office of Student Records at the University of Alabama in Huntsville.

Introduction to University Life

Introduction to University Life (UNV 101) is a course designed to facilitate the successful transition of new students into the UAHuntsville community. This one credit hour elective course will assist students in the development of academic and personal skills that contribute to success in college, the workplace, and lifelong learning. The education strategy for the course includes cooperative learning, guided discovery activities, journal writing and various assessment measures.

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John C. Gregory, B.Sc., Ph.D.	Director, Space Grant Consortium
Emanuel Waddell, I.B.S., M.S., Ph.D.	Campus Director, Alabama Alliance for Minority Participation and Bridge Program

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Faculty

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Faculty

P H

- Full Time Faculty
- Part Time Faculty
- Emeriti Faculty

Full Time Faculty

(Date refers to original appointment to the university; asterisk designates Graduate Faculty.)

ABELL, MARIN, B.F.A., (James Madison University), M.F.A. (Ohio University). Visiting Assistant Professor of Art and Art History, 2011. Research Interest: Sculpture that takes the form of sculptural events that explore individual and cultural identities. Email: marin.abel@uah.edu

ADAMS, ELLISE, B.S.N. (The University of Alabama in Huntsville), M.S.N. (Case Western Reserve University). Clinical Associate Professor of Nursing, 2006. Research Interests: Intrapartum nurses as doulas: increasing training in supportive behaviors to aid in the reduction of cesarean rates, length of labor and anesthesia and analgesia. Email: ellise.adams@uah.edu

ADHAMI, REZA, B.S.E., M.S.E., Ph.D. (University of Alabama, Huntsville). Chair and Professor of Electrical Engineering, 1984.* Research Interests: Digital signal processing, digital image processing, pattern recognition, data compression, and digital communications. Email: adhami@ece.uah.edu

AI, SHANGBING, B.S., M.S. (Shandong University), Ph.D. (University of Pittsburgh), Associate Professor of Mathematical Sciences, 2002.* Research Interests: Differential equations and dynamical systems. Email: ais@math.uah.edu

ALEWINE, HENRY C., B.A. (Coker College), M.A.C.C., Ph.D. (University of South Carolina), Assistant Professor of Accounting, 2011. *Research Interests: Management Accounting. Email: hank.alewine@uah.edu

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Languages and Literatures and Professor of German, 1982. Research Interests: German modernism, Franz Kafka, Walter Benjamin, Discourse of the city, literary theory and cultural studies. Email: goebelr@uah.edu

GRAMM, CYNTHIA L., B.S. (University of Illinois), M.A. (Michigan State University), M.A., Ph.D. (University of Illinois). Professor and Chair of Management, Marketing, and Information Systems 1990.* Research Interests: Social networks in teams, determinants of employee EEOC complaints and lawsuits. Email: grammc@uah.edu

GRAVES, SARA J., B.S., M.A. (University of Alabama, Tuscaloosa), Ph.D., (University of Alabama, Huntsville). University Professor and Director of the Information Science and Technology Laboratory, 1978.* Research Interests: Interoperable distributed information systems, data mining and knowledge discovery, high performance computing and networking, grid technologies and data security. Email: sgraves@itsc.uah.edu

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GUPTA, JATINDER N.D., B.E. (University of Delhi), M.Tech. (Indian Institute of Technology), Ph.D. (Texas Tech University), Professor and Eminent Scholar In Management, 2002.* Research Interests: technology management, e-commerce, supply chain management, operations management, scheduling, planning and control, information systems, educational curriculum, academic administration, enhancing the delivery of instructional material through advanced technologies including distance learning, and organizational effectiveness. Email: guptaj@uah.edu

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HAN, QINGYUAN, B.S., M.S. (Peking University), M.Ph., Ph.D. (Columbia University). Associate Professor of Atmospheric Science, 1997.* Research Interests: Satellite cloud climatology, remote sensing, and radiative transfer. Email: han@nnstc.uah.edu

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HARWELL, DAVID, B.F.A. (University of Montevallo), M.F.A. (University of Illinois). Associate Professor of Communication Arts, 2005*. Creative Interests: set design, theater production. Email: harweld@uah.edu

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HEERIKHUISEN, JACOB, B.C.M.S, M.C.M.S., Ph.D. (University of Waikato). Assistant Professor of Physics, 2008.* Research Interests: interaction of the solar wind with the interstellar medium, the role of energetic neutral atoms in shaping the heliosphere and what their properties can tell us about the distant solar wind, interstellar dust in the inner heliosphere and its properties as a function of the topology of the heliospherice interface, magnetic reconnection as an energy release mechanism in the solar corona. Email: jh0004@uah.edu

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HOY, HALEY, B.S.N. (University of Alabama Huntsville), MSN (University of Alabama Huntsville). Dual Nurse Fractioned Licensure (Tennessee, Alabama). Ph.D. (Vanderbilt University). Clinical Assistant Professor of Nursing, 2008.* Research Interests: Role of nurse practitioners in transplant. Email: haley.hoy@uah.edu

HSU, LI-WU, B.B.A. (National ChengChi University), M.B.A. (National Dong-Hwa University, Taiwan), M.A.(University of Pittsburgh, PA), Ph.D. (Boston University). Assistant Professor of Marketing, 2012. Research Interests: Contributes to the literature on branding, firm valuation and risk by examining the role of brand equity in an environment characterized by Web 2.0, brand portfolio strategy effects on firm performance and influence of strategic emphasis in franchised channels on shareholder value. Email: liwu.hsu@uah.edu

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LAWTON, ROBERT O., B.S. (Duke University), Ph.D. (University of Chicago). Professor of Biological Sciences, 1980.* Research Interests: Forest ecology, plant community responses to natural disturbance, social behavior of Neotropical corvids, ecology of plant natural chemical products. Email: lawtonr@uah.edu

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Center, 2004. Email: lenahans@uah.edu

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LE REUX, JAKOBUS, B.Sc. (University of Stellenbosch). B.Sc. (University of Stellenbosch). M.Sc. (University of Potchefstroom). Ph.D. (University of Potchefstroom). Associate Professor of Physics 2008.* Email: jar0013@uah.edu

LI, GANG, B.S. (Tsinghua University), M.S., Ph.D. (Indiana University). Assistant Professor of Physics 2008.* (Research Interests: Particle acceleration and transport in the heliosphere, solar energetic particle events and space weather, MHD turbulence property of the solar wind, numerical astrophysics, Monte-Carlo techniques and stochastic differential equation. Email: gl0001@uah.edu

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PICCIRILLO, JOHN, Ph.D. (Indiana University, Bloomington). Adjunct Professor of Electrical and Computer Engineering, 2010.

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ROBEY, LAWRENCE, B.S. (University of Kentucky), M.D. (University of Kentucky, College of Medicine). Adjunct Professor of Nursing,

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BILLINGS, C. DAVID, B.S. (Southwest Missouri State University), Ph.D. (University of Missouri, Columbia). Dean, College of Administrative Science and Professor of Finance, 1981.

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- Communication Arts, BA
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- English, BA
- Foreign Languages, BA
- History, BA
- JUMP Program in Political Science
- Liberal Arts, General Education Requirements
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- Political Science, BA
- Psychology, BA
- Sociology, BA
- Studio Art, BA
- Studio Art, BFA

Bachelor of Science

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- Biological Sciences, B.S.
- Chemistry, BS
- Computer Science, BS
- Earth System Sciences, BS
- Earth System Sciences, BS-Masters
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- Mathematics, BS-Masters
- Physics, BS
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- Atmospheric Science Minor
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